

PART I

NOTES FOR TENDERERS

Provision of the Ticketing System and Operation Services to the Leisure and Cultural Services Department

1. TENDER DOCUMENTS

1.1 These tender documents, identified as LCT 5012/19(S), comprise the following documents (collectively “Tender Documents”):

- 1.1.1 Part I - Notes for Tenderers and Annexes A to C
- 1.1.2 Part II - Conditions of Tender and Annexes A to C
- 1.1.3 Part III - Articles of Agreement
- 1.1.4 Part IV - Conditions of Contract and Annexes A to F
- 1.1.5 Part V - Contract Schedules
- 1.1.6 Part VI - Offer to be Bound
- 1.1.7 Part VII - Project Specifications and Annexes A to F

Unless otherwise defined, each of the above documents constituting the Tender Documents shall be referred to by its name and/or the relevant part number as specified above.

2. LODGING OF TENDER

2.1 Paper-based Tendering

- 2.1.1 A Tender, properly completed, must be addressed to the Chairman, Central Tender Board and placed in the Government Secretariat Tender Box situated at Lobby of the Public Entrance on the Ground Floor, East Wing, Central Government Offices, 2 Tim Mei Avenue, Tamar, Hong Kong before **1200 hours on 14 February 2020 (Fri) (Hong Kong time)**.
- 2.1.2 The Tender shall be put in two sealed plain envelopes (without bearing any identification of the Tenderer) as follows:

The Price Proposal only shall be put in an envelope and marked as:
“Price Proposal - Tender for the Provision of the Ticketing System and Operation Services to the Leisure and Cultural Services Department, Tender Ref. LCT 5012/19(S)”.

The Technical Proposal only shall be put in another envelope and marked as:
“Technical Proposal - Tender for the Provision of the Ticketing System and Operation Services to the Leisure and Cultural Services Department, Tender Ref. LCT 5012/19(S)”.

- 2.1.3 The Technical Proposal and Price Proposal shall then be enclosed in one (1) sealed plain envelope marked “Tender for the Provision of the Ticketing System and Operation Services to the Leisure and Cultural Services Department, Tender Ref. LCT 5012/19(S)” and shall be deposited in the Government Secretariat Tender Box in accordance with the instructions specified in Clause 2.1.1 of this Part.
- 2.1.4 The items that shall be included in the Technical Proposal and the Price Proposal are detailed in Clause 4.3.1 of Part II.

2.2 Late Tenders

- 2.2.1 A late Tender or a Tender not submitted in accordance with the submission method stipulated in Clause 2.1.1 of this Part, including a Tender submitted by facsimile or e-mail, will not be considered further.

3. MODIFICATION OF TENDER

- 3.1 Before the Tender Closing Date, a Tenderer who has lodged a Tender may modify its Tender as considered necessary.
- 3.2 Any modification to the submitted Tender considered necessary by the Tenderer shall be the subject of a separate letter accompanying the Tender. Figures shall not be altered or erased; any modification shall be effected by striking the incorrect figures and inserting the correct figures in ink above the original figures. All such amendments shall be initialled by the Tenderer in ink.

4. TENDER CLOSING TIME IN CASE OF TROPICAL CYCLONE / RAINSTORM

- 4.1 In case Tropical Cyclone Warning Signal No. 8 or above is hoisted, or a Black Rainstorm Warning Signal or “extreme conditions after super typhoons” announced by the Government is/are in force for any duration between 9:00 a.m. and 12:00 noon on the date specified in the Clause 2 “Lodging of Tender” of this Part I, the tender closing time will be deferred to 12:00 noon on the next weekday (i.e. except Saturday and General Holiday) after the Tropical Cyclone Warning Signal No. 8 or above, or Black Rainstorm Warning Signal or “extreme conditions after super typhoons” announced by the Government is cancelled.
- 4.2 In case of blockage of the public access to the location of the Specified Tender Box at any time between 9:00 a.m. and 12:00 noon on the Tender Closing Date, the Government will announce extension of the tender closing time until further notice. Following removal of the blockage, the Government will announce the extended tender closing time as soon as

practicable. The above announcements will be made via press releases on the website of Information Services Department (<http://www.info.gov.hk/gia/general/today.htm>).

- 4.3 The Government reserves the right to extend at its sole discretion the Tender Closing Date at any time and from time to time.
- 4.4 The Government shall not have or accept any liability, obligation or responsibility whatsoever for any loss of, destruction of or damage to the tender submission submitted and/or deposited by Tenderers in the Specified Tender Box if such loss, destruction or damage shall be caused by or directly or indirectly due to any outbreak of war, hostilities (whether war be declared or not), invasion, acts of foreign enemies, riot, civil commotion, rebellion, storm or other cause whatsoever beyond the reasonable control of the Government. Following any event which results in such loss, destruction or damage, the Government will announce any arrangements concerning tender submission as soon as practicable. The above announcements will be made via press releases on the website of Information Services Department (<http://www.info.gov.hk/gia/general/today.htm>)

5. SUPPLEMENTARY INFORMATION/TENDER ADDENDA

- 5.1 All supplementary information or tender addenda to this Invitation to Tender will be provided in writing by the Government and forwarded to all prospective Tenderers who have registered with the Government when obtaining a copy of the Tender Documents.

6. TENDERERS' ENQUIRIES

- 6.1 Any enquiries from a prospective Tenderer concerning these Tender Documents shall be made in writing to the Director of Leisure and Cultural Services (Attn: Principal Supplies Officer) in the following manner no later than five (5) working days prior to the Tender Closing Date:
- 6.1.1 by facsimile on (852) 2684 9634; or
- 6.1.2 by mail to the Director of Leisure and Cultural Services (Attn: Principal Supplies Officer), 9th Floor, Leisure and Cultural Services Headquarters, 1-3 Pai Tau Street, Sha Tin, New Territories.
- 6.2 After lodging a Tender with the Government, the Tenderer shall not attempt to initiate any further contact, whether direct or indirect, with the Government on its Tender or the Tender Documents. The Government shall have the sole right to initiate any such further contact and all such contacts and any replies of the Tenderer thereof shall be in writing or formally documented in writing.

7. DOCUMENT REVIEW

- 7.1 The “Technical System Options of the Next Generation Urban Ticketing System (URBTIX)” is made available for Tenderers’ inspection before the Tender Closing Date at LCSD’s premises upon written request in the form set out at Annex A to this Part to the Ticketing Office (Attn.: Manager (Ticketing)2 on Fax No.: (852) 2312 6244) together with the Non-Disclosure Undertaking at Annex B to this Part. Upon receipt of these documents by the Government no later than seven (7) days preceding the Tender Closing Date, the prospective Tenderer will be notified by the Government of the viewing arrangement.

8. TENDER BRIEFING SESSION

- 8.1 A tender briefing session will be held, tentatively scheduled on 13 January 2020 (Mon) at 3:00 p.m. at Lecture Hall, LG/F, Hong Kong Heritage Discovery Centre, Kowloon Park, Haiphong Road, Tsim Sha Tsui, Kowloon, Hong Kong. Although attendance at the tender briefing session is not compulsory, prospective Tenderers are encouraged to participate. A prospective Tenderer who wishes to attend the briefing session is requested to complete the reply slip at Annex C to this Part together with the Non-Disclosure Undertaking at Annex B to this Part if the Undertaking has not already been submitted to the Government and fax them to the Director of Leisure and Cultural Services Department (Attn: Manager (Ticketing)2, Ticketing Office) on (852) 2312 6244 on or before 9 January 2020 (Thu). The number of representatives of each Tenderer is limited to three (3) persons. Confirmation of registration will be issued to the Tenderer upon receipt of the signed reply slip. Late registration may not be accepted.
- 8.2 Questions for clarification at the tender briefing session may be submitted in writing to the Director of Leisure and Cultural Services Department (Attn.: Senior Manager (Ticketing), Ticketing Office) on fax no. (852) 2312 6244 on or before 9 January 2020 (Thu) (and with a copy thereof sent to the Director of Leisure and Cultural Services (Attn.: Principal Supplies Officer) on fax no. (852) 2684 9634).
- 8.3 In case Tropical Cyclone Warning Signal No. 8 or above is hoisted or a Black Rainstorm Warning Signal or “extreme conditions after super typhoons” announced by the Government is/are in force for any duration at or after 11:00 a.m. on 13 January 2020 (Mon), the tender briefing scheduled for that day will be cancelled. Unless otherwise announced, the briefing session will be held on the fall-back date on 14 January 2020 (Tue) at 3:00 p.m. at the same venue.
- 8.4 The schedule of the tender briefing session is subject to change at the sole discretion of the Government.

9. ENVIRONMENTAL PROTECTION

9.1 Environment-friendly Measures

- 9.1.1 It is recommended that the following environment-friendly measures be adopted in the

preparation of documents relating to a Tender and the future performance of the Contract:

- (a) all documents should be printed on both sides and on recycled paper. Paper that exceeds 80 gsm should not be used for the text;
- (b) use of plastic laminates, glossy covers or double covers should be avoided as far as possible. If art board paper has to be used as document covers, recyclable non-glossy paper should be used;
- (c) single line spacing should be used and excessive space in the margins and in between paragraphs should be avoided;
- (d) the use of packaging materials should be minimised; and
- (e) if the products are to be packed in a carton box, the carton box packaging should be made from 100% recovered fibre and must be strong enough for storage, stacking and transit.

9.1.2 In these Tender Documents:

- (a) “recovered fibre” means:
 - (i) postconsumer fibre; or
 - (ii) manufacturing wastes such as:
 - dry paper and paperboard waste generated after completion of the papermaking process; and
 - repulped finished paper and paperboard from obsolete inventories of paper and paperboard manufacturers, merchants, wholesalers, dealers, printers, converters, or others, but does not include mill broke.
- (b) “postconsumer fibre” means:
 - (i) paper, paperboard and fibrous wastes (including used corrugated boxes, old newspapers, old magazines and mixed waste paper) from retail stores, office buildings, homes and other premises, which have passed through end-usage as a consumer item; and/or
 - (ii) all paper, paperboard, and fibrous wastes that enter and are collected from municipal solid waste but excluding fibre derived from printers’ over-runs, converters’ scrap and over-issue publications.
- (c) “mill broke” means any paper waste generated in a paper mill prior to completion of the papermaking process, and such paper waste is usually returned directly to the pulping process.

REQUEST TO ACCESS THE TECHNICAL SYSTEM OPTIONS OF THE NEXT GENERATION URBAN TICKETING SYSTEM (URBTIX)

To: Ticketing Office,
Level 6, Administration Building,
Hong Kong Cultural Centre,
10 Salisbury Road, Tsim Sha Tsui,
Kowloon, Hong Kong.

Attn.: Manager (Ticketing)2

Fax No.: (852) 2312 6244

Tender Reference LCT 5012/19(S)

**Tender for the Provision of the Ticketing System and Operation Services to the
Leisure and Cultural Services Department (LCSD)**

(Please complete this form and send it by facsimile together with the signed Non-disclosure Undertaking at Annex B. The prospective Tenderer should note that the reading shall be completed before the Tender Closing Date.)

We wish to be granted access to “Technical System Options of the Next Generation Urban Ticketing System (URBTIX)” at the above address.

Name of prospective Tenderer with company chop: _____

Signature of person authorised to sign tender: _____

Name and post of person authorised to sign tender: _____

Telephone no./fax no.: _____

E-mail: _____

Date: _____

Duration of reading required with date(s) specified:* _____

Name(s) of prospective Tenderer’s representative(s)
(a maximum of two persons): _____

Note: *Please note that the above office will be open from 09:00 to 18:00 from Monday to Friday excluding public holidays during the tender invitation period. LCSD reserves the right to adjust the reading date(s) and duration without prior notice.

Non-Disclosure Undertaking for being Granted an Opportunity to Attend the Tender Briefing Session/Access to Government Documentation

We, the undersigned (“Potential Tenderer”)

in consideration of the opportunity to be given to us by the Government of the Hong Kong Special Administrative Region (hereinafter referred to as “Government”) in response to our request for attending the tender briefing session/access to Government documentation as referred to in Part I – Notes for Tenderers, hereby declare and undertake that:

(Unless otherwise defined herein, terms and expressions appearing herein shall have the meanings given to them in the Tender Documents issued by the Government and collected by us in connection with the captioned Invitation to Tender.)

1. All information, report and documentation made available to us is the sole property of the Government and we have no proprietary interest therein whatsoever (“Proprietary Information”)
2. We shall not, and shall ensure that our associates and associated persons, and our employees, officers, agents, advisers, and sub-contractors will not disclose the Proprietary Information to any other person without the prior written consent of the Government, provided that the restrictions on disclosure shall not apply (i) to the disclosure to any person employed or appointed by us in the preparation and submission of tender on condition that we will have imposed on such person an absolute and legally binding condition that he will be obliged to refrain from disclosing the same to another party (“permitted recipients”), (ii) to the disclosure of information already known to a recipient otherwise than as a result of us or a permitted recipient furnishing such information to that recipient in breach of this undertaking, (iii) to the disclosure of information which is or becomes public knowledge, other than due to the disclosure by us or a permitted recipient, and (iv) disclosure of information in circumstances where such disclosure is required pursuant to any law or an order of court of Hong Kong.
3. We undertake to use the Proprietary Information solely for the purpose of determining whether to submit a tender in response to the captioned Invitation to

Tender and if so, to prepare the tender, and not to use the Proprietary Information for any other purpose without the prior written consent of the Government.

4. We undertake not to retain in our custody or possession or to make any copies or recording of the Proprietary Information or any part thereof.
5. We shall indemnify and keep the Government, its authorised users, assigns and successors-in-title fully and effectively indemnified against all actions, demands, loss, damages, claims, costs, expenses (including without limitation the fees and disbursements of lawyers, agents and expert witnesses) and liabilities of whatsoever nature which the Government may suffer, incur or sustain as a result of any breach of this undertaking or otherwise any breach of confidence under general law (by us, our associates and associated persons, and our employees, officers, agents, advisers or sub-contractors).
6. The undertakings and obligations set out herein shall continue without limitation of time.
7. This undertaking shall be construed in accordance with the laws of Hong Kong and we hereby submit to the exclusive jurisdiction of the courts of Hong Kong in relation to any dispute arising from this undertaking.

Signed by an authorised signatory for and
on behalf of Potential Tenderer :

Name and post of person authorised to sign
this undertaking for and on behalf of the
Potential Tenderer :

Name of Potential Tenderer in English :

Name of Potential Tenderer in Chinese (if
applicable) :

Address of the Potential Tenderer :

Tel No. : _____ Fax No. : _____ Date : _____

REPLY SLIP FOR TENDER BRIEFING SESSION

To: Ticketing Office,
Level 6, Administration Building,
Hong Kong Cultural Centre,
10 Salisbury Road, Tsim Sha Tsui,
Kowloon, Hong Kong.

Attn.: Manager (Ticketing)2

Fax No.: (852) 2312 6244

Tender Reference LCT 5012/19(S)

**Tender for the Provision of the Ticketing System and Operation Services to
the Leisure and Cultural Services Department (LCSD)**

Tender Briefing Session

I would like to attend the briefing session held at 3:00 p.m. on 13 January 2020 (Hong Kong time) at Lecture Hall, LG/F, Hong Kong Heritage Discovery Centre, Kowloon Park, Haiphong Road, Tsim Sha Tsui, Kowloon, Hong Kong.

Full Name of Representative(s)

Post/Title

Mr./Mrs./Ms/Miss _____

Mr./Mrs./Ms/Miss _____

Name of Company _____

Signature of Authorised Person: _____

Full Name of Authorised Person

(in block letters) : _____

Post Title of Authorised Person: _____

Telephone No. _____

Fax No. _____

Mobile phone No. _____

Pager No. _____

Notes:

- (a) Each prospective Tenderer can register no more than three representatives for the tender briefing session.
- (b) Please register on or before 9 January 2020. Late registration may not be accepted.

PART II

CONDITIONS OF TENDER

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Annexes

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1. General

- 1.1 **ALL TENDERERS ARE ADVISED TO READ THE INSTRUCTIONS CONTAINED IN THE NOTES FOR TENDERERS AND IN THESE CONDITIONS OF TENDER CAREFULLY PRIOR TO PREPARING THEIR TENDERS. THESE INSTRUCTIONS ARE THE CONDITIONS OF TENDER AND ANY TENDER WHICH DOES NOT FOLLOW THESE INSTRUCTIONS WILL BE CONSIDERED INCOMPLETE AND MAY NOT BE CONSIDERED FURTHER IN ACCORDANCE WITH THE RELEVANT PROVISIONS IN THE TENDER DOCUMENTS (OR WILL BE DISQUALIFIED WHEREVER IT IS EXPRESSLY STATED).**

2. Interpretation

- 2.1 Words and expressions appearing in these Tender Documents shall have the same meanings assigned to them in Part IV - Conditions of Contract or in other parts of the Tender Documents (to the extent they are defined therein), unless the context otherwise requires. The rules of interpretation set out in the Conditions of Contract in Part IV - Conditions of Contract shall apply throughout the Tender Documents.

- 2.2 In addition, where the context permits, the following definitions shall apply:

“ETO” means the Electronic Transactions Ordinance (Chapter 553 of the Laws of Hong Kong).

“Electronic Record” has the meaning given to it under the Electronic Transactions Ordinance (Chapter 553 of the Laws of Hong Kong).

“Invitation to Tender” means this invitation to tender for the Contract on the terms and conditions set out in the Tender Documents.

“Marking Scheme” (in upper or lower case) means the marking scheme set out in Annex C - Detailed Evaluation Criteria to this Part.

“Original Tender Closing Date” means the latest date by which Tenders must be lodged as stipulated in Clause 2 - Lodging of Tender of Part I - Notes for Tenderers, regardless of whether the date has been extended subsequently.

“Price Proposal” means the proposal containing the Tender prices quoted by a Tenderer as required under Clause 4.3.1.2 of this Part.

“Technical Proposal” means the proposal containing the technical information submitted by a Tenderer as required under Clause 4.3.1.1 of this Part.

“Tender” (in upper or lower case)	means a tender submitted by a Tenderer in response to the Invitation to Tender.
“Tender Closing Date”	means the latest date and time by which tenders must be lodged as stated in Part I - Notes for Tenderers as the same may be extended by the Government pursuant to any applicable provision in the Tender Documents.
“Tenderer”	means a person which has submitted a tender in response to this Invitation to Tender.
“Tender Documents”	has the meaning given to it in Clause 1 of Part I - Notes for Tenderers.
“working day”	means Monday to Friday, other than a public holiday (as defined in the Interpretation and General Clauses Ordinance (Chapter 1 of the Laws of Hong Kong)) or a day on which Tropical Cyclone Warning Signal No. 8 or above is hoisted or a Black Rainstorm Warning Signal or extreme conditions after super typhoons is in force for any duration between 0900 and 1200 hours in Hong Kong.

- 2.3 In addition, all definitions defined in the Marking Scheme including Part C (Definitions and Rules) of the Marking Scheme shall have the same meanings as they appear throughout the Tender Documents.

3. Invitation to Tender

- 3.1 Tenders are invited for the provision of the Ticketing System and Operation Services to the Leisure and Cultural Services Department as specified in the Project Specifications on a total solution basis in accordance with the Tender Documents.
- 3.2 The Tenderer is reminded that it shall submit all proposals and quotations requested in the Schedules of Part V - Contract Schedules and shall be wholly responsible for all products and services offered. A partial tender to offer some but not all parts of the System or some but not all part of the Services will not be considered further. The Government reserves the right to accept all or any part of the proposed products or services from a Tenderer.
- 3.3 The Tenderer should read the Tender Documents carefully prior to submitting a Tender and ensure that it understands all requirements of the Tender Documents.
- 3.4 The Tenderer should obtain such independent advice from its own advisers as it considers appropriate.
- 3.5 The Tenderer should check the numbers of pages of the Tender Documents. If it finds any missing or indistinct pages, it should inform the Government Representative immediately so that the same can be rectified.

- 3.6 It is the duty of the Tenderer to ensure that it fully understands the requirements of the Tender Documents. Should a Tenderer for any reason whatsoever be in doubt as to the precise meaning of any provision contained in the Tender Documents, it should consult its own legal and other advisers. Without prejudice to the foregoing, the Tenderer may consider writing to the Government to seek clarification at least five (5) days prior to the Tender Closing Date and the Government may at its discretion provide such clarification as it considers appropriate.
- 3.7 The Tenderer will be regarded to be thoroughly conversant with all aspects of the Tender Documents and in general to have obtained all necessary information of any circumstances which may influence or affect its Tender.
- 3.8 The Government appointed Arcotect Limited pursuant to a contract (contract reference no.: GCIO 5/11-1-C2-137) to provide a Feasibility Study on Future Development of the Urban Ticketing System (URBTIX) from August 2017 to July 2019 (“Feasibility Study Contract”). According to the Feasibility Study Contract, Arcotect Limited, and sub-contractors appointed by Arcotect Limited for the purposes of performing any work under the Feasibility Study Contract, and their respective associates and associated persons are prohibited from bidding for this Contract.

4. Tender Preparation and Submission

- 4.1 A Tender (including particularly the Offer to be Bound and the Contract Schedules) shall be completed in English and in accordance with other requirements of the Tender Documents. The Government may not consider a Tender that is completed in any other language. If any of its accompanying documents are not in English, a certified translation in writing of the document in English shall be submitted by the Tenderer.
- 4.2 Each Tenderer should read the instructions specified in the Tender Documents before completing the Schedules. **If a Tenderer fails to submit any of Schedules 1 to 8, 14 to 15, 17 to 21 and 23 of Part V - Contract Schedules, or a duly signed Part VI - Offer to be Bound by the Tender Closing Date, its Tender will not be considered further.**
- 4.3 Submission of Tender
- 4.3.1 A two-envelope system has been adopted in this tender exercise. Under this system, the Tenderer shall submit its technical information (“Technical Proposal”) and price information (“Price Proposal”) in two separate envelopes. The compositions of the Technical and Price Proposals are as follows:
- 4.3.1.1 Technical Proposal
- The Technical Proposal shall comprise the following documents and information:
- (a) the duly signed Part VI - Offer to be Bound;
 - (b) the duly completed Schedules 1 to 26 of Part V - Contract Schedules; and

(c) the information required in Clauses 5 to 12 of this Part.

4.3.1.2 Price Proposal

The Price Proposal shall comprise the duly completed Schedule 23 of Part V - Contract Schedules (“Price Schedule”). Each Tenderer shall ensure that information provided in the Price Schedule of Part V - Contract Schedules is **not** included in the Technical Proposal. The Tenderer should only include price quotations requested in the Price Schedule but not other price quotations not requested. If a Tenderer which has in contravention of this requirement submitted price quotations not requested in the Price Schedule, the Government reserves the power to disqualify the Tenderer concerned. Even if the Tenderer has not been disqualified, unless otherwise accepted by the Government on a case by case basis, the unsolicited price quotations will be ignored and will not form part of the Contract regardless of whether or not they are found in the copies of the Schedules forming part of the Contract.

4.3.2 Manner of Submission

4.3.2.1 The Tender shall be completed in ink or typescript and submitted in the following manner:

- (a) Three (3) sets of hard copies (one original and two photocopies) of the Technical Proposal together with two (2) sets of soft copies with the same content and in the format described in Clause 4.3.2.2 of this Part in a separately sealed plain envelope shall be submitted. The envelope shall be marked as “Technical Proposal - Tender for the Provision of the Ticketing System and Operation Services to the Leisure and Cultural Services Department, Tender Ref. LCT 5012/19(S)”;
- (b) Three (3) sets of hard copies (one original and two photocopies) of the Price Proposal together with two (2) sets of soft copies with the same content and in the format described in Clause 4.3.2.2 of this Part in a separately sealed plain envelope shall be submitted. The envelope shall be marked as “Price Proposal - Tender for the Provision of the Ticketing System and Operation Services to the Leisure and Cultural Services Department, Tender Ref. LCT 5012/19(S)”;
- (c) The Technical Proposal and the Price Proposal envelopes as described in Clause 4.3.2.1(a) and (b) of this Part shall then be enclosed in one (1) sealed plain envelope marked as “Tender for the Provision of the Ticketing System and Operation Services to the Leisure and Cultural Services Department, Tender Ref. LCT 5012/19(S)” and shall be deposited in the Government Secretariat Tender Box in accordance with the instructions specified in Clause 2.1.1 of Part I - Notes for Tenderers.

4.3.2.2 Pursuant to Clause 4.3.2.1 of this Part, the soft copies shall be prepared by using Microsoft Excel 2010 / Microsoft Word 2010 or compatible format. The soft copy of the Technical Proposal and the Price Proposal shall be stored in separate CD-ROMs and submitted in the sealed envelope together with their corresponding hard copies.

The soft copies of all documents in the CD-ROMs should have the “search” and “printing” options enabled.

4.3.2.3 In the event of an inconsistency between the hard copy and soft copy, unless the Government wishes to seek clarification, the hard copy shall prevail. In the event of any inconsistency between the original and photocopy, unless the Government wishes to seek clarification, the original shall prevail.

4.3.3 Not used

4.3.4 Excess Proposals

4.3.4.1 The Tenderer may wish to submit one or more proposals which exceed the original requirements set out in the Tender Documents for earning marks under the Marking Scheme (viz., “Excess Proposal” as defined in Part C of the Marking Scheme). An Excess Proposal may be set out in the proposed Execution Plan for assessment under Grouping A(I), or set out in the proposed Technical Solution for assessment under Grouping A(II), or an Innovative Suggestion for assessment under Grouping A(III), or a proposal on the nominee of the Project Manager for assessment under sub-grouping B(II)(1) and (2) or nominees of the key project staff for assessment under sub-grouping B(II)(3) of the Marking Scheme (where applicable).

4.3.4.2 Where the Tenderer wishes to submit an Excess Proposal to earn mark under an assessment criterion (regardless of the applicable sub-grouping or Grouping or Section of the Marking Scheme), the Tenderer must input the relevant Excess Proposal using the form in such part of the Tender Documents specified in the fifth column opposite such assessment criterion in Part B of the Marking Scheme or otherwise in a document clearly identified as being such part of the Tender Documents (using the same numbering and/or title) but excluding any ancillary tables specified in the fifth column if not applicable. Subject to any request for clarification which the Government may, but is not obliged to make, any alleged proposal set out in other part of the Tender or in a document not clearly identified as being such part of the Tender Documents will not be evaluated under the Marking Scheme, but may, at the option of the Government, form part of the Contract.

4.3.4.3 Each Excess Proposal shall be evaluated under one Grouping of any one Section only even if more than one Grouping of the same or different Section may be applicable. The Tenderer should specify the Grouping to which the Excess Proposal relates when inputting the Excess Proposal in the relevant parts of the Tender Documents (unless that relevant part of the Tender Document already specifies the applicable Grouping by default whereupon the default provision shall apply notwithstanding any contrary indication from the Tenderer).

4.4 Even if the mode of submission of tender by Electronic Tendering is available (where applicable), if the Tenderer is an unincorporated joint venture, the mode of Paper-based Tendering shall be used.

4.5 The Government may not consider a Tender if:

4.5.1 false, inaccurate or incorrect information is given in the Tender; or

- 4.5.2 complete proposals, quotations and information (including descriptive literature, catalogues and any other document required under any provision of the Tender Documents) have not been given with the Tender.
- 4.6 When completing the Tender (including the Offer to be Bound), the Tenderer shall ensure that the name of the Tenderer is the same as the name shown in:
- 4.6.1 if the Tenderer is a company incorporated in Hong Kong:
- (a) the Certificate of Incorporation of the Tenderer;
 - (b) if there is a change of name of the Tenderer since the date of its Certificate of Incorporation, the latest Certificate of Change of Name of the Tenderer; or
 - (c) the current business registration certificate issued under the Business Registration Ordinance (Chapter 310 of the Laws of Hong Kong).
- 4.6.2 if the Tenderer is a sole proprietorship or a partnership, the current business registration certificate of the Tenderer; or
- 4.6.3 if the Tenderer is formed, established or incorporated outside Hong Kong, a document equivalent to Clauses 4.6.1(a), 4.6.1(b), 4.6.1(c), or Clause 4.6.2 of this Part (as the case may be) issued by a governmental or competent authority of the place where the Tenderer is formed, established or incorporated. If the Tenderer is a successful Tenderer, to the extent all or any of the Services are required to be performed in Hong Kong, it shall still be required to obtain (a) a current business registration certificate issued under the Business Registration Ordinance (Chapter 310 of the Laws of Hong Kong) with a description of business nature consistent with the Services to be performed in Hong Kong under the Contract; and (b) a certificate of registration as a non-Hong Kong company under the Companies Ordinance, Chapter 622 of the Laws of Hong Kong as conditions to be fulfilled under Clause 28.2(g) of this Part (unless not specified as a condition required to be fulfilled in the conditional acceptance of tender or otherwise waived by the Government).
- 4.7 Execution and Submission of Tenders
- 4.7.1 Manner of Submission
- 4.7.1.1 Part VI - Offer to be Bound shall be duly signed by:
- (a) if the Tenderer is a sole proprietorship, the Tenderer;
 - (b) if the Tenderer is a partnership, a partner of the Tenderer signing in the name of the partnership;
 - (c) if the Tenderer is a body corporate (including an incorporated joint venture), one or more persons who are duly authorised by the Tenderer to execute and submit the Tender for and on behalf of the Tenderer; or

- (d) if the Tenderer is an unincorporated joint venture, one or more persons who are duly authorised by all joint venture parties signing on behalf of these parties..

4.7.1.2 A Tender will **not** be considered further if Part VI - Offer to be Bound is not signed in the manner described in Clause 4.7.1.1 of this Part or submitted with the Tender before the Tender Closing Date.

4.8 Tender Closing Date

4.8.1 A Tender must be deposited in the tender box as specified in Clause 2.1.1 of Part I - Notes for Tenderers before the Tender Closing Date. A Tender deposited in the tender box after the Tender Closing Date will **not** be considered.

4.8.2 In case Tropical Cyclone Warning Signal No. 8 or above is hoisted, or a Black Rainstorm Warning Signal or “extreme conditions after super typhoons” announced by the Government is/are in force for any duration between 9:00 a.m. and 12:00 noon on the date specified in Clause 2 “Lodging of Tender” of Notes for Tenderers, the tender closing time will be deferred to 12:00 noon on the next weekday (i.e. except Saturday and General Holiday) after the Tropical Cyclone Warning Signal No. 8 or above, or Black Rainstorm Warning Signal or “extreme conditions after super typhoons” announced by the Government is cancelled.

4.8.3 In case of blockage of the public access to the location of the specified tender box at any time between 9:00 a.m. and 12:00 noon on the Tender Closing Date, the Government will announce extension of the tender closing time until further notice. Following removal of the blockage, the Government will announce the extended tender closing time as soon as practicable. The above announcements will be made via press releases on the website of Information Services Department (<http://www.info.gov.hk/gia/general/today.htm>).

4.9 All documents to be submitted by a Tenderer shall either be originals or copies certified as true and complete by the person who is required to sign the tender under Clause 4.7.1 of this Part. If a Tenderer fails to comply with this requirement, its Tender may not be further considered.

5. Information and Descriptive Literature

5.1 Complete products and services information, including technical and descriptive literature, shall be submitted with each copy of the Tender. Information submitted shall be sufficiently detailed to demonstrate that the products and services offered meet the Project Specifications.

6. Particulars of Offer

6.1 Each Tenderer shall provide in Schedule 3 - Specifications of Part V - Contract Schedules the following information in respect of each of the products offered (for physical items of hardware and ready-made software) in Tables 3.1 and 3.3 of Schedule 3 - Specifications of Part V - Contract Schedules:

- (a) item no.;
- (b) name of product;
- (c) place of origin/place of substantial manufacturing;
- (d) name of manufacturer;
- (e) address of manufacturer;
- (f) brand name;
- (g) model;
- (h) features;
- (i) duration of the availability of the current version or the previous version in the market;
- (j) other information as required in the Schedule;

and, for software products, the following information in addition to the above:

- (k) current version number;
- (l) previous version numbers;
- (m) salient functions; and
- (n) other information as required in the Schedule.

6.2 In accordance with Section 4.5.2 of Part VII - Project Specifications, Tenderer must propose off-the-shelf application software package with necessary customisation rather than custom-made programs to be freshly developed for the implementation of the functions specified in Section 4.5 of Part VII - Project Specifications. For the proposed application software package, the Tenderer is required to provide in Table 3.3 of Schedule 3 a list of users and details of their online ticketing systems (which need not be the Tenderer's clients) which are known to have the proposed application software package operating in their online ticketing systems. In addition to the information required in Clause 6.1 above, the Tenderer is required to provide the following additional information in respect of the proposed off-the-shelf application software package:

- (a) in respect of each of the users known to have used the proposed off-the-shelf application software package:
 - (i) name of the user using the proposed off-the-shelf application software package; and

- (ii) the name and location of the online ticketing system having the proposed off-the-shelf application software package installed.

6.3 For the offered Public Cloud Services, the Tenderer shall provide the information requested in Table 3.2 of Schedule 3 as well as attaching all relevant Hosting Plans published by the Public Cloud Operator showing the specifications of the Services offered.

7. Quality Control

7.1 Each Tenderer shall submit in Schedule 3 - Specifications of Part V - Contract Schedules details of the quality control/assurance procedures proposed to be used in the implementation and ongoing maintenance and support of the System.

8. Contractor Personnel

8.1 Each Tenderer shall provide in Schedule 7 - Contractor Personnel and Their Duties of Part V - Contract Schedules details of the proposed Contractor Personnel for the Implementation Team and the Maintenance Team, and the proposed staff resources to be allocated for the Implementation Services (for the Implementation Team), the System Support and Maintenance Services (for the Maintenance Team) and the telephone, Internet and mobile ticketing and enquiry services and ticket collection services (for the Operation Team). Copies of the curriculum vitae of each proposed nominee for the Key Roles in the Implementation Team shall be submitted.

8.2 The nominee(s) proposed by the Tenderer for a Key Role in the Implementation Team shall be sufficient to prove that the essential requirement concerning the minimum number for that Key Role will be complied with (viz., "minimum number" as defined in Schedule 7 - Contractor Personnel and Their Duties of Part V - Contract Schedules). Each nominee fulfilling the minimum number for a Key Role shall also comply with the essential requirements concerning qualification and experience applicable to that Key Role. All these essential requirements are set out in Section 17 - Implementation Services of Part VII - Project Specifications. If a Tenderer fails to comply with any of the aforesaid essential requirements, its Tender will **not** be considered further. In verifying compliance, the Government may, but is not obliged, request such supplementary information from the Tenderer as is deemed necessary or desirable by the Government whether in relation to the details already specified in Schedule 7 or in the curriculum vitae attached or other information not already specified therein.

8.3 Each Tenderer shall also provide in Schedule 7 - Contractor Personnel and Their Duties of Part V - Contract Schedules detailed organisational structure of the proposed Implementation Team and Maintenance Team, the skill profiles of the staff involved, the roles and distribution of responsibilities for the implementation and maintenance of the System.

8.4 Where during the Tender Validity Period, a Tenderer's proposed nominee for a Key Role of the Implementation Team or Maintenance Team specified in Schedule 7 - Contractor Personnel and Their Duties of Part V - Contract Schedules will no longer

serve as such whether because he is no longer an employee of the Tenderer or for other reason (“outgoing nominee”), the evaluation will still be proceeded based on the qualification and experience of such outgoing nominee as at the Original Tender Closing Date. Should the Tenderer be the successful Tenderer, it shall be obliged to provide another nominee to replace the outgoing nominee with qualification and experience as at the date of proposed joining of the Implementation Team or Maintenance Team (as the case may be) which are not less than those possessed by the outgoing nominee (unless and to the extent waived by the Government).

9. Sub-contractors

- 9.1 If any part of the Tenderer’s proposal is to be executed by sub-contractors, the Tenderer shall submit in Schedule 17 - Sub-contracts of Part V - Contract Schedules information of the sub-contractors. Details of the proposed roles and responsibilities of the sub-contractor and its previous experience in relation to services to be sub-contracted shall also be submitted. At least for the Clearing Service Contractor (“CSC”) to be appointed for the provision of e-payment service, unless the Tenderer can fulfil the requirements to serve as such CSC, it shall be required that the details of the proposed CSC shall be completed in Schedule 17 including evidence to show that it fulfils the qualification requirements as specified in the top paragraph of Annex E of Part IV - Conditions of Contract as at the Original Tender Closing Date for each of the Electronic Payment Means to be operated by it. If not available as at the Original Tender Closing Date in relation to one or more Electronic Payment Means, the Tenderer will not be disqualified. However, it shall be required that any proposed CSC for any of the Electronic Payment Means shall fulfil the qualification requirements as one of the conditions to be fulfilled under Clause 28.2 of this Part before the formal award of the Contract.
- 9.2 The Government may require that as one of the conditions set out in Clause 28.2 of this Part that the proposed sub-contractor shall execute the undertaking in the form set out in Annex D to Part IV - Conditions of Contract in favour of the Government.

10. Statement of Compliance

- 10.1 The hardware, software, materials and services recommended and/or offered by the Tenderer shall comply with all the essential requirements in Part VII - Project Specifications and any counter-proposal to such essential requirements will be dealt with in accordance with Clause 19 of this Part. Notwithstanding anything in the Tender Documents to the contrary, **any proposal which fails to meet any of the essential requirements in Annex B to this Part or Part VII - Project Specifications will not be considered further.**
- 10.2 Each Tenderer shall confirm compliance with all essential requirements stated in Part VII - Project Specifications in Schedule 19 - Statement of Compliance of Part V - Contract Schedules. Notwithstanding anything in the Tender Documents to the contrary, the Government has the power but not the obligation to seek clarification with a Tenderer concerning any omission to delete any inapplicable wording in Schedule 19 or omission to state compliance in relation to any individual provision in

Part VII - Project Specifications in the compliance table to be attached to Schedule 19 - Statement of Compliance of Part V - Contract Schedules.

- 10.3 Where any specifications in Part VII - Project Specifications are expressed as desirable, and where the Tenderer commits to comply, it shall confirm in the same Schedule 19 - Statement of Compliance of Part V - Contract Schedules compliance with the relevant desirable specifications and refer to the relevant part of its Tender where an Excess Proposal is proposed for attaining such compliance.

11. Tenderer's Background and Experience

- 11.1 In order to be accorded marks in the assessment under the Marking Scheme as stated in sub-grouping(s) B(I)(1) of the Marking Scheme ("relevant assessment criterion"), the Tenderer should provide in Schedule 20 - Tenderer's Background and Experience of Part V - Contract Schedules details of its track records in relation to Reference IT Project(s), each of which:

- (a) meets the requirements as stipulated in Clause 11.5 of this Part;
- (b) has the value per Reference IT Project as set out in definition of "Reference IT Project" in Part C (Definitions and Rules) of the Marking Scheme;
- (c) the implementation of the IT system in that Reference IT Project was completed within ten (10) years immediately prior to the Original Tender Closing Date; and
- (d) fulfils the business area set out in the definition of "Reference IT Project" in Part C of the Marking Scheme.

The Government may, and is hereby irrevocably authorised by the Tenderer to, contact any of its clients or otherwise request such supplementary information either from the Tenderer or from its clients as is deemed necessary or desirable by the Government whether in relation to the Reference IT Projects specified in Schedule 20 or any other Reference IT Projects.

- 11.2 For each Reference IT Project to be provided by the Tenderer as reference in its Tender, information including the following shall be provided:

- (a) name and location of the Tenderer's client;
- (b) name, address, telephone and facsimile numbers and email address of contact person of the Tenderer's client;
- (c) business area and nature of services which the IT system implemented in the Reference IT Project provided;
- (d) the technology deployed in the implementation of the IT system under the Reference IT Project;
- (e) details to show which type of Relevant Experience mentioned in Clause 11.5 of this Part is applicable;

- (f) whether sub-contracting was involved and names and telephone and fax numbers of sub-contractor (if any);
- (g) project location (within or outside Hong Kong);
- (h) end user population;
- (i) total contract value and with a breakdown into the following:
 - (i) one-off contract value attributable to the implementation of the relevant IT system (including both implementation service and supply of hardware and software); and
 - (ii) recurrent annual charge;
- (j) date of commencement of contract and its duration;
- (k) date of production rollout; and
- (l) performance such as availability and serviceability, of the IT system concerned in such Reference IT Project for the last twelve (12) months immediately prior to the Tender Closing Date.

11.3 Information to be provided in accordance with this Clause 11 shall demonstrate that the Tenderer fulfils the desirable specifications concerning experience set out in sub-grouping(s) B(I)(1) of the Marking Scheme.

11.4 In assessing the experience of a Tenderer, the Government will only take into account the Relevant Experience of a Tenderer itself but not its sub-contractors.

11.5 “Relevant Experience” of a Tenderer means the local and/or overseas experience of the Tenderer gained in the Relevant Period in respect of complete implementation of (an) IT system(s) under one or more Reference IT Project(s) under one or more previous contract(s):

- (a) entered into by the Tenderer as the contractor; or
- (b) where the Tenderer is an incorporated joint venture or unincorporated joint venture, entered into by a party of such joint venture but subject to further restrictions as specified in paragraph 20.2.4 of Schedule 20 - Tenderer’s Background and Experience of Part V - Contract Schedules; or
- (c) entered into by a joint venture (whether incorporated or unincorporated) as the contractor, in which the Tenderer was a primary contractor (“Primary Contractor”) of the previous contract(s) in accordance with Clause 11.7 of this Part.

11.6 “Relevant Period” means the period within which the Reference IT Project must have implemented the relevant IT system as stated in the definition of “Reference IT Project” in Part C of the Marking Scheme.

- 11.7 A Tenderer will only be regarded as a Primary Contractor of a previous contract under Clause 11.5(c) of this Part **if**:
- 11.7.1 in the case where the Tenderer is an unincorporated entity, all members or partners of the Tenderer are participants of the joint venture referred to in Clause 11.5(c) of this Part; and
- 11.7.2 in the case where the contractor of the previous contract referred to in Clause 11.5(c) of this Part was an incorporated joint venture (IJV):
- (i) the Tenderer was entitled to exercise or control the exercise of the largest percentage of voting power at general meetings of the IJV (or where two or more persons were equally entitled to exercise or control the exercise of the same percentage which was the largest percentage, the Tenderer was one of such persons) throughout the entire period of the previous contract; and such percentage was not less than 30% throughout the entire period of the previous contract; or
 - (ii) the Tenderer as a foreign investor in the law of the place of incorporation of the IJV was entitled to a percentage of voting power at general meetings of the IJV throughout the entire period of the previous contract; and such percentage was not less than the maximum percentage which the laws of the place of incorporation of the IJV would allow for a foreign investor throughout the entire period of the previous contract (“foreign investment restriction”); (but if there is no such foreign investment restriction, then (i) above must apply). Should this (ii) apply, the Tenderer shall provide all such supporting information to prove the foreign investment restriction;
- 11.7.3 in the case where the contractor of the previous contract referred to in Clause 11.5(c) of this Part was an unincorporated joint venture (UJV):
- (i) the Tenderer was entitled to the largest percentage of the contract value in the previous contract (or where two or more persons were equally entitled to the same percentage which was the largest percentage, the Tenderer was one of such persons) throughout the entire period of the previous contract; and such percentage was not less than 30% throughout the entire period of the previous contract; or
 - (ii) the Tenderer as a foreign investor in the law of the place of incorporation of the UJV was entitled to a percentage of the contract value in the previous contract throughout the entire period of the previous contract; and such percentage was not less than the maximum percentage which the laws of the place of incorporation of the UJV would allow for a foreign investor throughout the entire period of the previous contract (“foreign investment restriction”); (but if there is no such foreign investment restriction, then (i) above must apply). Should this (ii) apply, the Tenderer shall provide all such supporting information to prove the foreign investment restriction;
- 11.8 If a Tenderer is not an incorporated entity, for the purpose of ascertaining:

- (a) in relation to Clause 11.7.2 of this Part, whether the Tenderer was entitled to exercise or control the exercise of the largest percentage of voting power at general meetings, and the actual percentage of such voting power of the Tenderer; and
- (b) in relation to Clause 11.7.3 of this Part, whether the Tenderer was entitled to the largest percentage of the contract value in the previous contract and the actual percentage of such contract value held by the Tenderer,

the Tenderer’s voting power at general meetings or share in the contract value in the previous contract (as the case may be) shall be the aggregate voting power or aggregate share in contract value of all members or parties of the Tenderer.

Example 1: Where the contractor of the previous contract referred to in Clause 11.5(b) of this Part was an incorporated or unincorporated joint venture consisting of Tenderer A and Company B:

	Tenderer A	Company B	Primary Contractor Status
	% of entitlement to exercise or control the exercise of voting power in an IJV or % of entitlement to the contract value in the previous contract		
Scenario 1	50%	50%	Tenderer A will be regarded as a Primary Contractor in that previous contract.
Scenario 2	>50%	<50%	Tenderer A will be regarded as a Primary Contractor in that previous contract.
Scenario 3	<50%	>50%	Tenderer A will not be regarded as a Primary Contractor in that previous contract unless Clause 11.7.2(ii) or 11.7.3(ii) applies due to a foreign investment restriction.

Example 2: Where the contractor of the previous contract referred to in Clause 11.5(c) of this Part was an incorporated or unincorporated joint venture consisting of Tenderer A, Company B and Company C:

	Tenderer A	Company B	Company C	Primary Contractor Status
	% of entitlement to exercise or control the exercise of voting power in an IJV or % of entitlement to the contract value in the previous contract			
Scenario 1	49%	40%	11%	Tenderer A will be regarded as a Primary Contractor in that

	Tenderer A	Company B	Company C	Primary Contractor Status
	% of entitlement to exercise or control the exercise of voting power in an IJV or % of entitlement to the contract value in the previous contract			
				previous contract.
Scenario 2	49%	35%	16%	Tenderer A <u>will be</u> regarded as a Primary Contractor in that previous contract.
Scenario 3	35%	40%	25%	Tenderer A <u>will not be</u> regarded as a Primary Contractor in that previous contract.
Scenario 4	33.33%	33.33%	33.33%	Tenderer A <u>will be</u> regarded as a Primary Contractor in that previous contract.
Scenario 5	25%	35%	40%	Tenderer A <u>will not be</u> regarded as a Primary Contractor in that previous contract unless Clause 11.7.2(ii) or 11.7.3(ii) applies due to a foreign investment restriction.

Legend: ">" means "more than".
"<" means "less than".

- 11.9 If a Tenderer entered into a previous contract as the contractor as referred to in Clause 11.5(a) of this Part, or is regarded as a Primary Contractor of a previous contract as referred to in Clause 11.5(c) of this Part in accordance with Clause 11.7 of this Part, its experience in that previous contract will be counted in full in the assessment under sub-grouping(s) B(I)(1) of the Marking Scheme. Where a Tenderer is a joint venture (incorporated or unincorporated), if a party to the joint venture entered into a previous contract as the contractor as referred to in Clause 11.5(b) of this Part, such experience may be taken into account for the aforesaid assessment subject to the requirements in paragraph 20.2.4 of Schedule 20 - Tenderer's Background and Experience of Part V - Contract Schedules.
- 11.10 For the avoidance of doubt, the following will **NOT** be regarded as the Relevant Experience of a Tenderer:
- (a) subject to Clauses 11.5(b), 11.5(c), 11.7 and 11.8 of this Part and paragraph 20.2.4 of Schedule 20 - Tenderer's Background and Experience of Part V -

Contract Schedules, experience of a holding company, shareholder or subsidiary of the Tenderer;

- (b) the Tenderer's experience in respect of services provided for the Tenderer's own use or for the use of the Tenderer's Associates or Associated Persons;
- (c) subject to Clauses 11.7 and 11.8 of this Part, other experience of a joint venture (whether an incorporated or unincorporated) in which the Tenderer is or was a shareholder/participant;
- (d) the Tenderer's experience gained in its capacity as a sub-contractor; and
- (e) experience of a sub-contractor proposed in the tender submitted by the Tenderer.

11.11 "Associate" in relation to a Tenderer means:

- (a) a partner of the Tenderer; or
- (b) a company one or more of whose directors are in common with one or more of the directors of the Tenderer.

11.12 "Associated Person" in relation to a Tenderer means:

- (a) any person who has control, directly or indirectly, over the Tenderer; or
- (b) any person who is controlled, directly or indirectly, by the Tenderer; or
- (c) any person who is controlled by, or has control over, a person mentioned in Clause 11.12(a) or (b) of this Part.

a person ("first-mentioned person") having "control" over another person ("second-mentioned person") shall mean the power of the first-mentioned person to secure:

- (i) by means of the holding of shares and interests or the possession of voting power in or in relation to that second-mentioned person or any other person; or
- (ii) by virtue of powers conferred by any constitution, memorandum or articles of association, partnership, agreement or arrangement (whether legally enforceable or not) affecting that second-mentioned person or any other person; or
- (iii) by virtue of holding office as a director in that second-mentioned person or any other person;

that the affairs of the second-mentioned person are conducted in accordance with the wishes of the first-mentioned person. For the avoidance of doubt, without prejudice to the generality of the foregoing, the holding of 30% or more of shares or interests or voting power shall be deemed to be sufficient control to ensure such happening.

Interpretation

11.13 "Original Tender Closing Date" is the latest date by which Tenders must be lodged as

stipulated in Clause 2 - Lodging of Tender of Part I - Notes for Tenderers, regardless of whether the date has been extended subsequently.

- 11.14 “director” means any person occupying the position of a director by whatever name called and includes without limitation a de facto or shadow director.
- 11.15 “subsidiary” has the meaning assigned to it under the Companies Ordinance (Chapter 622 of the Laws of Hong Kong).
- 11.16 “holding company” has the meaning assigned to it under the Companies Ordinance (Chapter 622 of the Laws of Hong Kong).
- 11.17 “Reference IT Project” has the meaning given to the term in Part C of the Marking Scheme.
- 11.18 A Tenderer is required to provide to the satisfaction of the Government documentary proof of all Reference IT Projects.

12. Company / Business Organisation Status

- 12.1 Each Tenderer shall provide the following details relating to itself in Schedule 20 - Tenderer’s Background and Experience of Part V - Contract Schedules:
- (a) name and principal place of business (in address form) of the Tenderer;
 - (b) type of business entity of the Tenderer;
 - (c) shareholders/partners/proprietor/joint venture parties of the Tenderer and their percentages of shareholding or ownership or voting power or financial contribution; if the Tenderer is an incorporated joint venture or unincorporated joint venture, a copy of the joint venture agreement shall be provided;
 - (d) length of business operation;
 - (e) names and correspondence addresses of the following:
 - (i) managing director/partners; and
 - (ii) other directors;
 - (f) names and addresses of banks which are prepared to provide references or other relevant financial data which indicate the financial viability of the Tenderer;
 - (g) if the Tenderer is a company or body corporate, its Memorandum and Articles of Association (if any), Certificate of Incorporation, Certificate of Change of Name (if any), and other corporate documents;

- (h) a copy of a valid and up-to-date business registration certificate evidencing its business status issued under the Business Registration Ordinance (Chapter 310 of the Laws of Hong Kong) or if the Tenderer does not carry on business in Hong Kong, the equivalent document issued by the authority of place of business of the Tenderer;
- (i) if the Tenderer is a subsidiary, the name(s) and place(s) and date(s) of incorporation of its immediate and ultimate holding companies;
- (j) (if the Tenderer is a company incorporated in Hong Kong or is registered as a non-Hong Kong company under the Companies Ordinance, Chapter 622 of the Laws of Hong Kong) a copy of the latest annual return filed with the Companies Registry and all subsequent filings since the latest annual return; or (if not) the equivalent documents issued by the authority of the place of incorporation of the Tenderer;
- (k) place and date of its incorporation or formation;
- (l) company profile information of the Tenderer including the number and location of full time/contract employees, core business strategies and strength and industry expertise; and
- (m) a copy of the relevant document (e.g. board resolutions of the Tenderer if it is a company or other documentary evidence) showing that the authorised person(s) who sign(s) the Offer to be Bound (whether in paper form or electronically) has/have the authority to sign it for and on behalf of the Tenderer (and in the case that the Tenderer is an unincorporated joint venture, for and on behalf of all parties to the joint venture).

12.2 If a Tenderer is incorporated, formed or established outside Hong Kong, a legal opinion in form and substance satisfactory to the Government and issued by a lawyer duly qualified to practise the laws of the place of incorporation, formation or establishment (as the case may be) of the Tenderer and acceptable to the Government shall be provided upon request by the Government on the following issues and any other issues as may be required by the Government at the expense of the Tenderer:

- (a) the Tenderer was duly incorporated, formed or established and validly existing under the laws of the place of the Tenderer's incorporation, formation or establishment and that the Tenderer has full power, capacity and authority to carry on the business as it is now conducting and to supply the products and services to the Government on the terms and conditions of the proposed Contract;
- (b) the Tenderer has the full power, authority and legal capacity to:
 - (i) execute and submit its Tender and to incur the liabilities and perform the obligations under the Tender Documents; and
 - (ii) enter into and execute the Contract and to incur the liabilities and perform the obligations thereunder;

- (c) the proposed Contract with the Government will, upon execution by the authorised signatory of the Tenderer and the Government of the Articles of Agreement, constitute the legal, valid and binding obligations of the Tenderer in the place of its incorporation, formation or establishment, and is enforceable against the Tenderer in accordance with its terms;
- (d) the execution, delivery and performance of its Tender and the proposed mode of execution, delivery and performance of the Contract (if awarded to the Tenderer) have been duly authorised by all necessary corporate action of the Tenderer, and does not violate any provision of any applicable law, regulation or decree of the Tenderer's place of incorporation, formation or establishment, or the Memorandum and Articles of Association or similar constitutional documents of the Tenderer;
- (e) no authorisations, consents, approvals are required from any governmental authorities or agencies or other official bodies in the place of incorporation, formation or establishment in connection with the execution and delivery of the Tenderer's Tender, or the performance by the Tenderer of its obligations under the Tender Documents and the Contract;
- (f) the Tenderer's Tender and the Contract (if awarded to the Tenderer) need not be registered or filed in the place of incorporation, formation or establishment in order to secure their validity and/or priority;
- (g) there is no restriction under the laws of the place of the Tenderer's incorporation, formation or establishment affecting the Tenderer's obligations under the Tender Documents and the Contract;
- (h) the choice of the laws of Hong Kong to govern the Tender Documents and the Contract is a valid choice of laws and would be recognised and given effect to by the courts of the place of incorporation, formation or establishment of the Tenderer;
- (i) the judgment handed by the courts of Hong Kong (at least from District Court or above) after the adjudication of any dispute arising from the Contract will be recognised and given effect to by the courts of the place of incorporation, formation or establishment of the Tenderer; and
- (j) it is not necessary under the laws of the place of incorporation, formation or establishment of the Tenderer that the Government be licensed, qualified or otherwise registered in such place of incorporation, formation or establishment in order to enable it to enforce its rights under the Tender Documents and the Contract.

12.3 The Government may require a Tenderer to provide, at its own expense, additional legal opinion satisfactory to the Government in all respects issued by a lawyer duly qualified to practise the laws of the place of incorporation, formation or establishment of the Tenderer and acceptable to the Government on any other matters arising from its Tender. Where the opinion on the question specified in Clause 12.2(i) of this Part is

negative or is subject to conditions not considered to be satisfactory to the Government, the additional legal opinion shall opine that any ruling made by the arbitrator under the arbitration provision set out in Clause 12.4 of this Part (with any proposed amendments acceptable to the Government) will be recognised and given effect to by the courts of the place of incorporation, formation or establishment of the Tenderer (“additional opinion on arbitration”). Together with the additional opinion on arbitration to be provided, the Tenderer shall also be required to provide a confirmation in writing that in consideration of the award of the Contract, it agrees that Clause 72.2 of Part IV - Conditions of Contract shall be replaced by the arbitration clause in Clause 12.4 of this Part (with any proposed amendments acceptable to the Government) (“written confirmation on arbitration”).

- 12.4 Where the opinion on the question specified in Clause 12.2(i) of this Part is negative or is subject to qualifications not considered to be satisfactory to the Government, subject to the obtaining of the additional opinion on arbitration as mentioned in Clause 12.3 of this Part, Clause 72.2 of Part IV - Conditions of Contract shall be deemed deleted and replaced by the provision set out in this Clause 12.4 as follows (but subject to such further amendments as the Government may agree and the final version shall be annexed to the Articles of Agreement): “Any dispute arising from the Contract shall not be adjudicated by the courts of Hong Kong but shall be adjudicated by arbitration to be held in accordance with the Hong Kong International Arbitration Centre Domestic Arbitration Rules prevailing at the time when a notice of arbitration is issued by a Party (“Arbitration Rules”) except that regardless of whether the Arbitration Rules providing anything to the contrary, unless the Parties otherwise agree in writing: (a) the arbitration hearing must be held in Hong Kong and that the Arbitration Ordinance (Chapter 609 of the Laws of Hong Kong) shall apply to the arbitration (including the whole of Schedule 2); and (b) without prejudice to section 18(2) of the Arbitration Ordinance, the Government may on its own disclose any information relating to (i) the arbitral proceedings under the arbitration agreement; and (ii) an award made in those arbitral proceedings under any of the circumstances mentioned in Clause 32.2 of Part II - Conditions of Tender (which is deemed incorporated into this Clause)”.
- 12.5 If any of the guarantors to the performance guarantee required under Clause 24.3 of this Part (if applicable), or the sub-contractor to a proposed sub-contractor’s undertaking which may be required under Clause 9.2 of this Part (if applicable), is a company not incorporated under the laws of Hong Kong, a legal opinion will equally be required similar to the one described in Clause 12.2 of this Part save that references therein to the “Tenderer” and “Contract” shall mean the guarantor and the performance guarantee respectively, or the sub-contractor and the sub-contractor’s undertaking respectively, as the case may be.

13. Deed of Manufacturer’s Undertaking

- 13.1 It is not required that the Tenderer has to submit any Deed of Manufacturer’s Undertaking.

14. Offer of Products

- 14.1 The Tenderer must not offer to supply any used or refurbished products or equipment to the Government. If a Tenderer fails to comply with this requirement, its Tender will not be further considered. By submitting a Tender, the Tenderer undertakes and declares that all the products and equipment it offers in response to this Invitation to Tender will be fresh from stock and/or a factory.
- 14.2 The hardware and software to be proposed by the Tenderer shall not be subject to any expiry mechanism, including but not limited to expiry of licence, expiry of cryptographic key or any other mechanism causing disruption to the normal functioning of the products or equipment to which it relates, by a predetermined date and time.

15. Quotation

- 15.1 Each Tenderer shall submit its Tender in Hong Kong dollars. **Tenders submitted in any other currencies will not be considered further.**
- 15.2 Each Tenderer shall provide in Schedule 23 - Price Schedule of Part V - Contract Schedules the following quotations:
- (a) The Ticketing System Service Fee for each ticket of URB TIX events issued using the Ticketing System for selling to members of the public or issued to URB TIX event presenters as complimentary or consignment tickets. This service fee shall be waived for any number of tickets issued under other circumstances, such as for test purpose, for management seats, or those tickets issued and returned due to system or ticketing operator errors;
 - (b) The e-Payment Transaction Fee for the e-payment service to be provided which shall be a uniform maximum cap expressed as percentage on the value of the ticket price which uniform maximum cap shall be applicable to all types of Electronic Payment Means and all types of Ticketing Services.
 - (c) The Ad Hoc Customer Service Fee payable by event presenters to the Contractor for making ad hoc announcement to the patrons via such method to be selected by the event presenter.
 - (d) The Internet/Mobile Ticketing Service Fee payable by Internet/Mobile ticketing customers to the Contractor for each ticket sold through the Internet or Mobile Ticketing Service;
 - (e) The Telephone Ticketing Service Fee payable by telephone ticketing customers to the Contractor for each ticket sold through the Telephone Ticketing Service;
 - (f) The Email Direct Marketing Service Fee payable by event presenters to the Tenderer for each email sent through the Email Direct Marketing Service arranged by the Tenderer;

- (g) Charges for System Changes during the Implementation Period or the Operation Period if the man-days as specified in Section 17.3.20.3 and Section 18.15.3 of Project VII have been used up;
- (h) The Top-up Service Fee at a fixed rate per annum for each Innovative Suggestion(s) (if any); and
- (i) The Top-up Service Fee for each Excess Proposal(s) to be evaluated under sub-groupings A(II)(1) to (4) of the Marking Scheme (if any) at a fixed rate per annum.

15.3 Payment will be made according to the payment schedule specified in Clause 38 of Part IV - Conditions of Contract.

15.4 A Tenderer shall quote fixed prices. **A Tender with any price variation clause, including one based on foreign exchange market fluctuation, will not be considered further.**

16. Accuracy of Tender Prices

16.1 Each Tenderer shall make sure that all prices and other proposals offered in its Tender are accurate and complete before it submits the Tender. The Tenderer shall be bound by the tender prices and other proposals offered in its Tender if the Tender is accepted by the Government. The Tenderer may not initiate any request for amendment of its Tender after the Tender Closing Date on any ground (including any mistake made in the Tender). On the other hand, in the event of any apparent arithmetical or typo mistake or inconsistency in a Tender, pursuant to Clause 21.1 of this Part, the Government may, but is not obliged to, ask the Tenderer to clarify, or to confirm another figure to replace the original figure. Where the Tenderer's clarification is not provided or not satisfactory, refuses to confirm such other figure, or where the Government does not elect to seek clarification or confirmation from the Tenderer, the Government reserves the power to proceed to evaluate the Tender on an "as is" basis (i.e., in the form as originally submitted on the Tender Closing Date) or disqualify the Tenderer on ground that it has provided erratic or inconsistent proposals or quotations for proper evaluation.

17. Tender to Remain Open

17.1 A Tender once submitted by a Tenderer will be binding on the Tenderer including without limitation all Excess Proposals or otherwise any other proposal submitted at the initiative of the Tenderer.

17.2 It is an essential requirement of this Invitation to Tender that a Tender shall remain valid and open for acceptance for a period not less than two hundred and seventy (270) days after the Tender Closing Date ("Tender Validity Period").

17.3 A Tenderer who counter-proposes a shorter Tender Validity Period than the period specified in Clause 17.2 of this Part will be disqualified and its Tender will **not** be

considered further.

- 17.4 Without prejudice to the Government's rights and claims vis-à-vis any Tenderer who withdraws its Tender during the Tender Validity Period, due notice will be taken of any withdrawal of Tender during the Tender Validity Period and without prejudice to any other rights and remedies that the Government may have against the Tenderer, such withdrawal may prejudice the Tenderer's future status as a Government supplier or service provider.

18. Tenderer's Commitment

- 18.1 All Tenders, information and responses from a Tenderer must be submitted in writing. Each of them is the proposal and/or representation from the Tenderer and will, if and to the extent accepted by the Government, be incorporated into and form part of the Contract in such manner as the Government considers appropriate. Without prejudice to the generality of the foregoing, all Excess Proposals in a Tenderer's Tender, if and to the extent accepted by the Government, will be incorporated into and form part of the Contract in such manner as the Government considers appropriate.

19. Tenderer's Counter-Proposals

- 19.1 By submitting their tenders, unless otherwise expressly permitted, all Tenderers agree to comply with and observe all parts of the Tender Documents which relate to all matters concerning or relating to this Invitation to Tender, including without limitation all provisions in these Conditions of Tender, Notes for Tenderers, Contract Schedules (apart from Schedule 23 - Price Schedule of Part V - Contract Schedules) and Offer to be Bound. Unless otherwise expressly permitted, none of such terms and conditions may be varied, and any counter-proposal from a Tenderer to vary any such term or condition will, without prejudice to other rights and powers of the Government, be ignored and will not form part of the Contract, or otherwise the tender will **not** be considered further. Without prejudice to the generality of the foregoing, any proposal which directly or indirectly precludes or limits the effect of any provisions specified in the aforesaid documents will be treated as a counter-proposal.
- 19.2 Save in the case of the Conditions of Contract, their Annexes and Schedule 23 - Price Schedule of Part V - Contract Schedules, the successful Tenderer is equally required to accept all terms and conditions in the Tender Documents which form part of the Contract on an "as is" basis. Unless otherwise acceptable to the Government, a counter-proposal submitted by a Tenderer will, without prejudice to other rights and powers of the Government, either be ignored and will not form part of the Contract, or the tender will not be considered further provided further that in the case of any counter-proposal to the essential requirements in the Tender Documents, such counter-proposal will lead to disqualification of the Tenderer, subject only to any clarification opportunity which may be given pursuant to Clause 19.7 of this Part. In the case of the Conditions of Contract, their Annexes, the Tenderer may submit counter-proposals but strictly in accordance with Clause 19.3 of this Part.

- 19.3 Any counter-proposal to the Conditions of Contract or their Annexes will only be considered in exceptional circumstances. Any counter-proposal shall be drafted and submitted in the following manner:
- (a) the counter-proposal shall be attached to the Offer to be Bound;
 - (b) the original version of the relevant provision must be fully recited before any proposed alteration or deletion is made;
 - (c) any alteration to any terms or requirements must be underlined and must bear the corresponding Clause number of the original provision unless it is an addition or in the case of Schedule 23 - Price Schedule of Part V - Contract Schedules, the relevant paragraph or table in that Schedule;
 - (d) words to be deleted should be crossed out by a single line only; and
 - (e) an explanation should be given below any such alteration or deletion and be put in square brackets [].
- 19.4 Unless the Government waives the requirements in Clause 19.3 of this Part, a counter-proposal which is not submitted in accordance with Clause 19.3 of this Part will be ignored and will not form part of the Contract, and the Tenderer concerned will be deemed to have agreed to the original term to which the counter-proposal relates.
- 19.5 The Government reserves the right to negotiate with the Tenderer concerning any counter-proposals regardless of whether or not they have been submitted in accordance with Clause 19.3 of this Part. The Government may refrain from awarding the Contract to the Tenderer who is unwilling to withdraw its counter-proposal(s) which are not acceptable to the Government.
- 19.6 Without prejudice to the generality of Clause 19.2 of this Part, no counter-proposal to the essential requirements in Part VII - Project Specifications and the annexes to Part VII - Project Specifications, and the Contract Schedules (apart from Schedule 23 - Price Schedule) of Part V - Contract Schedules will be considered.
- 19.7 Where the Tenderer has in the relevant Contract Schedules affirmed its compliance with all essential requirements as stated in Part VII but (a) it has also submitted counter-proposals to such essential requirements (whether by way of the items proposed or not having been proposed in any of the Contract Schedules or by way of a specifically drafted provision containing the counter-proposal or otherwise) or (b) the Government, based on the information published by the relevant manufacturer or in the tender or otherwise available to the Government, is in doubt as to whether the Tenderer or the proposed System or any part thereof (as the case may be) does truly comply with such essential requirements, or (c) where the Tenderer omits to insert any statement in relation to any of the essential requirements in Part VII - Project Specifications as required in Schedule 19 - Statement of Compliance of Part V - Contract Schedules, the Government may, but is not obliged to, seek clarification with the Tenderer concerned pursuant to Clause 21 of this Part. In the event that the Tenderer refuses to affirm compliance with the relevant essential requirements in the course of the clarification or if the Tenderer has affirmed compliance, but the

Government is not satisfied that the Tenderer or the proposed System or any part thereof complies with the relevant essential requirements, its tender will **not** be considered further.

- 19.8 Without prejudice to the rights and powers of the Government (including without limitation those under Clause 19.7 of this Part), the Government has no obligation to any Tenderer that in relation to another Tenderer's offer, it should take into account information from any third party source (including from the manufacturer) to verify that other Tenderer's or its offer's compliance with any essential requirement (including those set out in the Project Specifications and those set out in these Conditions of Tender).

20. Alternative Standards

- 20.1 Notwithstanding Clause 19 of this Part, Tenderer may offer to supply to the Government a System or any part thereof which complies with a standard ("Alternative Standard") alternative to any standards specified in the Project Specifications ("Original Standard") on condition that:

- (a) the Tenderer shall identify and give details in its Tender of the Alternative Standard;
- (b) the Tenderer shall provide a comparison between the Alternative Standard and the Original Standard;
- (c) the Tenderer shall demonstrate to the Government's satisfaction that the Alternative Standard is no worse than the Original Standard and that the System that complies with the Alternative Standard is in all respects (including quality, fitness for purpose and compliance with the Project Specifications) no worse than that which complies with the Original Standard; and
- (d) documentary evidence is submitted to the Government for the purpose of Clause 20.1(c) of this Part.

- 20.2 **If the Government considers that an Alternative Standard proposed by a Tenderer is not acceptable to the Government for the purpose of the Invitation to Tender, the Tenderer's Tender will not be considered further unless the Tenderer has also undertaken in its Tender to comply with the Original Standard.** In the latter event, the Government shall disregard all Alternative Standards proposed by the Tenderer in assessing the Tenderer's Tender and such Alternative Standards will not form part of the Contract.

21. Request for Information

- 21.1 In the event that the Government determines that:

- (a) clarification in relation to any part of the Tender is necessary (including without limitation in relation to any apparent inconsistency in the proposals submitted by the Tenderer); or
- (b) a document or a piece of information other than the document or information set out in Clause 21.2 of this Part, is missing from any Tender,

it may, but is not obliged to, request the Tenderer concerned to make the necessary clarification, or submit the required document or information. The Tenderer concerned shall thereafter within five (5) working days or such other period as specified in the request submit such clarification, information or document in the form required by the Government. **A Tender will not be considered further if complete information or document is not provided as required by the deadline as specified in the request, or in the case of clarification, such clarification is not provided by such deadline or is not acceptable to the Government. Without prejudice to the foregoing, any excess proposal or information supplied by a Tenderer which goes beyond what has been requested by the Government will be ignored for the purposes of the tender evaluation or will entitle (but not oblige) the Government to disqualify the Tenderer concerned.** As an alternative to seeking clarification or further information or document, the Government may not consider the Tender further or may proceed to evaluate the Tender on an “as is” basis.

21.2 The document and information not covered by Clause 21.1(b) of this Part are:

- (a) price quotations required in the Price Schedule;
- (b) a signed Part VI - Offer to be Bound;
- (c) the Contract Schedules mentioned in Clause 4.2 of this Part; and
- (d) any other document or information in respect of which it is specified in the Tender Documents that a failure to provide to the Government in a Tender at the time of submission of the Tender or by the Tender Closing Date will result in the Tender not being considered.

22. Tender Evaluation

22.1 Without prejudice to other rights and powers of the Government to disqualify a Tenderer under other applicable provisions in the Tender Documents, Tenders will undergo the assessments mentioned in Clauses 22 and 23 of this Part.

22.2 A tender will undergo the assessments as specified in Annex A - Tender Evaluation Procedures and Assessment Criteria, viz., Stage I - completeness check, Stage 2 - assessment of compliance with the essential requirements, Stage 3 - the technical assessment in accordance with the Marking Scheme, Stage 4 - price assessment, and Stage 5 - calculation of the Combined Score.

23. Assessment of Tender Prices

23.1 The price assessment stage of the tender evaluation shall involve an assessment of the tender price of the relevant Tender. Tender price will be assessed and shall be calculated as follows: -

(all references to 5 million mean the estimated number of tickets which estimation is not binding on the Government. All other estimations specified below are also not binding on the Government.)

(a) The sum total of the following Service Fees specified in (i) to (iv) below:

- (i) Ticketing System Service Fee quoted by the Tenderer in Table 23.1 Item (A) in Schedule 23 of the Contract Schedules x 5 million x 7 years, **plus**
- (ii) e-Payment Transaction Fee maximum cap quoted by the Tenderer in Table 23.1 Item (E) in Schedule 23 of the Contract Schedules x (5 million x 60%) x 250 (assumed median price of a ticket) x 7 years, **plus**
- (iii) the Internet/Mobile Ticketing Service fee quoted by the Tenderer in Table 23.2 Item A (a) in Schedule 23 of the Contract Schedules x (5 million x 25%) x 7 years, **plus**
- (iv) the Telephone Ticketing Service fee quoted by the Tenderer in Table 23.3 Item A (a) in Schedule 23 of the Contract Schedules x (5 million x 1%) x 7 years;

(b) minus the sum total of the following Rebates in (i) to (xiv) below:

- (i) Rebate in Table 23.1 Item (B) in Schedule 23 of the Contract Schedules x 0.2 million x 7 years;
- (ii) Rebate in Table 23.1 Item (C) (1) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years;
- (iii) Rebate in Table 23.1 Item (C) (2) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years);
- (iv) Rebate in Table 23.1 Item (C) (3) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years;
- (v) Rebate in Table 23.1 Item (C) (4) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years;
- (vi) Rebate in Table 23.1 Item (C) (5) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years;
- (vii) Rebate in Table 23.1 Item (C) (6) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years;
- (viii) Rebate in Table 23.1 Item (C) (7) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years;

- (ix) Rebate in Table 23.1 Item (C) (8) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years;
 - (x) Rebate in Table 23.1 Item (C) (9) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years;
 - (xi) Rebate in Table 23.1 Item (C) (10) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years;
 - (xii) Rebate in Table 23.1 Item (C) (11) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years;
 - (xiii) Rebate in Table 23.1 Item (C) (12) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years;
 - (xiv) Rebate in Table 23.1 Item (C) (13) in Schedule 23 of the Contract Schedules x 0.25 million x 7 years;
- (c) further plus the sum total of the following Service Fees specified in (i) to (iv) below:
- (i) The median rate of the Ad Hoc Customer Service Fee quoted by the Tenderer in Table 23.1 Item (D) in Schedule 23 of the Contract Schedules x 5,000 x 7 years
 - (ii) Email Direct Marketing Service fee (per email sent) quoted by the Tenderer in Table 23.4 Item (a) in Schedule 23 of the Contract Schedules x 0.2 million x 7 years, plus the Discounted Service fee (per email sent) quoted by the Tenderer in Table 23.4 Item (b) in Schedule 23 of the Contract Schedules x 0.1 million x 7 years; plus
 - (iii) Top-up Service Fee quoted by the Tenderer in Table 23.6 in Schedule 23 of the Contract Schedules x 7 years for each Innovative Suggestion (if any); plus
 - (iv) Top-up Service Fee quoted by the Tenderer in Table 23.7 in Schedule 23 of the Contract Schedules x 7 years for each Excess Proposal (if any).

The tender price assessment calculations SHOULD NOT be regarded as a guarantee from the Government about the future volume of tickets that will be issued on the URBTIX system.

23.2 For Tender price comparison purposes,

- (a) any prompt payment discount offered by a Tenderer will not be taken into consideration in the Tender price assessment;
- (b) the prices for optional items or specifications, if any, will not be taken into consideration in the Tender price assessment; and no Excess Proposals will be treated as any optional items or specifications unless for those Excess Proposal where no Service Fee shall be chargeable;

- (c) without prejudice to (d) below, all items offered by a Tenderer in its Tender will be treated as free of charge unless the charges for these items are specified in Schedule 23 - Price Schedule of Part V - Contract Schedules; and
- (d) a Tenderer who has submitted price quotations not requested in the Price Schedule will either be disqualified or such price quotations will be ignored both for the purposes of evaluation and for future Contract award (i.e. not form part of the Contract).

24. Tenderer's Financial Capability

- 24.1 The Total Estimated Contract Value shall be calculated based on the rate quoted by the Tenderer in Table 23.1 Item (A) of Schedule 23 of Part V - Contract Schedules and the Top-up Service Fees for Innovative Suggestions and other Excess Proposals which have been accepted by the Government based on the fixed annual rates specified in Tables 23.6 and 23.7 of Schedule 23 of Part V - Contract Schedules using the following formula: i.e. the Ticketing System Service Fee per ticket x 5 million x 7 years plus the annual rate of the Top-up Service Fee for each of the accepted Innovative Suggestion(s) and/or other Excess Proposals x 7 years.
- 24.2 The Tenderer is not required to submit financial information specified below as part of its Tender. However, upon the written request of the Government, the Tenderer shall provide the documents and information specified in this Clause 24 within five (5) working days of such request for financial assessment.
- 24.3 Each Tenderer shall upon request by the Government, submit the following information for assessment of its financial capability and such other information as the Government may request. Where the Tenderer is to be financially supported by its holding company, the following information requirements shall also apply to the holding company as well. For a joint venture or partnership, the following information requirements shall also apply to each member of the joint venture or partnership.
 - (a) The audited financial statements of the Tenderer for the last three financial years immediately prior to the Tender Closing Date are required for the financial assessment. In the case where a Tenderer is established for less than three years, it is required to provide its latest audited financial statements if available for the financial assessment. In addition, management accounts for a period not earlier than three months before the Tender Closing Date are also required (if that period or any part thereof has not already been covered by the latest audited financial statements).

The following requirements shall apply in relation to the financial statements and management accounts to be submitted, where applicable:

- (i) original or certified true copy of the audited financial statements (to be certified by the Tenderer's auditors) shall be submitted;
- (ii) the financial statements shall have been prepared on the same basis for each year in accordance with accounting principles generally accepted in Hong Kong and the disclosure requirements of the Companies Ordinance,

Chapter 622 of the Laws of Hong Kong and the subsidiary legislation under Chapter 622 of the Laws of Hong Kong;

- (iii) each of the three sets of audited financial statements must contain the directors' report, auditors' report, statement of financial position (also referred to as balance sheet), statement of profit or loss and other comprehensive income (also referred to as income statement), statement of changes in equity, statement of cash flows and notes to the accounts in respect of the financial year to which they relate;
 - (iv) consolidated group financial statements shall be submitted if the Tenderer is a subsidiary of another company, but the company-only financial statements reflecting the financial position and results of the Tenderer itself should also be submitted, covering the same periods mentioned in Clause 24.3(a) of this Part;
 - (v) all such financial statements must have been audited by certified public accountants (practising) or for a non-Hong Kong company, by auditors recognised by the local law of the place of the company's establishment;
 - (vi) unaudited financial statements are acceptable only if the Tenderer is a newly established company where the first financial statements are not yet available or where the Tenderer is a sole proprietor or partnership or unincorporated joint venture;
 - (vii) for management accounts or unaudited financial statements, they must be certified by the sole proprietor in the case of a sole proprietorship, each joint venture party in the case of a joint venture, each partner in the case of a partnership, or a director or chief executive in the case of a company or a certified public accountant or other accountant acceptable to the Government; and
 - (viii) where the original documents are in a language other than English or Chinese, translations in English or Chinese, certified as accurate by the respective consulate or a notary public registered in Hong Kong, must be provided.
- (b) The Tenderer shall also provide documentary evidence showing any available financial resources or backing to fulfil the obligations under the Contract. Such documents may include:
- (i) the names and addresses of banks which are prepared to provide references;
 - (ii) the latest three to six months' bank statements (originals or certified true copies) confirming balances of its major bank accounts;
 - (iii) original letters from banks, where applicable, confirming the line of credit facilities available to the Tenderer and the current unutilised balances within six months before the Tender Closing Date, also stipulating the

expiry date of the facilities;

- (iv) agreements confirming long-term loans obtained, or to be obtained from the holding company, directors or shareholders;
 - (v) written confirmation from a bank that it is willing to provide financial support or guarantee to the Tenderer. The wording of such confirmation shall be specific and constitute a guarantee of financial support to the Tenderer for the due and faithful performance of the contract, where applicable. Where the guarantee is limited by value, such value shall be clearly stated in the confirmation;
 - (vi) copies (certified as true in the same manner mentioned in Clause 24.3(a)(vii) of this Part) of letters of undertaking, minutes of board meetings or returns of allotment of shares to support injection of capital, where applicable; and
 - (vii) originals or certified true copies of past tax records such as profit tax assessments for the three financial years immediately prior to the Tender Closing Date.
- (c) Projected statements of profit or loss and other comprehensive income and statements of cash flows for the period of the Contract, showing the projected revenue, operating expenses, capital expenditure and the sources of finance such as upfront investment and/or debt financing.

(Notes:

- (i) the projected statements must be certified by the sole proprietor in the case of a sole proprietorship, each joint venture party in the case of a joint venture, each partner in the case of a partnership, or a director or chief executive in the case of a company;
- (ii) the assumptions used in preparing the projections must be reasonable and must be clearly stated. All the supporting schedules and detailed calculations shall also be submitted; and
- (iii) the projections must include at least the projected revenue, details of operating expenses, capital expenditure, sources of finance, and other particulars showing how the Tenderer will deal with the Contract.)

24.4 Details and values of other contracts on hand and being tendered for up to the Tender Closing Date or intended to be tendered for any time after the Tender Closing Date by the Tenderer are also required.

24.5 If the successful Tenderer is not required by the Government to undergo the financial assessment, or has passed the financial assessment and is not a newly set up company, it shall submit to the Government a deposit either in cash or in the form of a bank guarantee in Hong Kong dollars in an amount equivalent to two (2) per cent as the case may be of the Total Estimated Contract Value to guarantee the fulfilment of the

contractual obligations in accordance with Clause 52.1 - Guarantees of Part IV - Conditions of Contract.

24.6 If the successful Tenderer is a newly established company, or it is unable to submit adequate information for conducting a meaningful financial assessment or it fails in the financial assessment, the Tenderer shall submit a deposit either in cash or in the form of a bank guarantee in Hong Kong dollars in an amount equivalent to six (6) per cent of the Total Estimated Contract Value to guarantee the fulfilment of the contractual obligations in accordance with Clause 52.1 - Guarantees of Part IV - Conditions of Contract.

24.7 In addition to the deposit aforesaid, if requested by the Government, the successful Tenderer shall submit and deliver to the Government a performance guarantee to be executed by such guarantor(s) in accordance with Clause 52.1 - Guarantees of Part IV - Conditions of Contract.

25. Negotiations

25.1 The Government reserves the right to negotiate with any Tenderer on the Tenderer's Tender and the terms and conditions of the Contract. If the Government at its discretion considers appropriate, the Government will normally conduct negotiation with the Tenderer whose Tender is identified as the most advantageous to the Government in terms of the evaluation criteria set out in the Tender Documents.

26. Award of Contract

26.1 Unless the Government decides that it is in the public interest not to award the Contract, subject to the other provisions of the Tender Documents, the Contract will normally be awarded to the Tenderer who passes the assessments as mentioned in Clauses 22 and 23 of this Part (including those specified in Annexes A to C to this Part), and has attained the highest combined score under these assessments. Notwithstanding anything herein to the contrary, the Government is not bound to accept the Tender with the highest combined score or any Tender and reserves the right to accept any Tender at any time within the Tender Validity Period.

26.2 Even if the Tenderer is identified as the successful Tenderer for the award of the Contract pursuant to Clause 26.1 of this Part, the Government reserves the right to accept all or some only of the items and services offered by that Tenderer.

27. Government Discretion

27.1 Notwithstanding anything to the contrary in the Tender Documents, if it is in the public interest to do so, the Government reserves the right to (a) cancel this Invitation to Tender, and not award the Contract; or (b) reconduct the evaluation specified in Clauses 22 and 23 of this Part to identify the successful Tenderer notwithstanding the issue of any conditional acceptance of tender under Clause 28.2 of this Part to any Tenderer.

- 27.2 After cancellation pursuant to Clause 27.1 (a) of this Part, if it considers fit, the Government may re-issue one or more Invitation to Tender(s) (open or restricted or standing offer agreements) covering the scope of this Invitation to Tender (or any part thereof) on such terms and conditions as the Government considers appropriate. The terms and conditions of such re-issued Invitation to Tender(s) may or may not be the same as those set out in this Invitation to Tender. Alternatively to, or in conjunction with the foregoing arrangements, the Government may proceed to implement the System and perform the maintenance and system support work in-house (or any part thereof in-house with other parts to be contracted to contractors) based on such requirements and arrangements as it considers appropriate.
- 27.3 Notwithstanding anything to the contrary in the Tender Documents, the Government reserves the right to disqualify a Tenderer on grounds including any one of the following:
- (a) if a petition is presented or a proceeding is commenced which has not been withdrawn as at the Tender Closing Date or an order is made or a resolution is passed for the winding up or bankruptcy of the Tenderer;
 - (b) in the sole judgment of the Government Representative, the Tenderer is not considered fit and proper to perform the Contract;
 - (c) the Tenderer has made or submitted a false, inaccurate or incomplete statement or representation or a forged document in the Tender or in any subsequent submission by the Tenderer or communication between the Government and the Tenderer since submission of that Tender;
 - (d) the Tenderer has made a promise or a proposal in the Tender or in any subsequent submission recklessly or with the knowledge that the Tenderer would not be able to fulfil or deliver such promise or proposal;
 - (e) in the event of a claim or allegation or the Government having grounds to believe that any thing(s), service(s) or material(s) supplied or previously supplied or to be supplied or recommended by the Tenderer or its related person in the Tenderer's Tender infringe or may infringe any Intellectual Property Rights of any person; or
 - (f) any time during the twenty-four (24) months prior to the Tender Closing Date or between the Tender Closing Date and the award of the Contract, the Tenderer or a related person of the Tenderer (as defined in Clauses 27.8 and 27.9 of this Part and including those who were in such capacity any time within the same period, i.e., during the twenty-four (24) months prior to the Tender Closing Date or between the Tender Closing Date and the award of the Contract) was in default of its material obligation(s) under any other Government contract awarded by the Director of Leisure and Cultural Services regardless of whether the default led to the actual termination of the relevant Government contract and regardless of whether such default occurs before or after the termination or expiry of the relevant Government contract and in the case of the latter, provided that the default relates to any provisions which survive such termination or expiry, and

regardless of whether such default has been remedied (a “Contract Default”); and the Government Representative in its sole judgment is satisfied that such Contract Default casts a reasonable doubt on the capability of the Tenderer to perform the Contract to be awarded in this Invitation to Tender.

The grounds specified in Clauses 27.3(a) to 27.3(f) of this Part are separate and independent, and shall not be limited by reference to or inference from the other of them.

27.4 For the purposes of Clause 27.3 of this Part, each Tenderer shall provide at the time of submission of its Tender (and thereafter up to the time of award in relation to any event occurring between the time of submission and the time of award) all information at least in relation to itself that is reasonably relevant to facilitate the Government’s determination as to whether to exercise its right of disqualification, including but not limited to the following:

- (a) details of any petition or proceeding mentioned in Clause 27.3(a) of this Part;
- (b) details of conviction of the Tenderer in respect of offences under the laws of Hong Kong involving bribery, false accounting, corruption or dishonesty handed down any time during a period of five (5) years preceding the Tender Closing Date and thereafter up to the time of award;
- (c) details of conviction of the Tenderer handed down any time during the 5-year period preceding the Tender Closing Date and thereafter up to the time of award in places outside Hong Kong in respect of conduct, which, if done in Hong Kong, would constitute an offence in Hong Kong involving bribery, false accounting, corruption or dishonesty;
- (d) details of all infringement claims or allegations as mentioned in Clause 27.3(e) of this Part; and
- (e) details of all Contract Defaults of the Tenderer as mentioned in Clause 27.3(f) of this Part.

If none of the events as mentioned in Clauses 27.4(a) to 27.4(e) of this Part has ever occurred within the applicable period as mentioned above, the Tenderer shall provide a statement to that effect at the time of submission of its Tender. If found missing, the Government reserves the right to seek clarification pursuant to Clause 27.5 of this Part. The information provided by the Tenderer is not conclusive. The Government may independently verify the veracity and completeness of any information provided. In the case of Contract Default, the Government will form an assessment as to whether or not such Contract Default has occurred.

27.5 In addition to the information mentioned in Clause 27.4 of this Part, the Government reserves the right to request from a Tenderer and take into account, all further information about the Tenderer (or information about any of related persons of the Tenderer, or of any director or management staff of the Tenderer or of any of related persons of such director or management staff that is known or should have been known to the Tenderer) and is reasonably relevant to facilitate the Government’s

determination as to whether to exercise its right of disqualification under Clause 27.3 of this Part. Such information relating to any of the aforesaid persons may include, without limitation, details of any conviction in respect of offences referred to in Clauses 27.4(b) and 27.4(c) of this Part or details of any Contract Default referred to in Clause 27.3(f) of this Part.

- 27.6 If the Tenderer fails to comply with the request made by the Government pursuant to Clause 27.5 of this Part within such time as required by the Government or has otherwise submitted false, inaccurate or incomplete information, the Government may disqualify the Tenderer pursuant to Clause 27.3(b) or 27.3(c) of this Part.
- 27.7 In providing the information required under Clauses 27.4 and 27.5 of this Part, the Tenderer may show cause to satisfy the Government that the petition, proceedings, conviction record, infringement claim or allegation, or Contract Default, as the case may be, does not cast doubt on the fitness, propriety or capability of the Tenderer to perform the Contract to be awarded in this Invitation to Tender.
- 27.8 If the Tenderer is a company, the expression “related person” of the Tenderer includes any one of the following:
- (a) a shareholder (corporate or individual) which directly or indirectly beneficially owns fifty (50) per cent or more of the issued share capital of the Tenderer (“majority shareholder”);
 - (b) a holding company or a subsidiary of the Tenderer;
 - (c) a holding company or a subsidiary of a majority shareholder of the Tenderer; or
 - (d) a company in which a majority shareholder (being an individual) of the Tenderer directly or indirectly beneficially owns fifty (50) per cent or more of its issued share capital or controls the composition of its board of directors.

The expressions “holding company” and “subsidiary” have the meanings given to them in the Companies Ordinance (Chapter 622 of the Laws of Hong Kong).

- 27.9 If the Tenderer is a sole proprietor or partnership, the expression “related person” includes any one of the following:
- (a) any partner of the Tenderer (if it is a partnership);
 - (b) the spouse, parent, child, brother or sister of the Tenderer, and, in deducing such a relationship, an adopted child shall be deemed to be a child both of the natural parents and the adopting parent, and a step child to be a child of both the natural parent and of any step parent; or
 - (c) a company in which the Tenderer or any partner of the Tenderer beneficially directly or indirectly owns fifty (50) per cent or more of its issued share capital or controls the composition of its board of directors.

- 27.10 References to related persons, directors and management staff of the Tenderer or of a related person include persons who were in such capacity any time during the period referred to in Clause 27.3(f) of this Part (if the relevant information concerns a Contract Default) or Clause 27.4(b) or 27.4(c) of this Part (if the relevant information concerns a conviction).

28. Formation of Contract

- 28.1 Unless and until the Articles of Agreement have been executed by both the successful Tenderer and the Government, there is to be no contract between the Government and any Tenderer.

- 28.2 The successful Tenderer will be notified within the Tender Validity Period (such notification is referred to as “conditional acceptance of tender”). Upon receipt of such conditional acceptance of tender, the successful Tenderer shall be obliged to fulfil all of the following conditions to the satisfaction of the Government within twenty-one (21) days of the notification (or such later date as the Government may allow):

- (a) the deposit as required under Clause 24 of this Part where applicable;
- (b) if requested by the Government, the provision of a performance guarantee as required under Clause 24 of this Part where applicable;
- (c) the provision of a legal opinion as required under Clause 12.2 and/or 12.5 of this Part if the successful Tenderer and/or the guarantor under the performance guarantee is incorporated outside Hong Kong;
- (d) if the legal opinion in relation to the successful Tenderer is required as mentioned in Sub-clause (c) above, and that the legal opinion on the issue specified in Clause 12.2(i) of this Part is negative or is subject to conditions not considered to be satisfactory to the Government, the additional opinion on arbitration as well as the successful Tenderer’s written confirmation on arbitration as required in Clause 12.3 of this Part;
- (e) if requested by the Government, the provision of a sub-contractor’s undertaking by a sub-contractor as required under Clause 9.2 of this Part and the provision of a legal opinion as required under Clause 12.5 of this Part in relation to the sub-contractor and the sub-contractor’s undertaking (if applicable);
- (f) if requested by the Government, the agreement to the deletion of any Excess Proposals not accepted by the Government (regardless of whether they were evaluated on under the Marking Scheme and gained marks for the Tenderer) by initialing against the deletions on the version of the relevant Contract Schedules of Part V - Contract Schedules attached to the conditional acceptance of tender and returning the same to the Government for incorporation into the final version of the Contract; the consequential revisions to any of the Top-up Service Fees for Innovative Suggestions and for Excess Proposals shall also be initialed against on the version of Schedule 23 - Price Schedule of Part V - Contract Schedules attached to the conditional acceptance of tender; and

- (g) such other conditions as the Government may stipulate in the conditional acceptance of tender including without limitation the business registration certificate and certificate of registration as a non-Hong Kong company under the Companies Ordinance, Chapter 622 of the Laws of Hong Kong as mentioned in Clause 4.6.3 of this Part (where applicable and where required).

- 28.3 Unless and to the extent waived by the Government in writing, upon fulfilment of the conditions by the Tenderer specified in Clause 28.2 of this Part to the satisfaction of the Government, the Government will, subject to Clause 27 of this Part, enter into the Contract with the successful Tenderer by signing the Articles of Agreement. The Contract will incorporate, to the extent accepted by the Government, the Tender submitted by the successful Tenderer (subject to such other changes as the Government may stipulate in exercise of its powers under the Tender Documents (including without limitation the exclusion of any parts of the Tender which are to be ignored under any provisions of the Tender Documents) or such changes as the parties may agree). If a Tenderer fails to fulfil all or any of the conditions mentioned in Clause 28.2 of this Part (unless and save to the extent they are waived by the Government in writing, if any), or fails to enter into the Articles of Agreement upon notification by the Government (“defaulting Tenderer”), the conditional acceptance of tender will become void and be of no further force. The Government will disqualify the defaulting Tenderer, and it may, but is not obliged to, award the Contract to another Tenderer. Without prejudice to other rights and remedies of the Government, the defaulting Tenderer shall be responsible for the difference in the Tender price submitted by that Tenderer and the eventual Contractor who will be awarded the Contract whether appointed pursuant to this Invitation to Tender exercise or another subsequent invitation exercise. On the other hand, notwithstanding anything in the Tender Documents or in the conditional acceptance of tender to the contrary, in the event that the Government exercises any of its discretion under Clause 27 of this Part, the Government shall be entitled not to enter into the Contract with a Tenderer even if the Tenderer has received a conditional notification of acceptance and fulfilled all the conditions specified in Clause 28.2 of this Part.
- 28.4 Tenderers who do not receive any notification within the Tender Validity Period should assume that their Tenders have not been accepted.
- 28.5 Where an Electronic Record is used in the formation of the Contract, the Contract shall not be denied validity or enforceability on ground that an Electronic Record was used for that purpose.

29. Communication with the Government

- 29.1 All communications given or made by the Government to Tenderer in relation to the Invitation to Tender shall be in writing and sent or delivered to the Tenderer using the contact details specified in Schedule 21 - Other Information of Part V - Contract Schedules and the deemed receipt provision in Clause 66.2 of Part IV - Conditions of Contract shall apply (where applicable). Any enquiries or replies from a Tenderer to the Government shall be issued in accordance with Clause 6.1 of Part I, save that the Government may, by a prior notice to a Tenderer, require the Tenderer to send or

deliver a written communication by post or facsimile or email only. The Tenderer should note that the Government will not accept the use of a postal box as the Tenderer's correspondence address for any purpose whether before or after the award of the Contract.

29.2 All communications in relation to the Invitation to Tender shall be conducted directly between the Government and the Tenderer irrespective of the number of manufacturers or sub-contractors involved.

29.3 Unless otherwise expressly stated by the Government in writing, a statement made by the Government (whether oral or written) in response to any enquiry made by a prospective Tenderer shall be for information only. No such statement shall constitute a representation or warranty by the Government of any nature whatsoever (whether express or implied), and no invitation is made by the Government to any Tenderer or prospective Tenderer to rely on such statement. No such statement shall form part of the Tender Documents or alter, negate or constitute a waiver of any provision of the Tender Documents.

30. Contractors' Performance Monitoring

30.1 If a Tenderer is awarded the Contract, its subsequent performance will be monitored and may be taken into account when its future offers for other tenders / quotations exercises are evaluated.

31. Cost of Tender

31.1 A Tenderer shall submit its Tender at its own cost and expense. The Government shall not be liable for any costs and expenses whatsoever incurred by a Tenderer in connection with the preparation or submission of its Tender including all costs and expenses relating to (a) communication or negotiations with the Government; or (b) attending briefings, document inspections, site visits or surveys made by the Tenderer, whether before or after the Tender Closing Date.

32. Consent to Disclosure

32.1 The Government may disclose, whenever it considers appropriate, to the public or upon request by any member of the public (which may have been a Tenderer) without any further reference to or consent from the successful Tenderer or any other Tenderer, the Tender Documents, particulars (including the nature and quantity) of the products/services to be provided by the successful Tenderer, the date of the award, the name and address of the successful Tenderer, place of origin of the System to be supplied and the Total Estimated Contract Value.

32.2 Nothing in Clause 32.1 of this Part shall prejudice the Government's power to disclose whenever it considers appropriate information of any nature whatsoever in relation to or concerning any Tenderer (successful or unsuccessful) or its Tender (whether or not

specified in Clause 32.1 of this Part and including information recorded in whatever media) if the disclosure is made under any one of the following circumstances:

- (a) the disclosure of any information to any public officer or public body, as defined in the Interpretation and General Clauses Ordinance (Chapter 1 of the Laws of Hong Kong) or any other person employed, used or engaged by the Government (including agents, advisers, contractors and consultants);
- (b) the disclosure of any information already known to the recipient;
- (c) the disclosure of any information which is public knowledge (including due to disclosure to a public body under Clause 32.2(a) of this Part);
- (d) the disclosure of any information in circumstances where such disclosure is required pursuant to any law of Hong Kong, or an order of a court of Hong Kong or a court or a tribunal with competent jurisdiction; or
- (e) the disclosure of any information regarding anti-competitive collusive conduct to the Competition Commission of Hong Kong (and other authorities as relevant);
- (f) without prejudice to the power of the Government under Clause 32.1 of this Part, to the extent the information relates to a Tenderer, with the prior written consent of that Tenderer.

33. Intellectual Property Rights in respect of the Tenders

- 33.1 The Government, its authorised users, assigns and successors-in-title shall have the right to do any of the acts restricted by copyright under sections 22 to 29 of the Copyright Ordinance (Chapter 528 of the Laws of Hong Kong) in respect of the Tenders and all the related documents or materials submitted by the Tenderers, for purposes including but not limited to tender evaluation and the disclosure made pursuant to Clause 32 above and all other purposes incidental thereto.

34. New Information

- 34.1 Each Tenderer should inform the Government in writing immediately of any factor which might affect its ability to meet any requirements of the Tender Documents, e.g., if the Tenderer is no longer the authorised agent for supplying a proprietary product. The Government reserves the right not to consider a Tenderer's Tender further if the Tenderer's continued ability to meet such requirements is in doubt.

35. Personal Data Provided

- 35.1 All personal data provided in a Tender will be used by the Government for the purposes of the Invitation to Tender and all other purposes arising from or incidental to it (including for the purposes of tender evaluation, the award of the Contract and resolution of any dispute arising from this Invitation to Tender). If the Tender is a

successful Tender, the purposes shall be extended to include Contract enforcement and management, and resolution of dispute arising from the Contract. The Government may further disclose the personal data to such persons as it considers necessary for achieving all or any of the aforesaid purposes.

- 35.2 By submitting a Tender, a Tenderer is deemed to have agreed to, and to have obtained from each individual whose personal data is provided in the Tender, his consent for the disclosure to the Government, use and further disclosure by the Government of the personal data for the purposes and to the persons specified in Clause 35.1 of this Part.
- 35.3 An individual to whom personal data belongs and a person authorised by him in writing has the right of access and correction with respect to the individual's personal data as provided for in sections 18 and 22, and Principle 6 of Schedule 1 to the Personal Data (Privacy) Ordinance (Chapter 486 of the Laws of Hong Kong). The right of access includes the right to obtain a copy of the individual's personal data provided in the Tender.
- 35.4 Enquiries concerning the personal data collected by means of the Invitation to Tender, including the making of access and corrections, should be addressed to the Personal Data Privacy Officer of the Leisure and Cultural Services Department.

36. Warning against Bribery

- 36.1 The offer of an advantage to any Government officer with a view to influencing the award of the Contract is an offence under the Prevention of Bribery Ordinance (Chapter 201 of the Laws of Hong Kong). Any such offence committed by a Tenderer or any of its officers (including directors), employees or agents will render its Tender null and void.
- 36.2 The successful Tenderer shall inform its officers, employees (whether permanent or temporary), agents and sub-contractors who are connected with the performance of the Contract, that the soliciting or accepting of advantages, as defined in the Prevention of Bribery Ordinance (Chapter 201 of the Laws of Hong Kong) is not permitted. The successful Tenderer shall also caution its officers, employees and agents and sub-contractors against soliciting or accepting any hospitality, entertainment or inducement which may impair their impartiality in relation to the selection of its sub-contractors, if any, or the supervision of the work of the sub-contractors once selected.

37. Warranty against Collusion

- 37.1 The Tenderer must ensure that the Tender is prepared without any agreement, arrangement, communication, understanding, promise or undertaking with any other person (except as provided in paragraph 3 of the Non-collusive Tendering Certificate referred to in Clause 37.2 of this Part), regarding, amongst other things, price, tender submission procedure or any terms of the Tender. Bid-rigging is inherently anti-competitive and is considered serious anti-competitive conduct under the Competition Ordinance (Chapter 619 of the Laws of Hong Kong). Tenderers who

engage in bid-rigging conduct may be liable for the imposition of pecuniary penalties and other sanctions under the Competition Ordinance.

37.2 The Tenderer shall complete and submit to the Government a Non-collusive Tendering Certificate (in the form set out in Schedule 25 of Part V - Contract Schedules (“Non-collusive Tendering Certificate”) as part of its Tender.

37.3 In the event that a Tenderer is in breach of any of the representations, warranties and/or undertakings in Clause 37.1 of this Part or in the Non-collusive Tendering Certificate submitted by it under Clause 37.2 of this Part, the Government shall be entitled to, without compensation to any person or liability on the part of the Government:

- (a) reject the Tenderer’s Tender;
- (b) if the Government has accepted the Tender, withdraw its acceptance of the Tenderer’s Tender; and
- (c) if the Government has entered into the Contract with the Tenderer, terminate the Contract under Clause 55.1.8 of Part IV - Conditions of Contract.

37.4 By submitting a Tender, a Tenderer is regarded to have undertaken to indemnify and keep indemnified the Government against all losses, damages, costs or expenses arising out of or in relation to any breach of any of the representations, warranties and/or undertakings in Clause 37.1 of this Part or in the Non-collusive Tendering Certificate submitted by it under Clause 37.2 of this Part.

37.5 A breach by a Tenderer of any of the representations, warranties and/or undertakings in Clause 37.1 of this Part or in the Non-collusive Tendering Certificate submitted by it under Clause 37.2 of this Part may prejudice its future standing as a Government contractor or service provider.

37.6 The rights of the Government under Clauses 37.3 to 37.5 of this Part are in addition to and without prejudice to any other rights or remedies available to it against the Tenderer.

38. Authentication of the Submitted Information/Document

38.1 By submitting a Tender in response to the Invitation to Tender, each Tenderer authorises the Government to obtain from

- (a) any person whose particulars are set out in the tender submitted by the Tenderer including the manufacturer and any other proposed sub-contractor specified in the Contract Schedules, and
- (b) any issuing body of any of the certificates or documentary evidence required in the Tender Documents,

all information which the Government considers appropriate and relevant to the evaluation of the Tender including information to verify the legitimacy, completeness, authenticity and accuracy of any information or document submitted by the Tenderer.

If any consent from any other person is required for the Government to obtain any of the aforesaid information or document, the Tenderer represents that such consent has been duly obtained.

39. Complaints about Tendering Process or Contract Awards

The tendering process is subject to internal monitoring to ensure that the relevant contract is awarded properly and fairly. Any Tenderer who feels that its Tender has not been fairly evaluated may write to the Director of Leisure and Cultural Services who will personally examine the complaint and refer it to the approving authority/relevant tender boards for consideration, if the complaint relates to the tendering system or procedures followed. The Tenderer should lodge the complaint within three (3) months after the award of Contract.

40. Documents of Unsuccessful Tenderers

40.1 The Government may destroy all documents submitted by unsuccessful Tenderers twelve (12) months after the date the Contract has been awarded and the Articles of Agreement signed.

40.2 No claim shall be initiated by any unsuccessful Tenderer against the Government arising from this Invitation to Tender twelve (12) months after the date of the Articles of Agreement.

41. Probable Requirements

41.1 Forecast or estimation on the quantities of the services and goods required and the Total Estimated Contract Value payable over the entire Contract Period, and all other information, statistics and forecast set out in the Tender Documents or any information or clarification provided from time to time or given at the briefing session (collectively “briefings”), are provided purely for the Tenderer’s information on an “as is” basis without warranty of any kind. The Government gives no warranty, representation or undertaking that (a) any information, statistics and forecast provided in the Tender Documents or any information or clarification provided from time to time or the briefings or otherwise are sufficient, accurate, complete, suitable or timely for any purpose whatsoever; and (b) there will be purchase of any particular quantity of equipment, hardware, software, program or service from any Tenderer whether specified in the Tender Documents to be provided upon request or demand.

41.2 To the maximum extent permitted by laws, the Government does not accept any liability or responsibility for (a) any claim, legal proceeding, liability, loss (including any direct or indirect loss, any loss of revenue, profit, business, contract or anticipated saving), (b) damage (including any direct, special, indirect or consequential damage of whatsoever nature) or (c) any cost or expense, suffered or incurred by any Tenderer arising from the use of, or reliance on, any information, statistics or forecast provided in the Tender Documents, or any information or clarification provided from time to time or in the briefings, or otherwise that the actual price payable on and subject to the

Contract do not meet the expectation or projection of any Tenderer or do not recoup the investment cost incurred or by any margin of the Total Estimated Contract Value.

- 41.3 Each Tenderer acknowledges to the Government that it has not relied on or been induced to submit its Tender by any representation, warranty, forecast, estimate, or projection given by the Government or any of its officers, employees, agents, advisers, consultants or contractors.
- 41.4 No Tenderer will in any way be relieved from any obligation under the Tender Documents nor shall it be entitled to claim against the Government on grounds that any information, whether obtained from the Government or otherwise (including information made available by the Government) is incorrect or insufficient. The Tenderer shall make its own enquiries as to the accuracy and adequacy of all such information.

**Tender Evaluation Procedures and Assessment Criteria for
Provision of the Ticketing System and Operation Services to the Leisure
and Cultural Services Department**

A two-envelope approach will be adopted for the tender evaluation whereby price assessment will be conducted separately from and subsequent to technical assessment. **The relative weightings for technical and price assessments are 70% and 30% respectively.** The tender evaluation will be conducted in accordance with the procedures and criteria as detailed below:

(a) Stage 1 - Completeness Check on the Tenders Submitted

- (i) A completeness check will be conducted by checking whether a Tender has been submitted in accordance with the requirements of the Tender Documents (except price information which will be checked in Stage 4). **If a Tenderer fails to submit any of the documents stipulated below by the Tender Closing Date, its Tender will not be considered further.**

(1) Part V - Contract Schedules

Contract Schedules 1 to 8, 14 to 15, 17 to 21, and 23

(2) Part VI - Offer to be Bound

A signed Part VI - Offer to be Bound by or on behalf of the Tenderer.

- (ii) A Tender which fails the completeness check in Stage 1 will not be considered further. A Tender which has passed this Stage will proceed to Stage 2 assessment.

(b) Stage 2 - Assessment of Compliance with Essential Requirements

- (i) Part A - Assessment of compliance of the essential requirements based on the submitted statement of compliance

The statement of compliance submitted by the Tenderer using the form in Schedule 19 of Part V - Contract Schedules (“statement of compliance”)

will be checked to see whether the Tenderer has indicated that its Tender will comply with the essential requirements contained in Annex B to Part II - Conditions of Tender and in Part VII - Project Specifications. **A Tenderer's Tender will not be considered further if the Tenderer expressly indicates non-compliance with any of the essential requirements stipulated in Annex B to Part II - Conditions of Tender or in Part VII - Project Specifications and further provides details of such non-compliance in the statement of compliance. For the avoidance of doubt, where the Tenderer has confirmed compliance in the statement of compliance but has at the same time submitted counter-proposal in relation to any essential requirement, such counter-proposal will be dealt with in accordance with Clause 19 of Part II - Conditions of Tender.**

A Tender which has passed Part A of Stage 2 evaluation will proceed to Part B of Stage 2 evaluation.

- (ii) Part B - Assessment of compliance with essential requirements specified in Annex B of Part II - Conditions of Tender and Part VII - Project Specifications

Even if the Tenderer has confirmed compliance with all or any essential requirements in the statement of compliance, its Tender will be checked for compliance with all essential requirements as detailed in Annex B to Part II - Conditions of Tender and in Part VII - Project Specifications to the extent such compliance can be further verified based on (1) the proposals and information available to the Government from the Tenderer or information from another source, or (2) the lack of any proposal or information from the Tenderer, either because it not having been submitted in accordance with the Tender Documents, or it not having been provided upon any request from the Government as part this evaluation. **A Tender which fails to fully meet any of the essential requirements based on this Part B assessment will not be considered further.** A Tender which has passed Stage 2 evaluation will proceed to Stage 3 evaluation.

(c) Stage 3 - Technical Assessment

- (i) Assessment based on the criteria stated in the marking scheme specified in Annex C of Part II - Conditions of Tender.

A Tender will be evaluated in accordance with the criteria stated in the Marking Scheme specified in Annex C of Part II - Conditions of Tender.

- (ii) For calculating the weighted technical score which accounts for 70% of the final combined score, the highest scoring Tender after the above assessment will be given the maximum weighted technical score of 70 and the remaining Tenders will be given a weighted technical score in accordance with the following formula:

$$\begin{array}{l} \text{Weighted technical} \\ \text{score of a Tender} \\ \text{that has passed} \\ \text{Stages 1, 2 and 3} \\ \text{evaluation} \end{array} = 70 \times \frac{\begin{array}{l} \text{Total mark attained by the} \\ \text{Tender being assessed} \end{array}}{\begin{array}{l} \text{Highest total mark among the} \\ \text{Tenders that have passed} \\ \text{Stages 1, 2 and 3 evaluation} \end{array}}$$

Those Tenders which have passed Stages 1, 2 and 3 evaluation will proceed to Stage 4 evaluation.

(d) Stage 4 - Price Assessment

Completeness check: The price information of Tenders which have passed Stages 1, 2 and 3 will be checked to ensure completeness of the Price Proposal. **If a Tenderer fails to submit Schedule 23 - Price Schedule of Part V - Contract Schedules by the Tender Closing Date, its Tender will not be considered further.**

The price assessment of those Tenders which have passed the completeness check of Stage 4 will be evaluated as follows:

The lowest tender price submitted by a Tenderer amongst all other Tenderers that have passed Stages 1, 2 and 3 evaluation will be given the highest weighted price score of 30 and the remaining Tenders will be given a weighted price score in accordance with the following formula:

$$\begin{array}{l} \text{Weighted price} \\ \text{score of a Tender} \\ \text{that has passed} \\ \text{Stages 1, 2 and 3} \\ \text{evaluation} \end{array} = 30 \times \frac{\begin{array}{l} \text{Lowest tender price among} \\ \text{the Tenders that have passed} \\ \text{Stages 1, 2 and 3 evaluation} \\ \text{Tender price of the Tender} \\ \text{being assessed} \end{array}}$$

(Note: The tender price is calculated as specified in Clause 23.1 of Part II - Conditions of Tender.)

(e) Stage 5 - Calculation of Combined Score

The combined score of each of the tender proposals that have completed Stage 4 evaluation will be calculated as follows:

$$\begin{array}{l} \text{Combined} \\ \text{score} \end{array} = \begin{array}{l} \text{Weighted} \\ \text{technical score} \end{array} + \begin{array}{l} \text{Weighted} \\ \text{price score} \end{array}$$

Note: If rounding rule is required, calculations should be rounded to the nearest two decimal places. In other words, figures with value at the third decimal place larger than or equal to 0.005 will be rounded up by adding 0.01 to the figures and curtailing the third decimal place onward, whereas figures with value at the third decimal place below 0.005 will be rounded down by curtailing the third decimal place onward without changing the value at the second decimal place.

Assessment of Compliance with Essential Requirements

Each Tender will be checked to ensure its compliance with all essential requirements as detailed below. **A Tender which fails to fully meet any of these essential requirements will not be considered further.**

Item No.	Essential Requirements	Relevant provisions of the Tender Documents
1	Essential requirements in Part VII - Project Specifications	
	The Tenderer and its proposals in the Tender shall comply with all essential requirements specified in Part VII – Project Specifications.	Part VII – Project Specifications
2	The experience and qualification of the nominee for each key role of the Implementation Team	
	Without prejudice to the generality of essential requirements specified in Item No. 1 above, the Tenderer shall have proposed nominee(s) for each key role in the Implementation Team in accordance with the number, qualification and experience as required under Section 17 of Part VII – Project Specifications.	Section 17 of Part VII – Project Specifications

Notes:

- (a) “Original Tender Closing Date” is the latest date by which Tenders must be lodged as stipulated in Part I – Notes for Tenderers, regardless of whether the date has been extended subsequently.
- (b) The experience of all nominees for all key roles of the Implementation Team (“nominee for a key role”) will be taken into account regardless of whether they are the employees or sub-contractors of the Tenderer or employees of such sub-contractors.

- (c) The qualification and experience requirements of each nominee for a key role shall be determined as at the Original Tender Closing Date. All experience of a nominee of a key role is counted in days and all such experience in days shall be added up and then divided by 365 days to arrive at the number of complete years (i.e. each complete year with 365 days) covered by such total period with any remainder period of experience in days which falls short of one complete year of 365 days to be ignored. Different experience overlapping on the same day will be counted as one day of experience only.
- (d) IT experience in relation to a nominee for a key role refers to the full-time involvement in IT job positions irrespective of the functional/specialty experience of that nominee. The following is not taken as IT experience:
- (1) Time spent on full-time undergraduate or full-time postgraduate studies on IT;
 - (2) Time spent on sandwich training in full-time undergraduate or full-time postgraduate studies on IT;
 - (3) Sales or marketing of IT related products and services; and
 - (4) Teaching of IT related subjects.

Detailed Evaluation Criteria

Part A - Summary of the Marking Scheme

1. Summary of the Marking Scheme

This Annex C – Detailed Evaluation Criteria to Part II – Conditions of Tender will be used for evaluation of tenders under Stage 3 – Technical Assessment as specified in Annex A (Tender Evaluation Procedures and Assessment Criteria) to Part II – Conditions of Tender (“Marking Scheme”).

2. Assessment criteria and allocation of marks

Summary of the Sections and their Groupings as more particularly described in Part B of this Marking Scheme	100 maximum marks
A. Section A comprising three groupings of assessment criteria (“Groupings”), viz., Groupings A(I) to A(III) with each Grouping comprising its own sub-grouping of assessment criteria as follows:	85
I. The proposed Execution Plan (“Grouping A(I)”) <ol style="list-style-type: none"> 1. The team structure and resources allocation plan (“sub-grouping A(I)(1)”) <ol style="list-style-type: none"> 1. Flexibility (“sub-grouping A(II)(1)”) <ol style="list-style-type: none"> 2. Reliability and resilience (“sub-grouping A(II)(2)”) <ol style="list-style-type: none"> 3. Security (“sub-grouping A(II)(3)”) <ol style="list-style-type: none"> 4. Usability (“sub-grouping A(II)(4)”) <ol style="list-style-type: none"> 1. Type I – benefits derived are directly relevant to the procurement covered by this Invitation to Tender (“sub-grouping A(III)(1)”) <ol style="list-style-type: none"> 1. Project Manager’s IT project management experience (“sub-grouping B(II)(1)”); 	
B. Experience and qualification (comprising two (2) Groupings, Grouping B(I) and Grouping B(II))	15
I. The Tenderer’s experience and qualification (“Grouping B(I)”) <ol style="list-style-type: none"> 1. Reference IT Projects performed by the Tenderer (“sub-grouping B(I)(1)”); and 2. Accreditations attained by the Tenderer (“sub-grouping B(I)(2)”) <ol style="list-style-type: none"> 1. Project Manager’s IT project management experience (“sub-grouping B(II)(1)”); 	
II. Experience and qualifications of the nominees for the key roles of the Implementation Team (“Grouping B(II)”) <ol style="list-style-type: none"> 1. Project Manager’s IT project management experience (“sub-grouping B(II)(1)”); 	

2. Project Manager’s IT project management certifications (“sub-grouping B(II)(2)”); and 3. Key project staff’s relevant IT experience (“sub-grouping B(II)(3)”)	
Total Marks	100

Part B - the Marking Scheme

A Tenderer who has passed Stage 1 and Stage 2 evaluations as specified in Annex A to Part II – Conditions of Tender will proceed to the Stage 3 – Technical Assessment according to the detailed evaluation criteria as shown below:

Detailed Evaluation Criteria for the Technical Assessment					
No.	Assessment Criteria	Maximum Mark	Passing Mark	The relevant Table(s) of the Schedule(s) of Part V – Contract Schedules to be completed by the Tenderer	Guidelines to Tenderers for Attaining Marks in Technical Assessment
A.	The proposed Execution Plan, the proposed Technical Solution and Innovative Suggestions	85	N/A		
I.	The proposed Execution Plan	5	N/A		
1.	The team structure and resources allocation plan The Tenderer may wish to propose excess roles of the Implementation Team (a different role from any of such roles as prescribed in Section 17.4.1 of Part VII - Project Specifications) in excess of the original requirements specified in the Tender Documents and the man-months to be performed by these excess roles.	5	N/A	Part A of Table 7.3 of Schedule 7 of Part V - Contract Schedules	Marks will be given according to the total number of man-months to be performed by all excess roles committed by the Tenderer and the man-months to be performed by these excess roles. To determine if any marks shall be given, it shall be looked at whether the proposed excess roles are relevant to the Implementation Services.
II.	The proposed Technical Solution	60	N/A		
1.	Flexibility Flexibility means the ability of the proposed Technical Solution to adapt its architecture and/or design to changes. For the desirable flexibility feature specified below in excess of the original requirements specified in Part VII - Project Specifications, the Tenderer may wish to provide details of the proposed Technical Solution to achieve the feature: <ul style="list-style-type: none"> • The System will have the capacity to perform 150 000 or more concurrent sessions, viz., at least 50 000 more concurrent sessions in excess of the original requirement specified in Section 5.4.3.3 of Part VII - Project Specifications. 	4	N/A	Part A of Table 4.1 of Schedule 4 of Part V - Contract Schedules	Marks will be given according to the excess number of concurrent sessions that the proposed System will have the capacity to achieve based on the effective and practicable details in the proposed Technical Solution.
2.	Reliability and resilience Reliability for the purpose of this Marking Scheme means one of the Reliability Levels of the System comprising the committed	16	N/A	Schedule 12 of Part V - Contract Schedules for proposing a better committed switch over time; Schedule	Marks will be given according to the committed serviceability level, the committed switch over time and the number of desirable resilience features achieved based on the effective and

Detailed Evaluation Criteria for the Technical Assessment					
No.	Assessment Criteria	Maximum Mark	Passing Mark	The relevant Table(s) of the Schedule(s) of Part V – Contract Schedules to be completed by the Tenderer	Guidelines to Tenderers for Attaining Marks in Technical Assessment
	<p>serviceability level. Resilience means the ability of the proposed System to keep operating even with one or more of its components malfunctioning and the System’s ability to recover from failure.</p> <p>The Tenderer may wish to provide the committed serviceability level and committed switch over time in the Schedules specified in the fifth column opposite which should be higher than the minimum serviceability level and less than the switch over time as stated therein.</p> <p>Separately, for the desirable resilience features specified below in excess of the original requirements specified in Part VII - Project Specifications (each a “desirable resilience feature”), the Tenderer may wish to provide details of the proposed Technical Solution to achieve the feature:</p> <p>(a) Any one faulty hardware or software can resume service in 15 minutes or less after a failover process by switching to another component upon such hardware or software failure to avoid any one single point of failure; and</p> <p>(b) The proposed System will implement an active-active mode for the database servers in the production environment of the Private Cloud to allow load sharing and better utilisation.</p>			13 of Part V - Contract Schedules for completing the proposed committed serviceability level and Part B of Table 4.1 of Schedule 4 of Part V - Contract Schedules for proposing a desirable resilience feature.	practicable details in the proposed Technical Solution.
3.	<p>Security</p> <p>Security means the technology as well as the technological and managerial procedures applied to the proposed Technical Solution to ensure better availability, integrity and confidentiality of data.</p> <p>For each desirable security feature specified below in excess of the original requirements specified in Part VII - Project Specifications (each a “desirable security feature”), the Tenderer may wish to provide details of the proposed Technical Solution to achieve the feature:</p>	16	N/A	Part C of Table 4.1 of Schedule 4 of Part V - Contract Schedules	Marks will be given according to the number of desirable security features achieved based on the effective and practicable details in the proposed Technical Solution.

Detailed Evaluation Criteria for the Technical Assessment					
No.	Assessment Criteria	Maximum Mark	Passing Mark	The relevant Table(s) of the Schedule(s) of Part V – Contract Schedules to be completed by the Tenderer	Guidelines to Tenderers for Attaining Marks in Technical Assessment
	<p>(a) The proposed System uses blockchain technology for management and tracking transfer of e-tickets to improve fraud protection and minimise the possibility of counterfeit tickets;</p> <p>(b) Provision of 5 or more security features that can effectively safeguard against counterfeiting of admission tickets in paper form, viz., at least 2 more in excess of the minimum quantity as specified in Sections 4.5.13.10.10 and 12.13.1 of Part VII - Project Specifications;</p> <p>(c) The proposed System uses a security log management tool to facilitate the log review exercise which can send out alerts by email or text message when suspected activities are detected from the system logs and generate statistical reports after log review; and</p> <p>(d) The Tenderer proposes a schedule for the installation of security updates and patches at least four times a year, except for the workstations at the outlets and offices, viz., at least 2 more times a year in excess of the original requirement as specified in Section 11.5.5.1 of Part VII - Project Specifications.</p>				
4.	<p>Usability</p> <p>Usability means the convenience and practicality of the proposed Technical Solution.</p> <p>For each desirable usable feature specified below in excess of the original requirements specified in Part VII - Project Specifications (each a “desirable usability feature”), the Tenderer may wish to provide details of the proposed Technical Solution to achieve the feature:</p> <p><u>System maintenance facility</u></p> <p>(a) Provision of a VM or physical workstation for remote control of</p>	24	N/A	Part D of Table 4.1 of Schedule 4 of Part V - Contract Schedules	Marks will be given according to the number of desirable usability features achieved based on the effective and practicable details in the proposed Technical Solution.

Detailed Evaluation Criteria for the Technical Assessment					
No.	Assessment Criteria	Maximum Mark	Passing Mark	The relevant Table(s) of the Schedule(s) of Part V – Contract Schedules to be completed by the Tenderer	Guidelines to Tenderers for Attaining Marks in Technical Assessment
	<p>workstations at outlets to handle remote patch management.</p> <p><u>Communication facility</u></p> <p>(b) In addition to the Operation Team to be staffed for performing the online enquiry service, mobile enquiry service, telephone ticketing and enquiry services, the proposed System will provide Chatbot function to facilitate convenient communication with patrons for these enquiry services.</p> <p><u>Dynamic pricing</u></p> <p>(c) The proposed System will be able to provide automated rules and pricing logics to help establish patterns (e.g. number of tickets sold) and set variable price points for the same event as well as manual adjustments of pricing on the fly. Authorised persons are allowed to set rules to limit the maximum and minimum price for change of any seats in a given event.</p> <p><u>Subscription sale of multiple events within one season or a series (viz., sale of tickets for more than one event within a season or series through one single ticket sale transaction) during a predefined sale period</u></p> <p>(d) The proposed System will be able to:</p> <ul style="list-style-type: none"> • allow priority sale of tickets under subscription sale to selected groups of privileged patrons authorised by event presenters before official public sale of tickets (“priority patrons”). Event presenters are allowed to set up events in the System and design associated webpage for secure access and payment by such priority patrons through the same modes of payment available in public sale; • capture the same seat bought by the same patron for the same venue facility in a season in ticket history as “renewal seat” for the next season and give the option to the patron to buy the same seat in the next season under another subscription sale for 				

Detailed Evaluation Criteria for the Technical Assessment					
No.	Assessment Criteria	Maximum Mark	Passing Mark	The relevant Table(s) of the Schedule(s) of Part V – Contract Schedules to be completed by the Tenderer	Guidelines to Tenderers for Attaining Marks in Technical Assessment
	<p>that next season. Ticket history of the renewal seat of patrons will be updated whenever there is any modification to ensure the accuracy of renewals in subscription sale of tickets of the next season;</p> <ul style="list-style-type: none"> • give the option to the patron to choose the same seat(s) for all performances at the same venue facility in the same season or all events of the same series or of the same festival during one single purchase transaction. If any seats requested by patrons have been sold, the System can choose the best available seats and alert patrons with on-screen message; and • The System shall give the option to the event presenter to pre-define areas of the seat plan for the sale of box seats, table seats, or any other fixed seats within such predefined areas with group package discount. The System will have the function to allow the presenter to restrict tickets of individual box to be sold one by one. The System will also have the function to only allow exchange of package tickets within the whole of the pre-defined area and restrict any exchange of just some but not all tickets within such pre-defined area. 				
III.	<p>Innovative Suggestions</p> <p>Tenderers are encouraged to make Innovative Suggestions which are directly relevant to the procurement covered by this Invitation to Tender (viz., Innovative Suggestions Type I and the first sub-grouping).</p>	20	N/A	Schedule 26 of Part V - Contract Schedules	
1.	<p>Innovative Suggestions Type I are directly relevant to the procurement covered by this Invitation to Tender.</p> <p>Tenderer may propose Innovative Suggestions Type I that can bring one or more of the following types of benefits and are directly relevant to the procurement covered by this Invitation to Tender:</p>	20	N/A	Schedule 26 of Part V - Contract Schedules	Marks will be given according to the number of Innovative Suggestions Type I (up to a maximum of 5) that will bring one or more benefit(s) as specified in the second column opposite. One Innovative Suggestion Type I achieving more than one type of benefits will normally be treated as one Innovative Suggestion Type I only. Whether or not proposal(s) should be treated as

Detailed Evaluation Criteria for the Technical Assessment					
No.	Assessment Criteria	Maximum Mark	Passing Mark	The relevant Table(s) of the Schedule(s) of Part V – Contract Schedules to be completed by the Tenderer	Guidelines to Tenderers for Attaining Marks in Technical Assessment
	(a) quality control of the services and capabilities to keep up with technology advancement in ticketing system; (b) prevention of ticket scalping; (c) provision of fast and secure admission control including but not limited to facial recognition; (d) marketing and promotion of events; and (e) new or enhanced ticketing service.				one or more than one Innovative Suggestion Type I shall be determined by the Government.
B	Experience and qualification	15	N/A		
I.	The Tenderer’s experience and qualification	6	N/A		
1.	Reference IT Projects performed by the Tenderer The Tenderer may wish to provide details of the Reference IT Project(s) performed by the Tenderer which concerned the business area for the implementation of IT system(s) in each such Reference IT Project as further specified in the definition of “Reference IT Projects” in paragraph 1(l) of Part C of the Marking Scheme.	4	N/A	Tables 20.1, 20.2, 20.3 and 20.4 of Schedule 20 of Part V - Contract Schedules	Marks will be given to a Tenderer according to the number of Reference IT Project performed by the Tenderer (up to a maximum of 4).
2.	Accreditations attained by the Tenderer The Tenderer may wish to provide details of accreditations listed below that the Tenderer has attained which are valid as at the Original Tender Closing Date and remain to be valid as at the Tender Closing Date (if different from the Original Tender Closing Date): <ul style="list-style-type: none"> • ISO 9001 in accordance with guidelines ISO/IEC 90003 and with scope of certification related to system implementation • Capability Maturity Model Integration (CMMI) Level 3 or above • Computer Information System Integration Qualification Certification (計算機信息系統集成資質認證) 	2	N/A	Row (o) of Table 20.4 of Schedule 20 of Part V - Contract Schedules	Marks will be given to the Tenderer that has provided copy of certificate(s) for one or more of the accreditations specified in the second column opposite issued in its name (in the case that the Tenderer is a joint venture, in the name of any party to that joint venture) that are valid as at the Original Tender Closing Date and remain to be valid as at the Tender Closing Date (if different from the Original Tender Closing Date) in the manner as follows:

Detailed Evaluation Criteria for the Technical Assessment					
No.	Assessment Criteria	Maximum Mark	Passing Mark	The relevant Table(s) of the Schedule(s) of Part V – Contract Schedules to be completed by the Tenderer	Guidelines to Tenderers for Attaining Marks in Technical Assessment
	<ul style="list-style-type: none"> ISO 27001 				$\frac{\text{Number of valid accreditation(s) attained and provided}}{\text{Number of accreditations specified in the second column opposite}} \times 2 \text{ marks}$ <p>Marks will only be given to the accreditations specified in the second column opposite and more marks will be given for more of the specified accreditations attained irrespective of whether they are attained by the Tenderer itself or if the Tenderer is a joint venture (incorporated or unincorporated), any of its joint venture parties, where applicable and irrespective of the percentage of the joint venture party's equity or financial contribution in the joint venture, but the same accreditation (i.e. an accreditation attained by (i) the Tenderer itself and one or more joint venture parties or (ii) two or more joint venture parties) will be counted once only.</p>
II.	Experience and qualifications of the nominees for the key roles of the Implementation Team	9	N/A		
1.	<p>Project Manager's IT project management experience</p> <p>The Tenderer may wish to provide details of the IT project management experience of the nominee for the key role of Project Manager for the Implementation Team in excess of the original requirements specified in the Tender Documents, viz., (a) in excess of the years of IT experience of the Project Manager in the management of IT project(s) for the implementation of an IT system(s); and (b) provided further that all the years of IT project management experience (including the excess years) shall have been gained from the management of IT system(s) which provided real-time ticketing services and each such IT system had issued a minimum of 1,000,000 tickets for events held at culture/entertainment/sports venues over a continuous period of 12 months prior</p>	4	N/A	Table 7.2 of Schedule 7 of Part V - Contract Schedules	<p>Marks will be given according to the number of complete years of IT project management experience possessed by the nominee of the Project Manager of the Implementation Team in excess of the original requirements as specified in the Tender Documents (up to a maximum of 4) ("excess experience").</p> <p>More marks will be given to a nominee who has more years of IT project management experience in excess of the original requirements in the Tender Documents. If more than one individual has been proposed, the Government will conduct the evaluation based on paragraph 2(j) of Part C of this Annex under this sub-grouping B(II)(1) and the sub-grouping B(II)(2) below.</p>

Detailed Evaluation Criteria for the Technical Assessment					
No.	Assessment Criteria	Maximum Mark	Passing Mark	The relevant Table(s) of the Schedule(s) of Part V – Contract Schedules to be completed by the Tenderer	Guidelines to Tenderers for Attaining Marks in Technical Assessment
	to the Original Tender Closing Date.				
2.	<p>Project Manager’s IT project management certifications</p> <p>The Tenderer may wish to provide details of the project management certifications attained by the nominee proposed for the key role of Project Manager for the Implementation Team.</p> <p>Project management certifications listed below that the nominee proposed for the key role of Project Manager has attained which are valid as at the Original Tender Closing Date and remain to be valid as at the Tender Closing Date (if different from the Original Tender Closing Date):</p> <ul style="list-style-type: none"> • PRINCE2 Practitioner • Project Management Professional (PMP) • Computer Information System Integration Project Manager Qualification (SIPM) (計算機信息系統集成項目經理資質證書) • Certified Professional IT (Quality Assurance Management) 	1	N/A	Table 7.2 of Schedule 7 of Part V - Contract Schedules	<p>Mark will be given to the Tenderer that has provided copy of certificate(s) or transcript(s) for one or more of the project management certifications specified in the second column opposite attained by the nominee proposed for the key role of Project Manager that are valid as at the Original Tender Closing Date and remain to be valid as at the Tender Closing Date (if different from the Original Tender Closing Date) in the manner as follows:</p> $\frac{\text{Number of valid certification(s) attained and provided}}{\text{Number of certifications specified in the second column opposite}} \times 1 \text{ mark}$
3.	<p>Key project staff’s relevant IT experience</p> <p>The Tenderer may wish to provide details of the average number of years of “relevant IT experience” of the proposed key project staff, excluding the proposed Project Manager that exceed the original requirements specified in the Tender Documents. The “relevant IT experience” of a nominee for a key role is defined as IT experience of each nominee in excess of the original requirements concerning minimum years of functional/specialty experience for such key role specified in the Tender Documents.</p>	4	N/A	Table 7.2 of Schedule 7 of Part V - Contract Schedules	<p>Marks will be given according to the average of the number of complete years of “relevant IT experience” possessed by all nominees of all Key Roles of the Implementation Team (excluding the Key Role of Project Manager) in excess of the original requirements as specified in the Tender Documents (up to a maximum of 4).</p>

Part C – Definitions and Rules

1. Definitions

Unless otherwise defined herein, terms and expressions defined in Part II- Conditions of Tender and Part IV- Conditions of Contract shall have the same meaning throughout the Marking Scheme. In addition:

- (a) “ancillary tables” means Table 1.1 of Schedule 1 – Hardware of Part V – Contract Schedules for setting out any excess hardware, Table 2.1 of Schedule 2 - Software of Part V – Contract Schedules for setting out any excess software, except that for Additional Hardware or Software Proposals, Table 1.1 of Schedule 1 and Table 2.1 of Schedule 2 of Part V – Contract Schedules shall not be treated as ancillary tables.
- (b) “concurrent sessions” means in relation to the online ticketing platform to be deployed for performing the online ticketing and enquiry services, and the mobile ticketing platform which is the mobile app to be used for performing the mobile ticketing and enquiry services, the sessions on these platforms at the same time whether for browsing, enquiry and ticket purchasing.
- (c) “proposed Execution Plan” or “Execution Plan” means collectively all of the proposals submitted for evaluation under any of the applicable assessment criterion of Grouping A(I).
- (d) “proposed System” means the System to be implemented by the Completion Date.
- (e) “Excess Proposal” means a proposal from the Tenderer which exceeds the original requirements set out in the Tender Documents and is shown to be practicable and achievable. An Excess Proposal may be set out in the proposed Execution Plan for assessment under Grouping A(I), or set out in the proposed Technical Solution for assessment under Grouping A(II), or an Innovative Suggestion for assessment under Grouping A(III), or a proposal on the nominee of the Project Manager for assessment under sub-grouping B(II)(1) and (2) or nominees of the key project staff for assessment under sub-grouping B(II)(3).
- (f) “functional/specialty IT experience” means in relation to a key role of the Implementation Team, the functional/specialty IT experience for such key role as specified in Section 17 of Part VII – Project Specifications.
- (g) “key project staff” means collectively all nominees proposed for filling the respective minimum numbers (as defined in Schedule 7 - Contractor Personnel and Their Duties of Part V – Contract Schedules) of all key roles of the Implementation Team.
- (h) IT experience refers to the full-time involvement in IT job positions irrespective of the functional/specialty experience of the person nominated as project staff. The following is not taken as IT experience:
 - (1) Time spent on full-time undergraduate or full-time postgraduate studies on IT;
 - (2) Time spent on sandwich training in full-time undergraduate or full-time postgraduate studies on IT;
 - (3) Sales or marketing of IT related products and services; and
 - (4) Teaching of IT related subjects.
- (i) “Innovative Suggestion Type I” or “Innovative Suggestions” means a proposal submitted for evaluation under sub-grouping A(III)(1).
- (j) “original requirements” (in upper or lower case) means the requirements as stated in the Tender Documents in the version as published on the issuance date plus any further addendum to such Tender Documents which may be issued by the Government regardless of whether or not they are identified as essential requirements but excluding all specifications which are expressly stated as desirable specifications.

- (k) “Original Tender Closing Date” is the latest date by which tenders must be lodged as stipulated in Clause 2 - Lodging of Tender of Part I - Notes to Tenderers, regardless of whether the date has been extended subsequently. “Tender Closing Date” means the latest applicable date by which tenders must be lodged, including all subsequent extensions (if any).
- (l) A “Reference IT Project” must fulfil all of the following conditions in order to be treated as one “Reference IT Project” for gaining marks under the applicable assessment criterion of sub-grouping B(I)(1):
- for monetary value: it shall be a project to provide IT system implementation service for a total one-off contract value attributable to the implementation of such IT system (including both implementation service and supply of hardware and software) which is not less than HK\$20 million (“IT system”). For projects with a contract value stated in a foreign currency, the exchange rate for conversion to Hong Kong currency shall be the opening selling rate of the relevant currency quoted by the Hong Kong Association of Banks on the Original Tender Closing Date. It is at the Government’s sole discretion to decide whether purported multiple projects are in fact one single Relevant IT Project and should be counted as one only or vice versa;
 - for business area: the IT system that was implemented in the Relevant IT Project was to provide real-time ticketing services and had issued a minimum of 1 million tickets over a consecutive 12 months’ period prior to the Original Tender Closing Date;
 - for completion date: system acceptance of the IT system must be any time within the 10 years prior to the Original Tender Closing Date;
 - for the identity of the contractor to the previous contract in relation to the implementation of the Reference IT Project: (i) the Tenderer; or (ii) a joint venture party of the Tenderer (provided that the requirements specified in paragraph 20.2.4 of Schedule 20 of Part V – Contract Schedules are fulfilled and taken into account); or (iii) a previous joint venture in which the Tenderer had participated (provided that the requirements specified in Clauses 11.7 and 11.8 of Part II – Conditions of Tender are fulfilled). If (ii) or (iii) is applicable, the relevant contractor shall be deemed to be the Tenderer.
- (m) “proposed Technical Solution” or “Technical Solution” means collectively all of the proposals submitted for evaluation under Grouping A(II); and
- (n) all terms defined in the other Parts of this Marking Scheme have the same meanings when appearing in this Marking Scheme and throughout the Tender Documents.

2. Rules to be adopted in conducting the assessment under this Marking Scheme

- (a) For all assessment criteria, in order to gain marks, the Excess Proposal from the Tenderer must exceed the original requirements set out in the Tender Documents and be shown to be achievable. All Excess Proposals of the Tenderer which exceed the original requirements if accepted by the Government will form part of the Contract.
- (b) Where the Tenderer wishes to submit an Excess Proposal to earn mark under an assessment criterion (regardless of the applicable sub-grouping or Grouping or Section), the Tenderer must submit the relevant Excess Proposal using the form in such part of the Tender Documents specified in the fifth column opposite such assessment criterion in Part B of this Marking Scheme or otherwise in a document clearly identified as being such part of the Tender Documents (using the same numbering and/or title) but excluding any ancillary tables specified in the fifth column if not applicable. Subject to any request for clarification which the Government may, but is not obliged to make, any alleged proposal set out in other parts of the Tender or in a document not clearly identified as being such part of the Tender Documents will not be evaluated under this Marking Scheme, but may, at the option of the Government, form part of the Contract.
- (c) Each Excess Proposal shall be evaluated under one Grouping of any one Section only even if more than one Grouping of the same or different Section may be applicable. The Tenderer should specify the Grouping to which the Excess Proposal relates when submitting the Excess Proposal in the relevant parts of the Tender Documents (unless that relevant part of the Tender Documents already specifies the applicable Grouping by default (“default Grouping”) whereupon the default Grouping shall prevail over any contrary proposal from the Tenderer). If there is no default Grouping, and the Tenderer has submitted the same Excess Proposal in more than one part of the Tender Documents, and the Tenderer has not indicated the singularly applicable Grouping in these relevant parts, and provided further that Grouping A(III) is applicable, the Government will have the discretion to assess the Excess Proposal under Grouping A(III). However, in the event that the full marks allocated to Grouping A(III) have already been attained by the Tenderer from other Innovative Suggestions proposed by the Tenderer which are different from the Excess Proposal, or otherwise that Grouping A(III) is not applicable, the Government will have the discretion to choose the earliest number of the applicable Groupings for assessment of the Excess Proposal.
- (d) An Excess Proposal may earn mark under more than one assessment criterion of different sub-groupings of the same Grouping to the extent applicable.
- (e) The pricing of all Excess Proposals shall be provided by the Tenderer in Schedule 23 - Price Schedule of Part V – Contract Schedules. They shall be included in the tender price to be evaluated regardless of whether or not any such Excess Proposals accrues mark for the Tenderer under this Marking Scheme and regardless of whether the Government will eventually choose to accept such Excess Proposals in the Contract. If the Government does not adopt such Excess Proposals, the prices for the Excess Proposals will be taken out from the Contract.
- (f) The evaluation based on all assessment criteria will be conducted on the basis of the Excess Proposals and supporting information submitted in the manner specified in Rule 2b above, and where applicable, supporting documents (including without limitation product specification published by the manufacturer or test reports or certificates) to be provided by the Tenderer upon request by the Government. In the absence of such supporting documents, such proposal will not be taken into account in the evaluation.
- (g) The following rounding rule shall be adopted for the purpose of the evaluation under this Marking Scheme. Any figure if not a whole figure shall be rounded to the nearest two (2) decimal places. In other words, figures with value at the third decimal place larger than or equal to 0.005 will be rounded up by adding 0.01 to the figures and curtailing the third decimal place onward, whereas figures with value at the third decimal place below 0.005 will be rounded down by curtailing the third decimal place onward without changing the value at the second decimal place.
- (h) For the purpose of the assessment criterion in sub-grouping B(II)(1), all experience of a nominee for the role of Project Manager up to the Original Tender Closing Date is counted in days and all such experience in days shall be added up and then divided by 365 days to arrive at the number of complete years (i.e. each complete year with 365 days) covered by such total period with any remainder period of experience in days that falls short of one complete year of 365 days to be ignored. Different experience overlapping on the same day will be counted as one day of experience only.
- (i) For the purpose of any assessment criterion in Grouping B(II), the experience and qualification of all nominees for all key roles of the Implementation Team will be taken into account regardless of whether they

are the employees or sub-contractors of the Tenderer or employees of such sub-contractors.

- (j) For the purposes of the assessment criterion in sub-groupings B(II)(1) and B(II)(2), if more than one person is proposed for the same role of Project Manager, provided that this is expressly required or permitted under the Original Requirements, the Government will conduct the evaluation based on the nominee performing the higher number of man-months as proposed by the Tenderer in Schedule 7 of Part V. If these nominees are proposed to perform the same number of man-months, in the case of sub-grouping B(II)(1), the excess IT project management experience of all these nominees (in days) will be added up and divided by number of nominees and further divided by 365. In the case of sub-grouping B(II)(2), the average of the numbers of certifications of the nominees will be adopted for the calculation of the marks. Any number after the decimal will be ignored. Where more than one nominee for the role of the Project Manager is not expressly permitted or required in the Tender Documents, a Tenderer proposing more than one nominee in contravention of the Tender Documents will score no mark under sub-groupings B(II)(1) and B(II)(2).
- (k) For the purpose of the assessment criterion in sub-grouping B(II)(3), the relevant IT experience (as defined in sub-grouping B(II)(3)) of a nominee for a key role in the Implementation Team (excluding the key role of the Project Manager) in excess of the original requirements for such key role are to be determined first for each nominee fulfilling the minimum number (as defined in Schedule 7 - Contractor Personnel and Their Duties of Part V – Contract Schedules) for each key role. The relevant IT experience in excess of the original requirements (excess experience) shall be counted in number of days and the excess experience for all nominees fulfilling the minimum number of all such key roles shall be added up before the simple average is determined based on the total number of persons comprised in the key project staff (excluding the nominee for the Project Manager). The average of excess experience in days shall be converted into complete years (viz. multiple of 365 days) with any days falling short of one (1) complete year to be ignored. For example, the minimum number for the key role of Systems Specialist is two (2) and two (2) nominees have been proposed. The minimum number of the remaining key role Systems Engineer is two (2) and two (2) nominees have been proposed. The days of the relevant IT experience in excess of the original requirements are 400 days, 500 days, 600 days and 1000 days respectively. The average years of the relevant IT experience in excess of the original requirements for all key roles are $(400 + 500 + 600 + 1000) \div 4 \div 365 = 1.71$ (i.e. one (1) complete year). Different experience overlapping on the same day will be counted as one (1) day of experience only.

- End -

PART III

ARTICLES OF AGREEMENT

THIS AGREEMENT is made on the day of , 20

BETWEEN: THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION OF THE PEOPLE’S REPUBLIC OF CHINA (hereinafter referred to as “Government”) as represented by **THE DIRECTOR OF LEISURE AND CULTURAL SERVICES** of the **one part**

AND:

(hereinafter referred to as “Contractor”) of the other part

WHEREAS:

- (A) By an Invitation to Tender (Tender Reference: LCT 5012/19(S)), the Government has invited tenders for the provision of the Ticketing System and Operation Services to the Leisure and Cultural Services Department.
- (B) The Contractor’s tender for the Contract was accepted in principle by the Government by a notification of conditional acceptance to the Contractor pursuant to Clause 28.2 of Part II of the Tender Documents.
- (C) The Contractor has apparently fulfilled all conditions specified in the notification of conditional acceptance.
- (D) Pursuant to Clause 28.3 of Part II of the Tender Documents, the parties hereto enter into these Articles of Agreement.

NOW IT IS HEREBY AGREED AS FOLLOWS:

- 1. All terms and expressions defined in the Tender Documents published by the Government in connection with the Invitation to Tender have the same meanings when used herein (including the recitals).
- 2. The Contract between the Government and the Contractor is hereby deemed constituted and shall comprise the following documents which are:

- (a) these Articles of Agreement (namely Part III of the Tender Documents);
- (b) the Conditions of Contract and their Annexes A to F (namely Part IV of the Tender Documents);
- (c) the Contract Schedules 1 to 26 (namely Part V of the Tender Documents, where applicable, in the respective forms as submitted by the Contractor, and which form part of its tender and incorporating such amendments as the Government stipulates or as the parties may subsequently have agreed);
- (d) the Project Specifications and their Annexes A to F (namely Part VII of the Tender Documents); and
- (e) all other schedules, plans, drawings and other documents which form part of the Contractor's tender for the Contract are otherwise incorporated by reference herein or in any of the above documents but excluding all provisions in the Contractor's tender which are to be ignored or excluded pursuant to Part II of the Tender Documents or other provisions of the Tender Documents (notwithstanding that any such provisions can be found in the copy of any of the aforesaid documents).

All of the above items (except for those items which are incorporated by reference as mentioned in (e)) are annexed to these Articles of Agreement for identification purposes.

3. In consideration of the charges to be paid at the times and in the manner set forth in the Contract by the Government, the Contractor hereby undertakes to perform the Services, which are required to be performed under the terms of the Contract, on and subject to the terms and conditions set out in the Contract; and to discharge, comply with and observe with all terms and conditions set out in the Contract.
4. In consideration of one dollar (HK\$1) (receipt whereof is hereby acknowledged), the Contractor hereby binds itself to perform all Services, which are to be performed or provided on demand under the terms of the Contract, on and subject to the terms and conditions set out in the Contract. Charges for such Services shall be payable on and subject to the terms and conditions set out in the Contract.
5. It is hereby agreed that each of the following Electronic Payment Means shall be provided by the following Clearing Service Contractor (either the Contractor itself or a sub-contractor to be appointed by the Contractor) for the following Ticketing Service(s) at the following Transaction Fee Percentage:

Electronic Payment Means	Ticketing Service (sale at the outlet or office or internet ticketing service or mobile ticketing service or telephone ticketing service or self-service kiosk)	Name of Clearing Service Contractor	Transaction Fee Percentage chargeable by the Contractor on the event organiser

6. For the purposes of Clause 66 of Part IV of the Tender Documents, the address and facsimile number of the Contractor are as follows:

[Name of the Contractor]

[Address]

Facsimile number:

Email Address:

Attention: [Post title]

IN WITNESS whereof the parties hereto have entered into these Articles of Agreement on the day and year first above written.

SIGNED BY THE AUTHORISED)
REPRESENTATIVE for and on behalf of)
[NAME OF THE CONTRACTOR])

Name of the Authorised Representative:
Title of the Authorised Representative:
in the presence of:

Name of witness:
Title of witness:

SIGNED BY THE AUTHORISED)
REPRESENTATIVE for and on behalf of the)
GOVERNMENT OF THE HONG KONG)
SPECIAL ADMINISTRATIVE REGION OF)
THE PEOPLE'S REPUBLIC OF CHINA)

Name of the Authorised Representative:
Title of the Authorised Representative:
in the presence of:

Name of witness:
Title of witness:

Part IV
Conditions of Contract

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1. Definitions

1.1 In this Contract, unless the context otherwise requires, the following expressions have the following meanings:

- “Activity” or “Stage” means an activity in the Implementation Plan. Reference to “Stage” may be in upper or lower case.
- “Ticketing System Service Fee” or “Ticketing Service Fee” means the fee payable to the Contractor for each ticket regardless of whether it is a complimentary or consignment or public sale tickets chargeable at the rate as specified in Item (A) of Table 23.1 of Schedule 23 – Price Schedule of Part V – Contract Schedules.
- “Campaign Records System” (“CRS”) means the internal LCSD system that provides a centralised platform for storing and maintaining LCSD programmes information used for propagation on the LCSD website and for promotion to our e-Magazine subscribers via e-mail.
- “Charges” means Service Fees.
- “Cloud Platform Operator” means the operator of the Contractor Supplied Public Cloud.
- “Cloud Services” (in upper or lower case) means the Public Cloud Services or the Private Cloud Services;
- “Completion Date” means the date specified in the Implementation Plan by which the Contractor is to provide the System Ready for Use.
- “concurrent sessions” means in relation to the online ticketing platform to be deployed for performing the online ticketing and enquiry services, and the mobile ticketing platform which is the mobile app to be used for performing the mobile ticketing and enquiry services, the sessions on these platforms at the same time whether for browsing, enquiry and ticket purchasing.
- “Contract” means the contract made between the Government and the Contractor comprising the following:
- (a) Part III – “Articles of Agreement”;
 - (b) Part IV – “Conditions of Contract” and all Annexes thereto;
 - (c) Part V – “Contract Schedules” including those which were submitted by the Contractor as part of its tender for the Contract, if and to the extent accepted by the Government, subject to such further changes as the

Government may stipulate in exercise of its powers under the Conditions of Tender, and/or otherwise subject to such further changes as the Government and the Contractor may agree;

- (d) Part VII – “Project Specifications” and all Annexes thereto; and
- (e) all other schedules, provisions, plans, drawings and other documents which form part of the Contractor’s tender or which are incorporated by reference in these Conditions of Contract or in any of the above documents but excluding all provisions in the Contractor’s tender which are to be ignored or excluded pursuant to the Conditions of Tender or other provisions of the Tender Documents (notwithstanding that any such provisions can be found in the copy of any of the aforesaid documents),

(copy of each of the above, except those which are incorporated by reference as mentioned in (e) above, is annexed to the executed copy of the Articles of Agreement for identification purposes, and each of the above documents shall be referred to in the Contract by its Part number or its title appearing in quotation marks above, or both Part number and title.)

References to “the Contract” or “this Contract” refer to the one and the same Contract as defined above.

“Contract Date”	means the date of the Articles of Agreement.
“Contract Deposit”	has the meaning given to the term in Clause 52.1.1 of this Part.
“Contract Period”	means the period specified in Clause 2.7.1 of this Part.
“Contractor”	means the person identified as such in Part III – Articles of Agreement.
“Contractor Location”	means any Location which is not a Government Location.
“Contractor Personnel”	means all persons deployed for performing this Contract including the persons nominated in Schedule 7 – Contractor Personnel and Their Duties of Part V – Contract Schedules (as from time to time replaced), the employees of the Contractor, the sub-contractors, and the employees of the sub-contractors.
“Contractor Representative”	means any person duly authorised by the Contractor to act as its representative for and on its behalf for the purposes of this Contract.

“Contractor Supplied Clouds”	means the Contractor Supplied Public Cloud and the Contractor Supplied Private Cloud.
“Contractor Supplied Public Cloud” or “Public Cloud”	means a pre-existing public cloud platform to be deployed by the Contractor for providing the Contractor Supplied Public Cloud Services and is to be located in at least two different Data Centres (one for the production environment and another for the Disaster Recovery (“DR”) and non-production environments).
“Contractor Supplied Public Cloud Services” or “Public Cloud Services”	means the public cloud services to form part of the System to be provided by the Contractor Supplied Public Cloud comprising those cloud services as specified in Table 1.1 – (i) Items of Cloud Services to be provided by the Contractor Supplied Public Cloud for the three environments stated therein of Schedule 1 – Hardware and in Table 2.1 – (ii) Items of software to be used in conjunction with the Contractor Supplied Public Cloud Services or Cloud Services in replacement of such software to be provided by the Contractor Supplied Public Cloud software of Schedule 2 – Software of Part V – Contract Schedules in accordance with the requirements of the Contract and such other replacement or additional cloud services to be provided by the Contractor whether from the same public cloud platform or another public cloud platform approved by the Government.
“Contractor Supplied Private Cloud”	means a new private cloud platform of exclusive use to form part of the System to be supplied and implemented by the Contractor comprising those physical items of hardware as specified in Table 1.1 – (iii) items of physical hardware for implementing the Private Cloud in the three environments of Schedule 1 – Hardware and those software in Table 2.1 – (iii) items of software for implementing the Private Cloud in the three environments of Schedule 2 – Software of Part V – Contract Schedules in accordance with the requirements of the Contract. Its scope is more particularly summarized in Section 1.2.7(c) of Part VII – Project Specifications.
“Contractor Supplied Private Cloud Services” or “Private Cloud Services”	means the scalable cloud computing resources (whether it be infrastructure as a service or platform as a service or database as a service or container as a service) which the Contractor Supplied Private Cloud shall be designed and dedicated on an exclusive basis to form as part of the System for the provision of the Operation Services. Its scope is more particularly summarised in Section 1.2.7(c) of Part VII – Project Specifications.
“Contractor Supplied Hardware”	means the hardware and equipment to be supplied by the Contractor as specified in Parts (i) to (v) of Table 1.1, all of Schedule 1 – Hardware of Part V – Contract Schedules subject only to such changes during the system analysis and

	<p>design stage of the Implementation Timetable with the approval of the Government Representative or otherwise in accordance with the applicable provisions of the Contract, and any other additional or replacement units or parts provided by the Contractor under the provisions of this Contract.</p>
<p>“Contractor Supplied Software”</p>	<p>means the off-the-shelf software to be supplied by the Contractor as specified in Parts (i) to (v) of Table 2.1, all of Schedule 2 – Software of Part V – Contract Schedules, subject only to such changes during the system analysis and design stage of the Implementation Timetable with the approval of the Government Representative or otherwise in accordance with the applicable provisions of the Contract, and any other additional or replacement software and updates from time to time provided by the Contractor under the provisions of this Contract.</p>
<p>“Contractor Retained Property”</p>	<p>has the meaning given to it in Clause 22.1 of this Part.</p>
<p>“Custom Programs”</p>	<p>means the application computer programs (including source codes, object codes and command codes of such programs) to be designed and/or written and/or supplied by the Contractor under the Contract including those details of which are more particularly set out in Part VII – Project Specifications and Schedules 3 to 5 of Part V – Contract Schedules.</p>
<p>“Data Centres”</p>	<p>means the two data centres at which the pre-existing Public Cloud is located and the two locations to be made available by the Contractor for housing and hosting the new Contractor Supplied Private Cloud to be implemented as part of the Implementation Services.</p>
<p>“Deliverables”</p>	<p>means all tangible and intangible subject matters, including the Custom Programs, the Documentation, compilations of data, configurations, designs, circuit diagrams, specifications, drawings, reports, plans, models, documents, Records, proposals and other materials produced, designed, developed and/or supplied by the Contractor to the Government pursuant to this Contract (including all drafts of any of the aforementioned items).</p>
<p>“Disaster Recovery Services”</p>	<p>means the provision of disaster recovery services in accordance with Section 14 of Part VII – Project Specifications.</p>
<p>“Disaster Recovery Test”</p>	<p>means the tests specified as such to be carried out by the Government.</p>

“Documentation”	means all of the Off-the-Shelf Documentation and the Project Documentation.
“Electronic Payment Means”	has the meaning given to the term in Annex E to this Part.
“Excess Proposal”	<p>means a proposal submitted by the Contractor in the Contract Schedules of Part V – Contract Schedules when tendering for the Contract which exceeds the original requirements as stated in the Tender Documents and upon award of the Contract, forms part of the Contract to the extent it has been accepted by the Government. The Excess Proposals as accepted by the Government are found in the version of the Contract Schedules attached to Part III – Articles of Agreement entered into by the Government and the Contractor but not otherwise deleted with the deletions initialled by the parties. Any such proposal may be:</p> <p>(A) the proposed “Technical Solution” for attaining any of the desirable specifications as specified in Table 4.1 of Schedule 4 – Technical Proposal and System Configuration of Part V – Contract Schedules (“Technical Solution”); (and all references to “System” and shall include such Technical Solution);</p> <p>(B) any Innovative Suggestion set out in Schedule 26 – Innovative Suggestions of Part V – Contract Schedules (each an “Innovative Suggestion”);</p> <p>(C) any excess role for the Implementation Services as specified in Table 7.3 of Schedule 7 – Contractor Personnel and Their Duties of Part V – Contract Schedules, and/or excess experience and/or qualifications committed for any of the roles as specified in Table 7.3 and Table 7.5 of Schedule 7 – Contractor Personnel and Their Duties of Part V – Contract Schedules, (“excess personnel”); (and all references to Contractor Personnel shall include such excess personnel); and</p> <p>(D) any other proposal then submitted by the Contractor as part of its tender for evaluation under the Marking Scheme in Annex C to Part II – Conditions of Tender and identified as such in the Contract Schedules of Part V – Contract Schedules.</p>
“events”	means any event of whatsoever nature to be held at any of the venues.
“event presenters” or “event organisers” (in	means organisers of events including the LCSD programme section or a third party event organiser.

upper or lower case)

“Force Majeure event”

means:

- (a) any outbreak of war, hostilities, invasion, acts of foreign enemies, rebellion, revolution affecting Hong Kong, or overthrow (whether by external or internal means) of the Government; or
- (b) any event which is not caused or contributed to by, and is beyond the control of, the Contractor, its associates or associated persons or any employee or agent or ex-employee or ex-agent thereof and none of them can prevent the consequences of such event from happening;

and which, in any case of (a) or (b) above materially prevents the performance of the duties and obligations of any party hereunder. Any change of law or regulation shall not be treated as a Force Majeure event.

“Functional Test”

means the tests specified as such to be carried out by the Contractor in accordance with all applicable provisions of the Contract.

“Given Period”

means each successive period of one month of the Operation Period with the first commencing from the first date of the Operation Period.

“Good Industry Practice”

means the standards, practices, methods and procedures conforming to law and the degree of skill and care, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced person engaged in a similar type of services as the Services under the same or similar circumstances.

“Government”

means the Government of the Hong Kong Special Administrative Region of the People’s Republic of China.

“Government Acquired Property” and “Government Retained Property”

have the respective meanings given to the terms in Clauses 22.2 and 22.3 of this Part.

“Government Data”

means all data, documents, information, text, drawings, diagrams, images or sound stored, presented or embodied in any electronic or tangible medium, and which are supplied or in respect of which access is granted to the Contractor by the Government for the purposes of or in relation to the Contract including without limitation the System Data.

“Government Locations”	means the outlets, the LCSD Offices, the venues including all facilities within such venues, the locations where the self-service kiosks are located, and such other locations of any of the aforesaid types as the Government may designate from time to time.
“Government Property”	means all tangible and intangible property owned by the Government and/or to which the Contractor is licensed to use or otherwise given access for performing the Services including without limitation the Government Data, the Government Locations, the Government Retained Property and the Government Acquired Property.
“Government Representative”	means: <ul style="list-style-type: none">(a) the Director of Leisure and Cultural Services;(b) any officer of the Government authorised to act by the Director of Leisure and Cultural Services for the purposes of the Contract; and(c) any other officer authorised by the officer referred to in (b) for the purposes of the Contract.
“Hardware”	means the Contractor Supplied Hardware and any other additional or replacement equipment provided by the Contractor from time to time under the provisions of this Contract.
“Hardware Delivery Date”	means the delivery dates specified in the Implementation Plan by which the Contractor is to deliver the Contractor Supplied Hardware.
“Hardware Installation Date”	means the installation dates specified in the Implementation Plan by which the Contractor is to install the Hardware.
“Hong Kong”	means the Hong Kong Special Administrative Region of the People’s Republic of China.
“Hosting Plan”	means in relation to a type of the Public Cloud Services, the hosting plan for such type of Public Cloud Services which is attached to Schedule 3 - Specifications of Part V – Contract Schedules.
“Implementation Period”	means the period commencing from the Contract Date (or another later date as designated by the Government in exercise of its power) and ending on the date of successful completion of system cut-over or the date when the Contract is earlier terminated, whichever date is earlier.

“Implementation Plan” or “Implementation Timetable”	means the implementation plan for the performance and completion of this Contract as specified in Section 3 of Part VII – Project Specifications and subject to not being inconsistent with the foregoing (save to the extent agreed by the Government in writing), also the time schedule and sequence of events for the performance of this Contract as set out in Schedule 8 – Implementation Plan of Part V – Contract Schedules. The Implementation Plan may be subject to change in accordance with the applicable provisions of the Contract or otherwise with the agreement of both parties to the Contract; and references to “Implementation Plan” shall mean such Implementation Plan as from time to time revised in the aforesaid manner.
“Implementation Services”	means all work to be performed by the Contractor to ensure that the System to be set up for the provision of the Services complies with the Overall Specifications, the Performance Criteria and the Reliability Levels including the work as specified in the Contract including in particular, Section 17 of Part VII – Project Specifications and Schedule 14 – Implementation Services of Part V – Contract Schedules.
“Implementation Team”	means the team of Contractor Personnel to be assembled by the Contractor for performing the Implementation Services.
“In-house Team”	means an in-house project team of the Government responsible for any part of the implementation of the System in the manner as expressly specified by the Government in Part VII – Project Specifications (if any).
“Installation Test”	means the tests specified as such to be conducted in accordance with all applicable provisions of the Contract.
“Intellectual Property Rights” or “IPR”	means patents, trade marks, service marks, trade names, design rights, copyright, domain names, database rights, rights in know-how, new inventions, designs or processes and other intellectual property rights whether now known or created in future (of whatever nature and wherever arising) and in each case whether registered or unregistered and including applications for the grant of any such rights.
“Issuance Conditions”	has the meaning given to the term in Clause 20.1 of this Part.
“Key Role” (in upper or lower case)	means a role in the Implementation Team or Maintenance Team identified as a key role in the Contract or the Tender Documents (as the case may be).

“LCSD”	means the Leisure and Cultural Services Department of the Hong Kong Special Administrative Region (which expression shall include any person authorised by the Leisure and Cultural Services Department and its successor or assignee).
“LCSD Offices”	means the Ticketing Office and the IT Office as specified in Annex A to Part VII – Project Specifications.
“LCSD Programme Section”	means the programme section within LCSD responsible for organising events hosted by the LCSD.
“Licensed Rights”	has the meaning given to it in Clause 25.1 of this Part.
“Licences”	has the meaning given to the term in Clause 25.1 of this Part. “Licence” means any one of them.
“licensees”	has the meaning given to it in Clause 25.1 of this Part.
“Load Test”	means the tests specified as such to be carried out by the Contractor in accordance with the applicable provisions of the Contract.
“Locations”	means all of the locations at which different parts of the System are to be installed and/or deployed including the Data Centres, the Telephone Centre, and all Government Locations.
“Maintenance Period”	means a period commencing from the date when the System has become Ready for Use and ending on the last date of the Operation Period.
“Maintenance Services”	means the maintenance services for each individual item of the Contractor Supplied Hardware and Contractor Supplied Software to be provided by the Contractor as specified in the Contract including without limitation Schedule 15 – System Support and Maintenance Services and Schedule 16 – Service Levels of Part V – Contract Schedules and Section 18 of Part VII – Project Specifications.
“Management Information System” (“MIS”)	means the internal LCSD system that is an enterprise-wide data warehouse for the provision of timely management information to the LCSD’s senior management to facilitate their decision-making and planning, as well as assisting them in answering ad hoc enquiries, formulating public service policies and allocating resources.
“Mandatory Training”	means the training courses as specified in Section 19 – Training of Part VII – Project Specifications.

“Off-the-Shelf Documentation”	the operating manuals, user instructions, technical literature and all other related materials supplied to the Government by the Contractor in respect of each individual item of the Contractor Supplied Hardware and Software as specified in Schedule 6 – Documentation of Part V – Contract Schedules.
“OGCIO”	means Office of the Government Chief Information Officer of the Government.
“Operation Period”	means the period of seven (7) years starting from the date of successful completion of cut-over of the Operation Services from the predecessor system to the System as confirmed by the Government in writing.
“Operation Services”	means the whole host of services to be provided by the Contractor throughout the Operation Period as more particularly summarised in the sub-sections (a) to (dd) of Section 1.2.7 of Part VII – Project Specifications including the making available of the System for the provision of the Operation Services as described in (a), the Public Cloud Services as described in (b), the making available of the Private Cloud for the provision of the Private Cloud Services as described in (c), the data centre service as described in (d), the ticketing equipment and admission equipment service as described in (e), the system administration service as described in (f), the ticket sale management service as described in (g), the backend administrative service as described in (h), the counter ticketing service as described in (i), the online ticketing service (or Internet ticketing service) and the online enquiry service as described in (j), the mobile ticketing service and the mobile enquiry service as described in (k), the telephone ticketing service and telephone enquiry service as described in (l), the self-service kiosk service as described in (m), the accounting and reporting service as described in (n), the e-payment services as described in (o), the ticket collection service as described in (p), the system interfacing service as described in (q), the admission control service as described in (r), the presenter portal service as described in (s), the marketing service including email direct marketing service as described in (t), the system upgrade service as described in (v), the miscellaneous service as described in (w), the network service as described in (x), the resilience and DR service as described in (y); the consumable supply service as described in (z); the ad hoc customer service as described in (aa); the operation team service as described in (bb); the System Support and Maintenance Services as described in (cc); the training as described in (dd). Unless otherwise defined herein, all of the afore-mentioned services shall be referred to by their names as given to them in Section 1.2.7

	of Part VII – Project Specifications (in upper or lower case and in plural or singular).
“Maintenance Team”	means the Contractor Personnel deployed for performing the System Support and Maintenance Services.
“Operation Team”	means the Contractor Personnel deployed for performing the telephone, Internet and mobile ticketing and enquiry services.
“Optional Training”	means training courses proposed by the Contractor in Schedule 18 – Training of Part V – Contract Schedules on top of the Mandatory Training.
“Other Contractors”	means the sub-contractors of the Contractor (including without limitation the Clearing Service Contractor for performing the e-Payment Service as defined in Annex E to this Part) and other contractors of the Government.
“outlets” or “ticketing outlets” (in upper or lower case)	means those ticketing outlets as listed in Annex A to Part VII – Project Specifications.
“Overall Specifications”	means the Project Specifications, the System Specifications, the specifications set out in Schedule 3 – Specifications of Part V – Contract Schedules, and those specifications published by the Contractor, manufacturers and developers in respect of the Hardware and/or the Software.
“parties” (in upper or lower case)	means the parties to the Contract.
“parallel run” (in upper or lower case)	means the trial run of the System for a minimum period of one month but extendable at the option of the Government for certain designated events in parallel with the predecessor system.
“performances”	means an event to be held multiple times within a specified range of time on a specified day as shown on the ticket for such event. “one performance” means the holding of the event any one time.
“Performance Criteria”	means the performance criteria which the System shall fulfil as specified in Schedule 12 – Performance Criteria of Part V – Contract Schedules.

“Project Documentation”	means the documentation to be prepared or updated by the Contractor specifically for the Contract in the performance of the Implementation Services or the System Support Services including those as specified in Section 17 or Section 18 of Part VII – Project Specifications and Table 6.3 or Table 6.4 of Schedule 6 – Documentation of Part V – Contract Schedules.
“Project Specifications”	means all of the specifications in Part VII – Project Specifications including those set out in the Annexes to Part VII.
“Ready for Use”	means fully installed and successfully tested in all of the Installation Test, the System Acceptance Tests and the User Acceptance Tests with results accepted by the Government in writing, data converted and migrated, and production set up and rollout completed in accordance with the provisions of the Contract, and are compliant with all provisions of the Contract including the Overall Specifications, the Performance Criteria and the Reliability Levels.
“Rebate” (in upper or lower case)	means either the rebate payable by the Contractor to the Government under Clause 38.1.2 or the rebate under Clause 38.1.3 of this Part.
“Records”	means the records to be kept and maintained by the Contractor in accordance with the Contract including those specified in Clause 53 of this Part.
“Reliability Levels”	means the minimum or committed serviceability level (whichever is higher) and minimum or committed mean time between failures level (whichever is higher) as set out in Schedule 13 – Reliability Specifications of Part V – Contract Schedules.
“Reliability Test”	means the tests specified as such to be carried out by the Government.
“Resilience Test”	means the tests specified as such to be carried out by the Contractor in accordance with all applicable provisions of the Contract.
“Revenue Recording System” (“RRS”)	means the internal LCSD system that processes revenue records collected from various departmental booking and ticketing systems and posts revenue information to the Treasury’s system.

“role” or “post”	means, in relation to the Implementation Team, a role specified in Table 7.3 of Schedule 7 – Contractor Personnel and Their Duties of Part V – Contract Schedules; and in relation to the Maintenance Team, a role specified in the relevant Table 7.5 of Schedule 7 – Contractor Personnel and Their Duties of Part V – Contract Schedules. In relation to the Innovative Suggestions, a role specified in Schedule 26 – Innovative Suggestions of Part V – Contract Schedules.
“Service Fees”	means all and any amounts payable to the Contractor as specified in Clause 38 of this Part, viz., the Ticketing System Service Fee, the e-Payment Transaction Fee, the Ad Hoc Customer Service Fee, the Internet/Mobile Ticketing Service Fee, the Telephone Ticketing Service Fee, the Email Direct Marking Service Fee and charges for System Changes.
“Service Levels”	means the Overall Specifications, the Performance Criteria, the Reliability Levels, the standards to be complied with in performing the Operation Services and the System Support and Maintenance Services as specified in the Contract including those set out in Schedule 16 – Service Levels of Part V – Contract Schedules and in any other applicable provision of the Contract stating the performance requirement of the System or the Operation Services; and where applicable the Innovative Suggestions, as specified in the Contract including those set out in Schedule 26 – Innovative Suggestions of Part V – Contract Schedules.
“Services”	means the Implementation Services, the Operation Services, the System Support and Maintenance Services, the Innovative Suggestions, and all other services, obligations and duties to be provided and performed by the Contractor under the Contract (including for the avoidance of doubt the sale or supply of all and any items as specified in the Contract).
“Software”	means the Contractor Supplied Software and the Custom Programs.
“Software Delivery Date”	means the delivery dates specified in the Implementation Plan by which the Contractor is to deliver the Contractor Supplied Software and install the Software.

“Source Code” (in upper or lower case)	means the technical source code information and documentation (including source codes, source codes of database objects, object codes and software listings) relating to computer program (including any corrected, updated, modified or enhanced version(s) thereof) which is necessary to enable an independent, reasonably skilled programmer to understand for the purposes of maintaining, modifying, correcting and enhancing (as the case may be) that computer program to which the source codes relate.
“sub-contractor” (in upper or lower case)	means the sub-contractor of any tier deployed for performing any part of the Services.
“System” or “Ticketing System” or “URBTIX”	means the system as more particularly described in Part VII – Project Specifications and includes the Contractor Supplied Clouds, and all Contractor Supplied Hardware and Software installed in the Locations whether a Government Location or a Contractor Location.
“System Acceptance Certificate”	means the certificate to be issued by the Government noting its acceptance of the System (whether with or without qualifications).
“System Acceptance Date” or “Acceptance Date”	means the date on which the Government accepts the System in the System Acceptance Certificate pursuant to Clause 20.1 of this Part or in the qualified System Acceptance Certificate pursuant to Clause 20.2 of this Part (as the case may be).
“System Acceptance Tests”	means the Functional Test, the Load Test, the Reliability Test, the Resilience Test, the System Integration Test and the Disaster Recovery Test. References to “any part of the System Acceptance Tests” shall mean any one of the aforementioned tests.
“System Change” or “System Changes”	has the meaning given to it in Clause 7.1 of this Part.
“System Cut-over”	means the cut-over of the Operation Services from the predecessor system to the System.
“System Data”	means all data of whatever format and in whatever medium handled, transmitted to or from, processed, compiled, stored in, converted by or migrated to, the System including all databases and other compilation of such data including but not limited to data containing information relating to events and performances (regardless of the time of such events and performances), the tickets issued in such events and performances, and the personal data and transaction records of patrons and subscribers of whatever service, and those of event organisers.

“System Integration Test”	means the tests specified as such to be conducted by the Contractor in accordance with the applicable provisions of the Contract.
“System Specifications”	means the specifications to be prepared by the Contractor as part of the Implementation Services including (a) all specifications set out in the Deliverables including those set out in the system analysis and design report and the design specifications; and (b) those in accordance with which the Custom Programs are written.
“System Support Services”	means the ongoing services to be provided by the Contractor for the support and maintenance of the System as specified in the Contract including in particular Section 18 – System Support and Maintenance Services of Part VII – Project Specifications, and Schedule 15 – System Support and Maintenance Services of Part V – Contract Schedules.
“System Support and Maintenance Services”	means the System Support Services and the Maintenance Services.
“Telephone Centre”	means a centre to be operated by the Contractor for operating the Telephone Ticketing and Enquiry Services.
“Tender Documents”	means the tender documents issued by the Government to invite tenders for the Contract.
“Tender Price Score”	has the meaning given to it in Clause 23.1 of Part II – Conditions of Tender.
“Third Party Licence Items” or “3rd Party Licence Items”	has the meaning given to the term in Clause 25.1.2 of this Part.
“Ticketing Services” or “sale modes”	means the sale of ticket at the outlets, the telephone ticketing service, the online ticketing service, the mobile ticketing service and the self-service kiosk service;
“Top-up Service Fees”	means the Service Fees payable under Clause 38.1.5 and 38.1.6 of this Part;
“Total Estimated Contract Value”	means the amount calculated according to Clause 24.1 of Part II – Conditions of Tender.
“Training” (in upper or lower case)	means the training to be provided under the Training Plan.
“Training Plan”	means the training plan as approved by the Government pursuant to Clause 27.1 of this Part.
“updates” or “patches”	has the meaning given to it in Clause 8.3 of this Part.

“User Acceptance Tests” or “UAT” (in upper or lower case)	means the tests identified as such to be carried out by the Government pursuant to the applicable provisions of the Contract including Clause 17.11 of this Part and Section 16 and 17.3.11 of Part VII – Project Specifications.
“Warranties”	has the meaning given to it in Clause 30 of this Part.
“Work”	means Services.
“working day” or “business day”	means Monday to Friday, other than a public holiday (as defined in the Interpretation and General Clauses Ordinance (Chapter 1 of the Laws of Hong Kong)) or a day on which Tropical Cyclone Warning Signal No. 8 or above is hoisted or a Black Rainstorm Warning Signal is in force for any time during 0900 to 1745 hours.
“venues”	means those venues as listed in the second column of the last table in Part III of Annex E to Part VII – Project Specifications and such other locations as from time to time designated by the Government as a venue for the purposes of this Contract.

- 1.2 In the Tender Documents and the Contract, unless the context otherwise requires, the following rules of interpretation shall apply:
- 1.2.1 references to statutes or statutory provisions shall be construed as references to those statutes or statutory provisions as replaced, amended, modified or re-enacted from time to time; and shall include all subordinate legislation made under those statutes;
- 1.2.2 words importing the singular shall include the plural and vice versa; words importing a gender shall include all other genders; references to any person shall include references to any individual, firm, body corporate or unincorporate (wherever established or incorporated);
- 1.2.3 clauses headings are inserted for convenience of reference only and shall not affect the construction of the Contract;
- 1.2.4 references to a document shall:
- (a) include all schedules, appendices and annexes attached to such document; and
 - (b) mean the same as from time to time amended or supplemented in accordance with the terms of the Tender Documents or the Contract;
- 1.2.5 references to “Tenderer” and “Contractor” shall include their respective permitted assigns, successors-in-title, or any persons deriving title under any of them;
- 1.2.6 references to “Government” shall include its assigns, successors-in-title, and persons deriving title under any of them, regardless of whether or not any of these persons are mentioned separately in the relevant provisions;

- 1.2.7 references to Clauses or Sections of, and Appendices or Annexes to a document comprising the Contract shall, unless otherwise specified, mean the clauses and sections of, and appendices and annexes to, that document; references to Schedules or Contract Schedules shall regardless of where the term appears mean the Schedules appearing in Part V – Contract Schedules;
- 1.2.8 references to “laws” and “regulations” or “law” shall include any constitutional provisions, treaties, conventions, ordinances, subsidiary legislation, orders, rules and regulations having the force of law and rules of civil and common law and equity regardless of the jurisdiction;
- 1.2.9 references to “the Contractor Supplied Hardware and/or Software” or “the Contractor Supplied Hardware and/or Contractor Supplied Software” shall mean the Contractor Supplied Hardware and/or the Contractor Supplied Software; and unless otherwise expressly excluded, include all physical items of hardware as well as Cloud Services; references to “Operation Services” shall include the System Support and Maintenance Services regardless whether or not the latter is also mentioned in conjunction with the former in any context; unless otherwise expressly excluded, references to “Deliverables” include all Documentation (Project Documentation and Off-the-shelf Documentation) and all Custom Programs regardless of whether these items are expressly stated to be included in any context;
- 1.2.10 a term defined in any one of the documents comprising the Contract shall have the same meaning throughout the Contract;
- 1.2.11 a time of day shall be construed as a reference to Hong Kong time;
- 1.2.12 references to a “month” or a “monthly period” mean a calendar month;
- 1.2.13 any negative obligation imposed on any party shall be construed as if it were also an obligation not to permit or suffer the act or thing in question, and any positive obligation imposed on any party shall be construed as if it were also an obligation to procure that the act or thing in question be done;
- 1.2.14 any act, default, neglect or omission of any employee, licensee, agent or sub-contractor of the Contractor (including the Contractor Personnel) shall be deemed to be the act, default, neglect or omission of the Contractor;
- 1.2.15 words importing the whole shall be treated as including a reference to any part of the whole;
- 1.2.16 the expressions “include” and “including” shall mean including without limitation basis regardless of whether it is expressly so provided;
- 1.2.17 unless otherwise expressly stated, there is no difference in the intended meaning of:
- (a) the terms “provided by” and “supplied by”;
 - (b) the terms “requirements” and “specifications”;
 - (c) the terms “costs” and “expenses” (plural or singular); and

- (d) the terms “at its costs” or “at its sole costs” or “at its own costs”;
- 1.2.18 references to “associate” of a person shall mean:
- (a) a relative or partner of that person; or
 - (b) a company with one or more of whose directors is in common with one or more of the directors of that person;
- 1.2.19 for the purposes of Clause 1.2.18 and 1.2.20 of this Part:
- (a) “director” shall mean any person occupying the position of a director by whatever name called and includes, without limitation, a de facto or shadow director; and
 - (b) “relative” shall mean the spouse, parent, child, brother or sister of the relevant person, and, in deducing such a relationship, an adopted child shall be deemed to be a child both of the natural parent and the adopting parent and a step child to be a child of both the natural parent and the step parent;
- 1.2.20 references to “associated person” of a person shall mean:
- (a) any person who has control, directly or indirectly, over that person; or
 - (b) any person who is controlled, directly or indirectly, by that person; or
 - (c) any person who is controlled by, or has control over, the first-mentioned person in sub-clause (a) or (b) above;
- 1.2.21 for the purposes of Clause 1.2.20 of this Part, a person having “control” over another person shall mean the power of that person to secure:
- (a) by means of the holding of shares or interests or the possession of voting power in or in relation to the second-mentioned person or any other person; or
 - (b) by virtue of powers conferred by any constitution, memorandum or articles of association, partnership, agreement or arrangement (whether legally enforceable or not) affecting that second-mentioned person or any other person; or
 - (c) by virtue of holding office as director in that second-mentioned person or any other person;
- that the affairs of that second-mentioned person are conducted in accordance with the wishes of the first-mentioned person; for the avoidance of doubt, without prejudice to the generality of the foregoing, the holding of 30% or more of shares or interests or voting power shall be deemed to be sufficient control to ensure such happening;

- 1.2.22 words and expressions extend to their grammatical variations and cognate expressions where those words and expressions are defined in the Contract or by reference to any other definition;
- 1.2.23 references to “writing” include typewriting, printing, lithography, photography, facsimile and the printed out version of a communication by electronic mail and other modes of representing and reproducing words in a legible form;
- 1.2.24 any acceptance, approval, consent or agreement of the Government shall be evidenced in writing unless otherwise waived by the Government in writing; and no such acceptance, approval, consent or agreement shall relieve the Contractor from its obligation to exercise all necessary skill, care and diligence in the performance of the Work; without prejudice to the foregoing, no acceptance, approval, consent or agreement on the part of the Government shall constitute as a waiver of any right or claim of the Government if any such acceptance, approval, consent or agreement is given under mistake of fact or law (save in the case of gross negligence on the part of the Government), or otherwise based on any representation from the Contractor which is untrue, incomplete, inaccurate or fraudulent, or otherwise where any acceptance, approval, consent, or agreement is given before any defect or default is discovered and which defect or default cannot be reasonably discovered at the time of acceptance, approval, consent or agreement;
- 1.2.25 where a general obligation in this Contract is followed by more specific obligations, the general obligation shall not be construed restrictively by reference to the specific obligations or deemed to be fully performed by reason only that the specific obligations have been performed;
- 1.2.26 references to something done by the Contractor include something done by any of the Contractor Personnel or any other person for or on behalf of the Contractor;
- 1.2.27 all rights and powers of the Government under the Contract may be exercised by the Government Representative. By default, all rights and powers of the Government must be exercised by the Government Representative when acting as Government Representative of this Contract, but not as a member or chairperson of the project steering committee (PSC) or project assurance team (PAT) or project management office (PMO) which may be established for the project management on the implementation of the System, and which bodies may comprise representatives of the Contractor. On this basis, no acts or omission to act or decision of the PSC or PAT or PMO or of any Government officers when acting in their capacity as a member or chairperson of the PSC or PAT or PMO shall be deemed to be the acts or omissions to act or decision of the Government Representative under or for the purposes of the Contract unless the Government Representative states so on a case-by-case basis whether before or after the exercise of such act or omission to act or decision; and
- 1.2.28 references to “Cap” or “Chapter” followed by a number mean a chapter of the Laws of Hong Kong.
- 1.3 Nothing in the Contract shall be taken to restrict, derogate from or otherwise interfere with any power or duty, or the exercise or performance of any power or duty

conferred or imposed by or under any law upon the Government or any person in the service of the Government.

2. Products and Services to be Provided

2.1 The Contractor hereby agrees to perform all of the following fully and punctually in accordance with all terms and conditions of the Contract:

- (a) design and supply the System for the provision of the Operation Services in accordance with the Overall Specifications on a total solution basis;
- (b) supply the Contractor Supplied Hardware and legal, valid and subsisting licences for the Contractor Supplied Software for the provision of the Operation Services which shall remain fully owned by the Contractor and/or where applicable it sub-contractor(s) free from all encumbrances in favour of any third party (except that the Government Acquired Property shall be owned by and vested in the Government);
- (c) grant to and/or procure in favour of the Government and its authorised users including patrons, event organisers and ticketing agents operating outlets which are not owned by the Government the Licences to use the Licence Property under the Licences to be granted under Clause 25 of this Part;
- (d) provide the Implementation Services in accordance with the Implementation Plan;
- (e) deliver, install and commission the System at the Locations;
- (f) render the System Ready for Use by the Completion Date;
- (g) after the System is Ready for Use, perform parallel run for one month with a limited range of events to be designated by the Government, and upon successful completion of the parallel run, perform system cut-over of all Operation Services from the predecessor system to the new System;
- (h) provide Training in accordance with the Training Plan and the Documentation;
- (i) perform all Operation Services throughout the Operation Period;
- (j) provide the System Support and Maintenance Services throughout the Maintenance Period;
- (k) perform, supply and provide all Excess Proposals; and
- (l) provide other services hereinafter described on the terms and conditions hereinafter contained.

2.2 Without prejudice to Clause 2.1 of this Part, the Contractor shall comply with all instructions, orders or directions that may from time to time be given by the Government Representative.

- 2.3 The Government reserves the right to reject any item of the Contractor Supplied Hardware or Contractor Supplied Software which was not manufactured in the place as specified in the Contract. The Contractor shall ensure that all of the Contractor Supplied Hardware and Contractor Supplied Software supplied are of the same source (in terms of manufacturer and place of origin) as stated in the Contract.
- 2.4 The Government shall have the option to extend the Operation Period for further period(s) of not more than thirty-six (36) months in aggregate. The Government shall be entitled to exercise such option, not less than one (1) month prior to the expiry of the Operation Period, by giving the Contractor a written notice to that effect specifying in such notice the period of extension whereupon the Operation Period shall be deemed to be so extended on and subject to the same terms and conditions set out in the Contract.
- 2.5 If the initial period of extension is less than thirty-six (36) months, the Government shall have the option (without limitation on the number of times that this option may be exercised), on giving the Contractor not less than one (1) month's written notice prior to the expiry of the Operation Period as last extended, to make further extensions to the Operation Period subject always to the aggregate period of extension specified in Clause 2.4 of this Part.
- 2.6 Throughout the Project Specifications, the Contract Schedules and other parts of the Tender Documents, there are specifications and instructions to the Tenderer on what it shall propose in its proposal. To the extent the Contractor has submitted a proposal in relation to any matter which complies fully with all applicable specifications and instructions, the Contractor shall carry out such proposal in the provision of the Services. If the Contractor, notwithstanding having been awarded the Contract, has not submitted a proposal in relation to any matter which fully complies with the relevant specifications and instructions, or has not submitted a proposal at all, or it is otherwise unclear to the Government whether or not the proposal is compliant with such specifications or instructions, the Contractor shall upon the request of the Government, and at no additional charge to the Government, submit to the Government for approval such replacement proposal during the first two weeks of the Implementation Period, or otherwise at such other time as elsewhere required in the Contract if the non-compliant/missing/unclear proposal relates to the System; or prior to the commencement of the Operation Services before the Operation Period, or at such other time as elsewhere required in the Contract, for any proposal relating to such Services, as the case may be. All submitted replacement proposals as approved by the Government shall form part of the Contract and replace the original non-compliant or unclear proposals and shall be carried out by the Contractor at no further charge to the Government. For the avoidance of doubt, this provision is without prejudice to the rights and powers of the Government to disqualify a Tenderer for failing to submit all or any of the proposals required in the Tender Documents issued by the Government inviting tenders for the Contract.
- 2.7 **Contract Period**
- 2.7.1 The Contract Period shall commence and continue from the Contract Date and shall cover the Implementation Period and to be followed by the Operation Period. The Implementation Period shall start from the Contract Date (or another date as

postponed by the Government in exercise of its power under the Contract), and end on the date when the System Cut-over is completed. The Operation Period shall start on the date of successful completion of System Cut-over (or another date as postponed by the Government in exercise of its power under the Contract) and shall continue for **seven (7) years** subject to Clause 2.7.2 and to any provision for sooner termination or extension or suspension of the Contract as is provided for in the Contract.

- 2.7.2 The Government may, on giving not less than one (1) month's written notification to the Contractor to advance or postpone the commencement date of the Implementation Period or the Operation Period to a date specified by the Government in the notice.

3. Contractor's Acknowledgement and Contract Performance

- 3.1 The Contractor acknowledges and agrees that when entering into the Contract, it has already been supplied with sufficient information to enable it to supply to the Government the System and perform the Work which shall comply fully with the requirements set out in the Overall Specifications and other provisions of the Contract. The Contractor shall not be entitled to any additional payment or extension of time and shall not be excused from any obligation or liability under the Contract as a consequence of any alleged lack of knowledge or information or any misinterpretation by the Contractor of any matter or fact relating to the System or Overall Specifications or any other provisions of the Contract.

- 3.2 Without prejudice to the generality of Clause 3.1, in relation to any information or document or clarification which the Contractor may wish to seek from the Government or any contractor or agent of the Government, such request should be made before the completion of the system analysis and design report for the System. On the other hand, whilst the Government may use its reasonable endeavours to provide the necessary information or document or clarification (if and to the extent any of the same is within its knowledge or in its possession and is not subject to any confidentiality requirement) in response to a request which is made before completion of the system analysis and design report, in the light of the acknowledgment mentioned in Clause 3.1, the Government has no obligation to do so. Under no circumstances whatsoever will the Government accept any request for extension of time or additional payment or exemption from obligation or liability due to any alleged lack of information or document or clarification.

- 3.3 The Contractor further acknowledges that the Government relies on the skill and judgment of the Contractor in development of the System and the performance of its obligations under the Contract. The Contractor acknowledges and agrees that the provision of the Services including implementation by the Contractor of the System is a total solution arrangement. Save to the extent expressly set out in the Contract, it is neither expected nor necessary that the Government will have to provide any assistance or perform any act or do anything whatsoever to ensure the completion of the System in Ready for Use condition or provision of other Services.

- 3.4 The Contractor shall perform its obligations under the Contract:

- (a) with appropriately experienced, qualified and trained personnel and with all due care, skill and diligence;

- (b) in accordance with Good Industry Practice; and
 - (c) in compliance with all applicable laws.
- 3.5 Whenever any approval or agreement is sought by the Contractor from the Government in accordance with the requirements of the Contract, the Government is entitled to a reasonable period of time before it notifies the Contractor whether any such agreement or approval should be given, and if so, subject to what conditions. In the event that during such agreement or approval seeking process, the Contractor considers that any response required is not available or is not clear, the Contractor shall prompt the Government for such response or seek clarification immediately. Under no circumstances whatsoever will the Government accept any request for extension of time or additional payment or exemption from obligation or liability due to any alleged lack of response or clarity in any such response.
- 3.6 The Contractor acknowledges that nothing in the Contract shall preclude the Government from procuring any hardware or software (whether within and outside the coverage of the Contract) from any other person.

4. Conduct of the Work

- 4.1 The Contractor shall in accordance with the Implementation Plan carry out the Work in a timely and professional manner with all due and reasonable diligence and despatch.
- 4.2 The Contractor shall, through the Government Representative, keep the Government informed of all matters related to the Work within the actual or constructive knowledge of the Contractor and shall answer all reasonable enquiries received from the Government Representative.
- 4.3 The Contractor shall attend all meetings convened by the Government Representative to which it may be summoned and shall advise and assist the Government on all matters relating to the duties and obligations it has assumed under this Contract.
- 4.4 The Contractor shall provide monthly progress reports throughout the Implementation Period in respect of the Implementation Services, and throughout the Operation Period in respect of the Operation Services in a format reasonably required by the Government Representative.
- 4.5 All Government Property and all Intellectual Property Rights therein from time to time supplied to the Contractor by the Government during the Contract Period for the purpose of this Contract including any Source Code and documentation of such Source Code shall remain the property of and be vested in the Government to the exclusion of the Contractor, and shall be returned in good and functional condition upon expiry of the Implementation Period, or upon expiry or early termination of the Operation Period, depending on the demand of the Government. The Contractor is only permitted to the non-exclusive use of the Government Property for performing the Services but for no other purposes (“permitted use”) but subject to any express

exclusion specified in the Contract including the prohibition to adopt any custom program or its source code used by the predecessor system. Any transfer or assignment or licensing or any other manner of dealing by the Contractor or by any of the Contractor Personnel with any Government Property is strictly prohibited. Notwithstanding anything herein to the contrary, the Government makes no representation or warranty that the Government is the owner of such Government Property or all or any Intellectual Property Rights in such Government Property. In the event that any consent or licence from, or any payment to, any person is required for enabling the Contractor to exercise the permitted use of such Government Property (including a person in whom the Intellectual Property Rights in such Government Property are vested), the Contractor shall be solely responsible for obtaining such consent and licence, and making payment to such person, upon the demand of the Government or such person. Without prejudice to the Government's other rights and claims, the Contractor shall indemnify the Government on the terms set out in Clause 33 or Clause 34.1 of this Part for any failure to comply with this Clause.

5. Appointment and Replacement of Contractor Personnel

- 5.1 The Contractor shall appoint the Implementation Team to undertake the Implementation Services, and the Maintenance Team to undertake the System Support and Maintenance Services, and the Operation Team to perform the telephone, Internet and mobile ticketing and enquiry services and ticket collection service, in accordance with the requirements as specified in the Contract including in Section 17 – Implementation Services (for the Implementation Team), and in Section 18 – System Support and Maintenance Services (for the Maintenance Team and the Operation Team) of Part VII – Project Specifications, and in Schedule 7 – Contractor Personnel and Their Duties of Part V – Contract Schedules (for both Teams). For Innovative Suggestions, the Contractor shall appoint the Contractor Personnel specified in Schedule 26 – Innovative Suggestions of Part V – Contract Schedules to implement and/or operate the Innovative Suggestions (where applicable).
- 5.2 None of the Contractor Personnel may be replaced or removed unless the prior written approval has been given by the Government Representative.
- 5.3 Without prejudice to other rights and claims of the Government, the Contractor shall, upon request by the Government Representative, replace any Contractor Personnel for reason of:
- (a) unsatisfactory performance;
 - (b) having done or permitted to be done anything which constitutes as a breach of any obligations on the part of the Contractor or obligations owing by the relevant Contractor Personnel to the Government under any undertaking signed by him;
 - (c) having failed in any security checking including criminal record checks conducted by the Government; or

- (d) if, in the opinion of the Government Representative, the Contractor Personnel is found to be incompetent or inattentive or has conducted himself improperly or is found to be inappropriate for performing the services in any other way.
- 5.4 In the event that any of the circumstances mentioned in Clause 5.2 or 5.3 of this Part occurs, the Contractor shall propose to the Government Representative for his approval a nominee to replace the outgoing Contractor Personnel with the support of the curriculum vitae of that nominee and other documentary evidence to the satisfaction of the Government which show that the proposed nominee has no lesser qualifications and experience than the outgoing Contractor Personnel as at the date of his proposed joining of the Implementation Team or Maintenance Team (as the case may be). If approved by the Government Representative, the nominee shall be deployed to replace the outgoing Contractor Personnel within two (2) weeks or such later date as may be allowed by the Government Representative after the Government's relevant approval or request as mentioned in Clause 5.2 or 5.3 of this Part (as the case may be).
- 5.5 The appointment or replacement of any Contractor Personnel to undertake any part of the Work shall not relieve the Contractor from any liability or obligation under this Contract and the Contractor shall be responsible for the acts, omissions, defaults and neglects of any of the Contractor Personnel, its agents, employees and contractors as fully as if they were the acts, omissions, defaults or neglects of the Contractor.
- 5.6 The Contractor warrants that the Contractor Personnel for the Implementation Team and the Maintenance Team possesses, as a minimum, the qualifications and experience specified in Section 17 - Implementation Services (for the Implementation Team), and in Section 18 - System Support and Maintenance Services (for the Maintenance Team) of Part VII – Project Specifications, and in Schedule 7 – Contractor Personnel and Their Duties of Part V – Contract Schedules (for both Teams). In the case of any inconsistency between the aforesaid documents, the more stringent requirement shall apply. The Contractor Personnel for the Innovative Suggestions possesses as a minimum the qualifications and experience as specified in Schedule 26 – Innovative Suggestions of Part V – Contract Schedules.
- 5.7 Unless with the prior written approval of the Government, the Contractor may not assign a Contractor Personnel designated for one post to perform work of another post.
- 5.8 Unless with the prior written approval of the Government or unless otherwise expressly required in the Contract for certain members of the Implementation Team to become members of the Maintenance Team upon commencement of the Operation Period, the Contractor shall not assign or procure or allow any Contractor Personnel, who is required under the Contract to work on a full time basis in a role, be it a role in the Implementation Team or the Maintenance Team or for the Innovative Suggestions, to perform work or service of any nature other than the Implementation Services (in the case of a role in the Implementation Team) or the System Support and Maintenance Services (in the case of a role in the Maintenance Team) or the Innovative Suggestions (in the case of a role for the Innovative Suggestions) whether for his own account or for or on behalf of the Contractor or for any other person and whether or not for a fee.

- 5.9 The Contractor shall provide a list of the Contractor Personnel within two (2) weeks after the commencement of the Implementation Period and Operation Period respectively, and shall inform the Government of any change to the list within seven (7) days.

6. Contractor's Representatives and Government Representative

- 6.1 The Contractor shall appoint each of the project director as specified in Schedule 7 - Contractor Personnel and Their Duties of Part V – Contract Schedules and a deputy within its organisation as the Contractor Representative each of whom will have the responsibility and authority for the overall progress and performance of the Work and to whom all questions regarding the Contract can be referred. The Contractor shall provide a contact telephone number for the Government Representative to contact the Contractor Representative round-the-clock.
- 6.2 All rights and powers of the Government under the Contract may be exercised by the Government Representative. Without prejudice to the generality of the foregoing, the Government Representative will monitor the performance of the Contractor during the Contract Period and may give all such directions and instructions from time to time to the Contractor as the Government Representative considers appropriate in the discharge by the Contractor of the Work. The Contractor shall comply with all such directions and instructions in full.

7. System Changes and Technology Substitution

- 7.1 Separate from and in addition to the system upgrade service to be performed as part of the Operation Services or other system changes which shall be performed by the Contractor without the need for any specific request from the Government and without any additional charge payable by the Government in accordance with any express requirements of the Contract, the Government may by giving written notice to the Contractor at any time during the Contract Period (whether during the Implementation Period or the Operation Period) request a change in the System and/or the Operation Services (a "System Change"). The written notice will contain particulars of the changes which the Government is proposing.
- 7.2 Upon receipt of a request for a System Change, the Contractor shall:
- 7.2.1 in the case of a proposed System Change within the Implementation Period, within seven (7) working days from the date of receipt of such request, the Contractor shall free of charge to the Government perform impact analysis on the System in light of the proposed System Change in relation to such aspects of the System as the Government may request, give the Government a written estimate of any increase or decrease in the Ticketing System Service Fee per ticket issued (if any) and the justification for arriving at such adjustment, and of any effect on the Implementation Plan including the Completion Date if the System Change is to be implemented;
- 7.2.2 in the case of a proposed System Change any time during the Operation Period, within seven (7) working days from the date of receipt of such request, the Contractor shall free of charge to the Government perform impact analysis on the System in light of the

proposed System Change in relation to such aspects of the System as the Government may request, and give the Government a written estimate of total Charges for implementing the System Change including any additional Contractor Supplied Hardware and Software, and any manpower with reference to different posts and experience, and the timetable for implementing the System Change including the completion date for the System Change to become Ready for Use. For the avoidance of doubt, notwithstanding anything herein to the contrary, there shall be no increase in the Ticketing System Service Fee or any other type of Service Fees unless the Government agrees in writing on a case by case basis in light of any System Change to be implemented; and

- 7.2.3 for the avoidance of doubt, save with the written consent of the Government, the Contractor may not impose any charge to the Government for the performance of any impact analysis. Any proposal to be submitted pursuant to this Clause shall be consistent with the terms and quotations set out in the Contract including those set out in Schedule 23 – Price Schedule of Part V – Contract Schedules, failing which the Government shall be entitled to ignore any inconsistent proposal and substitute such inconsistent proposal with the terms and quotations already set out in the Contract. Without prejudice to the generality of the foregoing, it is stated in Section 17.3.20.3 – Implementation Services and Section 18.15.3 – System Support and Maintenance Services of Part VII – Project Specifications that the Implementation Services or System Support Services (as the case may be) shall include the provision of a specified number of man-days to be performed by specified role(s) for the implementing System Changes, no additional Charges shall be payable for the specified man-days to be provided unless and until the specified man-days have been used up and in the case of System Changes during the Operation Period, the Government does not elect to apply the man-days allocated for future years of the Operation Period.
- 7.3 The Government will use its reasonable endeavours to inform the Contractor in writing within twenty-one (21) working days after receipt of the proposals and information provided in Clause 7.2 of this Part whether or not the Government wishes the requested System Change to be made. If affirmative, the parties shall enter into a written change agreement containing terms in relation to the System Change including those proposals and information as provided by the Contractor pursuant to and in accordance with Clause 7.2 of this Part (“change agreement”). The change agreement shall be deemed incorporated into, and prevail over the relevant parts of the Contract in the event of inconsistency. The change agreement shall set out and attach and shall be deemed to have set out and attached all the specifications information and document to enable the Contractor to implement the System Change. The Contractor acknowledges and agrees that it will not after entering into any change agreement make any allegation or claim that there has been lack of specifications or information or document to prevent it from performing the System Change, or request any further additional payment or extension of time or exemption from any obligation or liability under or arising from the Contract due to such allegation or claim.
- 7.4 Notwithstanding Clauses 7.1 to 7.3 of this Part, the Government shall have the right by giving no less than seven (7) days’ notice in writing to the Contractor to demand changes to the System to overcome an actual or likely failure of the Contractor to meet any of the requirements in the Overall Specifications or any stage of the Implementation Plan, but without prejudice to the rights and claims of the

Government (including without limitation the right to demand a decrease in the Ticketing System Service Fee and/or other type of Service Fees, or bringing forward of any of completion dates for any of the stages of the Implementation Plan). Unless otherwise agreed by the Government in writing, if any proposed change is effected pursuant to this Clause, Clauses 7.1 to 7.3 of this Part shall not apply and the Contractor shall not be entitled to any increase in the Ticketing System Service Fee or any other type of Service Fees or any extension of time for any other Activity.

- 7.5 Whether upon the initiative of the Contractor or at the request of the Government, the Contractor undertakes to make recommendations to the Government and the Government may at its sole option elect to accept such recommendations, at any time before delivery of unit(s) of the Contractor Supplied Hardware or Contractor Supplied Software any unit(s) of hardware or software or Cloud Services in substitution for unit(s) of the Contractor Supplied Hardware or Contractor Supplied Software where the substitute unit(s) contain new technology or have functional or performance or security or reliability characteristics similar to or better than the original recommended model or version or Hosting Plan of Contractor Supplied Hardware or Contractor Supplied Software. In the event that the Government elects to accept the recommendation of the substitute unit(s) of hardware or software or Cloud Services as recommended by the Contractor, the provisions of this Contract shall apply to such substitute unit(s) as such units shall form part of the Contractor Supplied Hardware or Contractor Supplied Software (as the case may be).

8. Advance Notice of Discontinuation of Production and Provision of Spare Parts and Updates

- 8.1 Without prejudice to the Contractor's obligation to provide the Operation Services including the Maintenance Services, as soon as a manufacturer or the Cloud Platform Operator (in the case of Public Cloud Services) decides to discontinue or becomes aware of the prospective discontinuance of the production of any of the Contractor Supplied Hardware or Contractor Supplied Software, or with not less than twelve (12) months' notice, whichever is the longer, the Contractor shall in writing notify the Government Representative stating clearly the model or version or the specifications or applicable Hosting Plan (in the case of the Public Cloud Services), exact date of discontinuation of production or operation (in the case of the Public Cloud Services), substitution proposal, if any, and all other relevant information.
- 8.2 As part of the System Support Services, the Contractor hereby undertakes that upon request of the Government, it shall replace and install or cause to be replaced and installed, throughout the Maintenance Period for all physical items of the Contractor Supplied Hardware, such replacement units and parts (including all firmware) down to component level for each case. For the avoidance of doubt, it shall be deemed that notwithstanding anything in the Contract to the contrary, the Contractor shall provide each such replacement unit and parts at no additional charge to the Government and these items are covered and shall be deemed to have been covered by the Ticketing System Service Fee.
- 8.3 The Contractor hereby undertakes that it shall install or cause to be installed, throughout the Maintenance Period in respect of all the Contractor Supplied Software, patches (including security patches), fixes, hotfixes, program temporary fixes, point

releases, enhancements and service packs, together with all manuals, documentation and technical literature in respect of any of the aforesaid items (collectively, “patches” or “updates”), from time to time issued or made available by the manufacturers/developers. If the manufacturer or developer is the Contractor or any of its associated persons or associates, the Contractor undertakes to provide support for the Contractor Supplied Software by where necessary producing and developing all of the aforementioned updates throughout the Maintenance Period. The updates to be provided by the Contractor shall include (a) the patches for the software which will only be made available by the manufacturer of the software through a paid annual subscription to software support; and (b) update for such software where the licensing scheme published by the manufacturer of such software requires the payment of an annual licence fee for the continual use of the software. All updates shall be provided by the Contractor for the System at no additional charge to the Government or any other person.

- 8.4 Prior to the commencement of each twelve-month period of the Operation Period, in relation to each applicable Contractor Supplied Software, the Contractor shall provide documentary proof to the Government Representative to show that the updates for each item of the Contractor Supplied Software have been procured from the manufacturer/developer/authorised dealer of that Contractor Supplied Software item in respect of that twelve-month period.

9. Connection with Other Equipment and Program

- 9.1 The Government as the proprietor of the System reserves all rights to install without additional charge in the System other computer hardware and/or software or connect the System to other computer hardware, equipment and/or software, which is not supplied under this Contract and which the Government considers to be compatible with the System. The Contractor shall under such circumstances provide all necessary assistance to the Government with regard to the installation, connection, testing, acceptance and maintenance of such hardware, equipment and/or software free of charge.

10. Implementation Plan

- 10.1 The Contractor shall perform its obligations under this Contract in accordance with the Implementation Plan and shall complete the Work in each Activity by the date specified in the Implementation Plan. Time shall be of the essence of this Contract.
- 10.2 The Government shall be entitled to postpone any of the dates in the Implementation Plan for any further period or revise the sequence of the events specified therein provided the Government shall give the Contractor not less than seven (7) days’ written notice prior to the original date to be postponed or revised. The remaining dates, sequence and chronology of the Implementation Plan shall remain in full force and effect unless the Government shall otherwise determine or unless the postponement is of a material length and the Contractor provides justifications to the satisfaction of the Government that there shall be a corresponding postponement of the remaining dates.

- 10.3 Without prejudice and in addition to Clause 57 – Force Majeure of this Part, should it become reasonably apparent to the Contractor that the Work is or will be unduly delayed or disrupted as a result of any of the following events, the Contractor shall, as soon as possible, but in any event no later than seven (7) days after the occurrence of the relevant event, issue a written notice to the Government Representative stating in full detail the alleged event triggering the delay or disruption:
- 10.3.1 instructions having been issued by the Government Representative requiring compliance with specifications or requirements not already specified in the Contract or in the Overall Specifications or otherwise not pursuant to the Contract; or
- 10.3.2 the Contractor not having received any necessary information from the Government Representative in accordance with the time specified in the Contract or otherwise within a reasonable time; or the Government has taken more than a reasonable period time or otherwise more than the time specified in the Contract (if any) to notify the Contractor of its decision on whether certain approval or agreement should be given.
- 10.4 Upon receipt of any notice from the Contractor under Clause 10.3 of this Part, the Government Representative will review the alleged event. If the Government Representative in its reasonable opinion considers that (a) there has indeed been such event as mentioned in Clause 10.3.1 or 10.3.2 of this Part, and that (b) such event will cause undue delay or disruption to the Work, the Government Representative will grant to the Contractor the appropriate postponement of any of the dates specified in the Implementation Plan. All decisions of the Government shall be binding on the Contractor (save in the case of manifest error). The Contractor shall not be entitled to raise any subsequent objection or protest in light of any alleged event falling within Clause 10.3 of this Part if it has not issued any notice concerning such alleged event in accordance with Clause 10.3 of this Part.
- 10.5 Any postponement or change of the Implementation Plan pursuant to this Clause 10 or other applicable provisions of this Contract by the Government shall not:
- 10.5.1 oblige the Government to pay any additional remuneration or compensation to the Contractor;
- 10.5.2 release the Contractor from any of its obligations or liabilities or give rise to any waiver or estoppel in relation to any of its obligations or liabilities; or
- 10.5.3 give rise to any other obligation or liability on the part of the Government.

11. Location and Site Preparation

- 11.1 For those Contractor Supplied Hardware to be installed at the Government Locations, it is not expected any site preparation work at the Government Locations shall be necessary for accommodating the Contractor Supplied Hardware. Should any site preparation work be required, the Contractor shall perform the same at its own cost; or otherwise propose another alternative model which complies with the Overall Specifications but does not require any site alteration or preparation work.

- 11.2 For Contractor Supplied Hardware (physical items) to be installed at the Data Centres and other Locations which are not the Government Locations, the Contractor shall be responsible for all site preparation work as part of the Implementation Services.
- 11.3 If the Government relocates any Government Location or establishes new Government Locations which is an outlet or a venue or a LCSD Office, no charge shall be payable by the Government for such relocation. Upon receipt of such notice, the Contractor shall deliver and install the relevant Contractor Supplied Hardware and Software at any such new locations and make necessary modification to the System. Regardless of whether or not the relocation is carried out by the Contractor, the terms and conditions of this Contract shall apply to any part of the System installed at any such new locations and references to Locations shall include such new locations. Upon request by the Government, the Contractor shall engage hardware vendors at its own cost, to check and certify the health status of hardware items before and after the relocation.
- 11.4 The Contractor shall, in the course of the execution of the Work, keep the Government Location in clean, safe and tidy conditions.
- 11.5 Without prejudice to and in addition to other rights and powers of the Government under the Contract including Clause 7 of this Part, the Government reserves the right to require the Contractor to change the Contractor Supplied Public Cloud or the Data Centre(s) at which the Contractor Supplied Private Cloud is located by giving at least two (2) months' notice to the Contractor any time any time during the Maintenance Period. Where the change is initiated by the Government due to the failure of the System or any part thereof to comply with the Overall Specifications or the Performance Criteria or the Reliability Levels, the Contractor shall perform the change at its own cost.

12. Implementation Services

- 12.1 The Contractor shall:
- (a) provide and perform the Implementation Services; and
 - (b) without prejudice to the generality of the foregoing, design, write, test and install all the Custom Programs in accordance with the Contract.
- 12.2 Without prejudice and in addition to the Contractor's obligation to submit the Deliverables in accordance with the Implementation Timetable and other time requirements set out in the Contract, the Contractor shall submit a draft of such Deliverables and supporting materials for prior comment and approval by the Government not less than fourteen (14) days prior to the scheduled completion date of such Deliverables based on the Implementation Timetable or such other period as other parts of the Contract may require.
- 12.3 Upon request from the Government, the Contractor shall alter or adjust or modify any of the Deliverables to the satisfaction of the Government, without causing any delay to the Implementation Timetable, at no additional cost to the Government.

- 12.4 The final version of each of the Deliverables incorporating the comments from the Government shall be submitted by the Contractor by the scheduled time for submission of such Deliverable based on the Implementation Timetable or such other time requirements set out in the Contract.
- 12.5 Unless otherwise inconsistent with the express provisions of the Contract, or unless the Government Representative otherwise agrees on a case by case basis, the Contractor shall perform the Implementation Services in accordance with the methodologies, guidelines and standards as published on the OGCIO website in relation to quality management, resource estimation, project management, system development, IT security policy and guidelines.

13. Delivery of the Contractor Supplied Hardware

- 13.1 On each Hardware Delivery Date, the Contractor shall deliver the Contractor Supplied Hardware at its own cost and expense to the Location.
- 13.2 Upon completion of delivery, the Contractor shall provide such assistance, instruments, machines, expertise, labour and other facilities as may be necessary to enable the Government to inspect and test any of the Contractor Supplied Hardware.
- 13.3 Upon completion of delivery, the Contractor shall remove all packing cases and other containers in which the Contractor Supplied Hardware is delivered.
- 13.4 Without prejudice to Clause 10.2 of this Part, the Government Representative shall be entitled, by giving not less than seven (7) days' prior written notice to the Contractor, to postpone delivery by a period to be specified in the notice, of any or all of the Contractor Supplied Hardware beyond the original Hardware Delivery Date. All other dates specified in the Implementation Plan shall remain unchanged.
- 13.5 In relation to the goods that are governed by the Product Eco-responsibility Ordinance (Chapter 603 of the Laws of Hong Kong) (the "regulated electrical equipment"), the Contractor shall provide (i) an appropriate recycling label, issued by the Environmental Protection Department, for each number of the regulated electrical equipment delivered; and (ii) a receipt with prescribed wording about the recycling levies.

14. Installation of the Contractor Supplied Hardware

- 14.1 On each Hardware Installation Date, the Contractor shall install the Contractor Supplied Hardware at the Location.
- 14.2 If in the reasonable opinion of the Contractor it is necessary to remove or otherwise disconnect any of the Government's equipment at the Location in order to carry out the installation of the Hardware, the Contractor shall give at least three (3) days' prior written notice to the Government Representative who shall take appropriate measures or precautions before authorising the Contractor to effect any such disconnection. The Government Representative may require, and the Contractor shall comply with

such request, the removal or disconnection of the Government's equipment to be carried out in the off-peak hours if the LCSD's operation or service delivery may be affected by the removal or disconnection of the equipment.

- 14.3 If requested by the Government, the Contractor shall cause and ensure proper connection of and between any part of the Hardware and/or any part of the Government's equipment as is appropriate for the operation of the System.
- 14.4 Without prejudice to Clause 10.2 of this Part, the Government Representative shall be entitled, by giving not less than seven (7) days' prior written notice to the Contractor, to postpone installation by a period to be specified in the notice, of any or all of the Hardware beyond the original Hardware Installation Date. Unless otherwise stipulated by the Government, or unless the parties otherwise agree, all other dates specified in the Implementation Timetable shall remain unchanged.

15. Delivery and Installation of the Software

- 15.1 On each Software Delivery Date, the Contractor shall deliver the Contractor Supplied Software to the Location at which the relevant Hardware is located, and install the Software on such Hardware.
- 15.2 Without prejudice to the generality of Clause 10.2 of this Part, the Government Representative shall be entitled, by giving not less than seven (7) days' prior written notice to the Contractor, to postpone delivery to a date as specified in the notice, of any or all of the Contractor Supplied Software beyond the original Software Delivery Date. Unless otherwise stipulated by the Government, or unless the parties otherwise agree, all other dates specified in the Implementation Timetable shall remain unchanged.
- 15.3 The Contractor shall deliver to the Government all Deliverables in accordance with the Implementation Plan.

16. Installation Test

- 16.1 The Contractor shall submit, at least six (6) weeks prior to the carrying out of the Installation Test, the specifications of such Installation Test for the approval by the Government Representative. If in the reasonable opinion of the Government Representative such specifications are not sufficient to test all the functions and facilities of the Hardware and Software, the Contractor shall make any reasonable amendments to such specifications as the Government Representative may require.
- 16.2 The Contractor shall on the date specified in the Implementation Plan, submit the each unit of each item of the Contractor Supplied Hardware and Contractor Supplied Software to the Installation Test to prove to the Government that each unit of each item of the Contractor Supplied Hardware and Contractor Supplied Software and every part thereof are operating in full and proper working order. The Contractor shall within two (2) weeks (or such other period as specified in the Implementation Plan, whichever is shorter) after the completion of the Installation Test supply to the Government the results of the Installation Test and certify in writing whether each

unit of each item of the Contractor Supplied Hardware and Contractor Supplied Software has passed the Installation Test.

- 16.3 If any unit of any item of the Contractor Supplied Hardware or Contractor Supplied Software or any part thereof fails to pass the Installation Test within two (2) weeks (or such other period as specified in the Implementation Plan, whichever is shorter) from the date of its first submission to the Installation Test, without prejudice to other rights and remedies of the Government, the Government may by a written notice to the Contractor elect at its sole option:
- 16.3.1 to require the Contractor to provide such replacement and/or additional unit of hardware, software or programs or cloud service whether from the same Public Cloud Operator or another operator as will enable all units of the relevant item of the Contractor Supplied Hardware or Contractor Supplied Software to pass the Installation Test. In the event that notwithstanding such replacement and/or additional hardware, software or programs or cloud service, the Installation Test still cannot be passed, the Government shall be entitled to proceed under Clause 16.3.2 or 16.3.3 of this Part;
- 16.3.2 to accept all units of the relevant item of the Contractor Supplied Hardware or Contractor Supplied Software subject to an abatement of the Ticketing System Service Fee and where applicable other type(s) of Service Fees, such abatement to be such amount as, taking into account the circumstances, is reasonable. In the absence of a written agreement as to abatement within two (2) weeks after the date of such notice the Government shall be entitled to reject the all units of all items of the Contractor Supplied Hardware or Contractor Supplied Software in accordance with Clause 16.3.3 of this Part; or
- 16.3.3 to reject all units of all items of the Contractor Supplied Hardware or Contractor Supplied Software as not being in conformity with this Contract. Upon rejection as aforesaid, the Government Representative shall be entitled to terminate this Contract pursuant to Clause 55.1.8 of this Part.

17. System Acceptance Tests

- 17.1 Submission of Test Plan
- 17.1.1 At least one (1) month prior to the conduct of any part of the System Acceptance Tests in respect of the System, notwithstanding anything in the Project Documentation to the contrary (including any project plan or project management plan or project initiation document whether signed or approved by the Government Representative), the Contractor shall submit the relevant test plans to the Government Representative for written approval which shall contain (a) the test items to be tested; and (b) the test specifications comprising (i) test procedures; (ii) test cases; (iii) test data; (iv) test environment and (v) test entry and termination criteria; and (c) expected results of the tests. All comments made by the Government Representative on the test plan shall be incorporated in order for the Government to approve the test plan. All requirements concerning the test plans as stated in Section 17 - Implementation Services of Part VII – Project Specifications shall be complied with. If in the reasonable opinion of the Government Representative such test plans

are not sufficient to determine if the System or any of Hardware or Software complies with any requirement of the Overall Specifications or the Reliability Levels or the Performance Criteria, the Contractor shall within seven (7) days make all necessary amendments to such test plans to ensure that the test plans are sufficient for the aforesaid purposes and are to the satisfaction of the Government. Whilst the test plan has to be approved by the Government, in the event that the Government withholds its approval on the ground of any insufficiency for the aforesaid purposes, it shall be the responsibility of the Contractor but not the Government to propose the detailed changes required including the test cases to ensure sufficiency of each test plan. The level of business scenarios covered by the test cases shall be adequate to determine compliance with the Overall Specifications, and the Contractor may not defer any such proposed testing to the User Acceptance Tests. All of the System Acceptance Tests shall be conducted and completed by the dates as specified in the Implementation Plan, or in the absence of which by such dates so as to ensure that the System can be Ready for Use on or before the Completion Date. All of the System Acceptance Tests shall be conducted in the presence of the Government Representative and the Government Representative shall be invited to do so, unless the Government Representative opts not to attend as confirmed in writing. The Government Representative may also participate in the conduct of any part of the System Acceptance Tests as and when the Government Representative sees fit. No further extension of time shall be given due to such participation.

17.2 The System Acceptance Tests comprise the following:

- (a) the Functional Test comprising the Unit Test, the Link Test and the Function Test;
- (b) the System Integration Test;
- (c) the Load Test;
- (d) the Resilience Test;
- (e) the Reliability Test;
- (f) the Disaster Recovery Test; and
- (g) the Data Conversion and Migration Test.

The above tests can each be referred to in singular or plural and either reference shall mean the same test.

17.3 The System shall be subject to a Functional Test which comprises the Unit Test, the Link Test and the Function Test as follows:

17.3.1 The Unit Test

17.3.1.1 The Contractor shall submit each of the sub-programs, sub-routines, or procedures in each Custom Program to a unit test (or module test) to prove to the Government that the Custom Program is in compliance with the Overall Specifications in respect of such Custom Program.

17.3.2 The Link Test

17.3.2.1 The Contractor shall test the linkages between each Custom Program as against the System Specifications under the Link Test. The objective is to find errors associated

with interfacing. All Custom Programs shall be integrated for and during such Link Test.

17.3.3 The Function Test

17.3.3.1 The Contractor shall submit the System to the function test in the presence of the Government Representative to assess whether the System and each part thereof (including integrated Custom Programs) operates in accordance with all the functional specifications in the Overall Specifications and the Performance Criteria. The test shall be conducted on a function by function basis as against the aforesaid functional specifications.

17.3.3.2 If the System or any part of the System or any item of Hardware or Software fails any part of the Functional Test or it is shown that the System fails to conform fully with the Overall Specifications and the Performance Criteria, the Contractor shall immediately rectify such failure forthwith and repeat the test on the same basis.

17.3.3.3 If the System or any part of the System or any item of Hardware or Software still fails any part of the Functional Test or still fails to conform fully with the Overall Specifications and the Performance Criteria after two (2) weeks from the date on which it was first submitted to the relevant part of the Functional Test, the Government may by a written notice proceed in accordance with Clause 18 of this Part.

17.4 The System Integration Test

17.4.1 The Contractor shall submit the System to the System Integration Test in the presence of the Government Representative to verify that the System and each part thereof performs and interfaces properly with other hardware, software, and systems to which it is designed to be connected, in every aspect in accordance with the Overall Specifications using sample converted and migrated data produced from the conversion and migration performed as part of the Implementation Services (where conversion and migration is required as part of the Implementation Services) or using other data as the Government considers appropriate. The System Integration Test shall comprise all parts of tests comprised in system testing as stated in the Guidelines for Application Software Testing published on the OGCIIO website from time to time.

17.4.2 If the System or any part thereof fails the System Integration Test, the Contractor shall immediately rectify any defect which causes the failure and perform the test again.

17.4.3 If such repeated tests demonstrate that the System or any part thereof still cannot pass the System Integration Test or otherwise is not in conformity with any of the Overall Specifications after six (6) weeks from the date on which the System or any part thereof was first submitted to the System Integration Test, the Government may by a written notice proceed in accordance with Clause 18 of this Part.

17.5 The Load Test

- 17.5.1 The Contractor shall carry out the Load Test to verify that the System complies with all of the workload specifications set out in the Overall Specifications which the System is required to comply based on its current configuration (“Workload Specifications”) using sample converted and migrated data produced from the conversion and migration performed as part of the Implementation Services (if conversion and migration is required as part of the Implementation Services) or using other data as the Government considers appropriate whether input manually or generated automatically. The Load Test shall also include a performance testing to determine compliance by the System with the response time requirements as set out in the Overall Specifications, and compliance with the Performance Criteria.
- 17.5.2 If the System or any part thereof fails the Load Test or to conform fully with the Workload Specifications or the Performance Criteria, the Contractor shall immediately rectify any defects causing the non-conformance and perform the test again.
- 17.5.3 If the System or any part thereof still fails the Load Test or still fails to conform fully with the Workload Specifications or the Performance Criteria when handling the workload as stipulated in the Workload Specifications after two (2) weeks from the date on which the System or any part thereof was first submitted to the Load Test, then the Government may by a written notice proceed in accordance with Clause 18 of this Part.
- 17.6 The Resilience Test
- 17.6.1 The Contractor shall carry out the Resilience Test in the presence of the Government Representative to verify that the System complies with all the specifications in relation to resilience and fail-over in the Overall Specifications (“Resilience Specifications”) and the Performance Criteria.
- 17.6.2 If the System or any part thereof fails the Resilience Test or it is shown that any of the Resilience Specifications or the Performance Criteria cannot be complied with, the Contractor shall immediately rectify any defect causing the failure and perform the test again.
- 17.6.3 If the System or any part thereof still fails the Resilience Test or still fails to conform fully with the Resilience Specifications or the Performance Criteria after two (2) weeks from the date on which the System or any part thereof was first submitted to the Resilience Test, the Government may by a written notice proceed in accordance with Clause 18 of this Part.
- 17.7 The Reliability Test
- 17.7.1 The Government shall carry out the Reliability Test to test whether the System is in conformity with the Overall Specifications, the Performance Criteria and Reliability Levels throughout a given period of four (4) consecutive weeks.
- 17.7.2 If the System or any part thereof fails to conform fully to the Overall Specifications, the Performance Criteria or the Reliability Levels in the Reliability Test, then such test shall be repeated on a week to week basis and on the same terms and conditions

- until full conformity with the Overall Specifications, the Performance Criteria and the Reliability Levels are achieved for four (4) consecutive weeks.
- 17.7.3 If such repeated tests demonstrate that the System or any part thereof is not in conformity with the Overall Specifications, the Performance Criteria or the Reliability Levels after eight (8) weeks from the date on which the System (or that part of the System, as the case may be) was first submitted to the Reliability Test, the Government may by a written notice proceed in accordance with Clause 18 of this Part.
- 17.8 From the date of commencement of the System Acceptance Tests, the Government shall be entitled to use the System at no cost and the Contractor shall provide free of charge such maintenance services for the System as may be necessary to maintain the System in full working order until the System is accepted by the Government Representative.
- 17.9 The Disaster Recovery Test and Data Conversion and Migration Test
- 17.9.1 The Contractor shall carry out the Disaster Recovery Test in the presence of the Government Representative on the date specified in the Implementation Plan to prove that the System is able to meet the disaster recovery requirement in case of any catastrophic event at the Data Centres of each of the Contractor Supplied Public Cloud and Contractor Supplied Private Cloud in production environment as specified in the Project Specifications and in accordance with the Specifications and Performance Criteria.
- 17.9.2 The Contractor shall carry out the Data Conversion and Migration Test in accordance with Section 17.3.5.1 of Part VII - Project Specifications.
- 17.9.3 If the System or any part thereof fails the Disaster Recovery Test or Data Conversion and Migration Test or to conform fully to the Specifications and Performance Criteria, the Contractor shall immediately rectify any such defects causing the non-conformance and perform the test again.
- 17.9.4 If the System or any part thereof still fails the Disaster Recovery Test or the Data Conversion and Migration Test or still fails to conform fully with the Overall Specifications and Performance Criteria after two (2) weeks from the date on which the System or any part thereof was first submitted to such Test, then the Government may by a written notice proceed in accordance with Clause 18 of this Part.
- 17.10 Submission of a Test Incident Report
- 17.10.1 Upon the completion of each part of the System Acceptance Tests or upon such time as the Government may stipulate, the Contractor shall provide the Government Representative the test incident report covering all information required for a test incident report as specified or recommended in the Guidelines for Application Software Testing published on the OGCIO website from time to time including the test results with all necessary details to show whether the relevant part of the System Acceptance Tests has been passed; and if so, certify in writing whether the System or any part thereof has passed the same for the Government's written approval. The Contractor shall provide all such explanation and clarification in response to any

queries and comments from the Government. In the event that based on any information provided in the test incident report or the absence thereof, the Government is not satisfied that the relevant part of the System Acceptance Tests has been duly conducted and passed, such part of the Tests shall not be deemed to have been passed, and the Contractor shall be obliged to re-conduct such part within seven (7) days.

17.10.2 Save with the prior written approval of the Government, an Activity in the Implementation Plan shall not be considered to have been successfully completed, and the Contractor may not proceed to the next Activity in the Implementation Timetable, including without limitation any part of the System Acceptance Tests as mentioned in this Clause 17, production rollout, and other Activities, unless and until the Government confirms in writing to the Contractor that it is satisfied that the Activity has apparently been completed in accordance with the terms of the Contract. Without prejudice to the generality of the foregoing, in the case of any part of the System Acceptance Tests, it shall not be deemed to have been completed unless and until the Government confirms in writing that such part of the System Acceptance Tests has been passed and successfully completed in accordance with all requirements of the Contract and test plans approved by the Government for such part of the System Acceptance Tests.

17.11 The User Acceptance Tests

17.11.1 In addition to the System Acceptance Tests, the Government will conduct the User Acceptance Tests on the System. The Contractor shall provide all necessary assistance to the Government in the preparation for and during the conduct of the User Acceptance Tests in the manner specified in Section 17 - Implementation Services of Part VII – Project Specifications.

18. Failure in Testing

18.1 If the System or any part of the System fails any part of the System Acceptance Tests or any parts of the User Acceptance Tests or fails to conform with the Overall Specifications, the Performance Criteria and the Reliability Level (“Defect”), without prejudice to the Government’s other rights and remedies (including Clauses 21.4 and 21.5 of this Part), the Government may (but is not obliged to) at its sole option by a written notice elect to exercise all or any one of the following rights either at the same time or one after the other (“Remedy Notice”):

18.1.1 to require the Contractor to provide such replacement and/or additional hardware, software or custom programs or cloud service (whether from the same Contractor Supplied Public Cloud or another public cloud) to rectify the Defect and in the event of any bug or defect in any Custom Program, to fix the bug or defect; and/or

18.1.2 to accept the System or such part of the System subject to an abatement of the Ticketing System Service Fee and where applicable other type of Service Fees, such abatement to be in an amount which, taking into account of the circumstances, is reasonable; and/or

- 18.1.3 on its own through the deployment of an in-house team (regardless of the employment term of the in-house members) and/or through a third party contractor (whether appointed through open tendering or through a standing offer agreement or through direct appointment) to re-perform such part of the Implementation Services as the Government considers appropriate including without limitation the replacement, upgrade, redesign and/or rewrite of any part of the System and/or the Contractor Supplied Cloud and/or any Contractor Supplied Hardware or Software and/or any Custom Program and/or any Documentation and/or the Data Centres and/or any Operation Services and/or any other Deliverables, and/or provide additional manpower to ensure timely compliance with the Implementation Plan, and passing of the System Acceptance Tests and/or the User Acceptance Tests. The Contractor shall be liable to indemnify the Government in doing all or any of the foregoing on the terms set out in Clause 33 of this Part; and/or
- 18.1.4 to require the Contractor to proceed to the next Activity notwithstanding the Defect provided that the Contractor shall continue to resolve and remedy the Defect before any System Acceptance Certificate may be issued.
- 18.2 If the Government does not in light of a Defect elect to exercise any of the rights set out in Clause 18.1 of this Part or even it has done so, the Defect is still not cured within one (1) month or such longer period as the Government may agree after the date of the last Remedy Notice (where applicable), or no agreement concerning the abatement of the Ticketing System Service Fee and where applicable other types of Service Fees can be reached pursuant to Clause 18.1.2 of this Part (where the Government has elected to exercise the option under Clause 18.1.2 of this Part), the Government may at its sole option by a written notice reject the entire System or any part of the System as not being in conformity with this Contract. Upon rejection of the entire System, the Government Representative shall be entitled to terminate the Contract pursuant to Clause 55.1.8 of this Part and the consequences specified in Clause 56.1 of this Part shall apply. In case of partial rejection, the Government shall be entitled to effect partial termination of the Contract pursuant to Clause 55.4 of this Part and the consequences specified in Clause 56.3 of this Part shall apply.
- 18.3 Throughout the Contract, references to the failure of the System or any part thereof in any part of the System Acceptance Tests or the User Acceptance Tests (or failure to pass any part of such Tests or failure to complete any part of such Tests) shall include (a) failure to comply with any requirement of the Overall Specifications or the Performance Criteria or the Reliability Levels or otherwise any requirement of the Contract as shown in the results of any part of such Tests, or (b) failure to satisfy any testing criteria or fulfil any expected result specified in the test plan approved by the Government for any part of such Tests, or (c) failure to commence any part of such Tests by the date specified in the Implementation Plan for whatever reason including any failure to obtain the Government's approval of any test plan for such Test, or (d) failure to conclude any part of such Tests by the date specified in the Implementation Plan. Without prejudice to the generality of the foregoing, where any part of the System Acceptance Tests or the User Acceptance Tests has shown that there is any deficiency or bug or defect in any part of the System including any Custom Programs, the Contractor must fix the deficiency or bug or defect. If any such deficiency or bug or defect is not fixed before submission to retesting within the schedule specified in Clause 17 of this Part for that test, the System or any part thereof shall be deemed to have failed the relevant test.

18.4 For the avoidance of doubt, the right of rejection and termination under Clause 18.2 of this Part (or partial termination) is separate from the right provided under each of Clauses 21.4 and 21.5 of this Part and may be exercised without satisfying the conditions specified in Clause 21.4 or 21.5 of this Part. As stated in Clause 10.1 of this Part, time is of the essence of this Contract. The Government is entitled to exercise its right of rejection and termination in accordance with any of the aforesaid clauses or other applicable provisions of the Contract without any obligation whatsoever to (a) give any further time extension to the Contractor regardless of the original duration of the Implementation Period; or (b) consider any counter-proposal from the Contractor concerning a revised Completion Date. Where the Government does not immediately exercise its right of rejection and termination, and allows the Contract to continue, under no circumstances whatsoever should this allowance be construed as a waiver of any right and claim of the Government arising from any breach of the Contract by the Contractor or a Contract variation agreement that there should be any time extension to be given to the Contractor.

19. Unit Acceptance Test

19.1 For any unit or part of the Contractor Supplied Hardware or Contractor Supplied Software including any update to any Contractor Supplied Software which is delivered and/or installed at whichever Location (whether it be a Contractor Location or Government Location), the Contractor shall initially perform its Installation Test in accordance with Clause 16 of this Part. On successful completion of the Installation Test, the unit will be put into operation as part of the System (“Unit Acceptance Test”). If the unit fails to achieve in four (4) consecutive weeks a unit serviceability level of at least ninety-nine (99) per cent, further Unit Acceptance Test will be repeated on a week to week basis until a unit serviceability level of at least ninety-nine (99) per cent is achieved for four (4) consecutive weeks. The unit serviceability level is defined as:

$$\frac{A - B}{A}$$

where A = total switched-on time

B = total unit downtime (including unscheduled unit repair time)

19.2 The Contractor shall, upon any Custom Program modified with a patch or bug fix or any other update developed by the Contractor in performance of the System Support Services (“patch”), within four (4) consecutive weeks operate the Custom Program incorporating the patch to determine whether:

- (a) it complies with the Overall Specifications including those specifications for the implementation of such patch whether set out in a change agreement or otherwise; and
- (b) it is capable of operating on a repetitive basis without failure on a variety of data which the Government may provide.

The said Custom Program shall be deemed to be accepted if it passes all the acceptance criteria set out herein (“Patch Acceptance Criteria”).

- 19.3 If any item as mentioned in Clause 19.1 fails the Installation Test or Unit Acceptance Test after four (4) weeks from the date on which such unit is put to such Test or fails to conform fully to the Overall Specifications including the specifications published by the manufacturer or committed by the Contractor for such unit or is not compatible with the System, without prejudice to the Government’s other rights and remedies, the Government may by a written notice to the Contractor elect at its sole option:
- (a) to require the Contractor to provide such replacement and/or additional hardware, software, or programs or cloud services (whether from the same Public Cloud or another public cloud) as will enable the Unit Acceptance Test to be passed. In the event that such replacement and/or additional hardware, software, and/or cloud services fail to enable such unit to pass the Installation Test or Unit Acceptance Test, the Government shall be entitled to proceed under Clause 19.3(b) or 19.3(c) of this Part; or
 - (b) to keep or remove the faulty items for the System and the Contractor shall upon request of the Government make an impact analysis on the System and propose all necessary work-around solution to ensure that the System will continue to comply with all Overall Specifications, Reliability Levels and Performance Criteria subject only to such qualifications as specified in the impact analysis report approved by the Government; and/or
 - (c) to uninstall the faulty unit from the System and reinstall the previous unit with which the faulty item replaces if any.
- 19.4 If any faulty item is a patch as mentioned in Clause 19.2 which fails to comply with the Patch Acceptance Criteria, without prejudice to the Government’s other rights and remedies, the Government may by a written notice to the Contractor elect at its sole option:
- (a) to require the Contractor to re-write the patch to ensure that the Custom Program incorporating the rewritten patch will comply with the Patch Acceptance Criteria; or
 - (b) to exercise the same option(s) as mentioned in Clause 19.3(b) and/or (c) above; or
 - (c) to reject such modified Custom Program as not being in conformity with this Contract in which event the Government shall be entitled on its own through the deployment of an in-house team (regardless of the employment term of the in-house members) and/or through a third party contractor (whether appointed through open tendering or through a standing offer agreement or through direct appointment) to re-write the patch and conduct all necessary tests as the Government considers appropriate. The Contractor shall be liable to indemnify the Government in doing all or any of the foregoing on the terms set out in Clause 33 of this Part.

20. System Acceptance Certificate

- 20.1 Upon the System passing the System Acceptance Tests, the User Acceptance Tests, the System having become Ready for Use and having subsequently successfully completed the Parallel Run and the System Cut-over (collectively, “Issuance Conditions”) and provided further Contractor has duly performed and observed all obligations under the Contract which are due to be performed and observed (save to the extent waived by the Government), the Government shall, within four (4) weeks thereafter accept that System by issuing a System Acceptance Certificate to the Contractor.
- 20.2 Even the Issuance Conditions are apparently fulfilled, but the System or any part thereof does not fully conform with certain requirements of the Overall Specifications (“deficiencies”), or there are outstanding obligations under the Contract to be performed or observed by the Contractor, the Government may either refuse to issue the System Acceptance Certificate; or may, but is not obliged to, issue a System Acceptance Certificate with qualifications concerning the deficiencies to be rectified and/or the obligations to be performed and observed (“qualified System Acceptance Certificate”). Where a qualified System Acceptance Certificate is issued, the Contractor shall ensure that the deficiencies are rectified and the outstanding obligations are performed and observed by the date(s) stipulated by the Government in the qualified System Acceptance Certificate).
- 20.3 Where the Government refuses to issue the System Acceptance Certificate under Clause 20.2 of this Part, the Contractor shall comply with all such instructions which may be given by the Government in writing to the Contractor specifying all the Work which is required to be done by the Contractor under this Contract before such System Acceptance Certificate may be issued. No System Acceptance Certificate may be issued until such Work is completed to the Government’s satisfaction (save to the extent waived by the Government).

21. Delay

- 21.1 The Contractor shall supply and deliver to the Government the System in Ready for Use condition on or before the Completion Date.
- 21.2 If the Contractor fails to supply and deliver the System or any part thereof in Ready for Use condition by the Completion Date and/or fails to complete the Parallel Run and the System Cut-over within one month after the scheduled Completion Date (“scheduled date for System Cut-over”), the Contractor shall upon demand of the Government pay to the Government as and by way of liquidated damages for the losses and damage sustained by the Government resulting from delay during the period from scheduled date for System Cut-over to the actual date on which the Contractor provides the entire System Ready for Use and successfully completed the Parallel Run and the System Cut-over (as confirmed by the Government in writing) (“period of delay”) an amount representing the difference between the summation of (a)(i) and (a)(ii) on the one hand, and the amount of (b) on the other:
- (a)(i) the total amount of the service fee regardless of whether or not chargeable based on the number of tickets issued or sold during the period of delay and

regardless of the sale modes, and the service fee for accepting payment for tickets using all or any of the Electronic Payment Means, all of which service fee shall be payable by the Government as principal (whether as the event organiser or otherwise) to a contractor over the period of delay for performing the replacement services and making available the replacement system to fill the void of the delayed Services and the System; and

(a)(ii) all administrative and legal costs incurred in monitoring the Contract over any delay; and procuring replacement services and/or replacement system as mentioned in (a)(i) above based on the prevailing daily salary rate of a LCSD manager (monthly salary divided by 25) and the number of man-days incurred in performing the aforesaid duties;

(b) the total amount of the Ticketing System Service Fee at the rate specified in Item (A) of Table 23.1 of Schedule 23 of Part V – Contract Schedules, and the e-Payment Transaction Fee (which shall be determined based on the rate of Transaction Fee Percentage specified in the Articles of Agreement) which would have been payable to the Contractor over the period of delay if there were no delay and further taking into account the rebate at the rate specified in Item (B) and Item (C) of Table 23.1 of Schedule 23 of Part V – Contract Schedules based on the number of tickets issued or sold over the period of delay but the relevant ticket sale threshold (5 million) for triggering the payment of the rebate amount (in the case of Item (B)) and the threshold of one (1) million and the groups of 250,000 for determining the applicable rate of the rebate amount (in the case of Item (C)) shall each be divided by 365 and multiplied by the number of days comprised in the period of delay for the determining whether the rebates are payable, and if so, the amount of such total rebates based on the same rates specified respectively in Item (B) and Item (C) of Table 23.1 of Schedule 23 of Part V – Contract Schedules.

21.3 Other provisions concerning the liquidated damages:

21.3.1 Subject to the provisions of Clause 21.4 of this Part, the payment of the amount by the Contractor under Clause 21.2 shall be in full satisfaction of the Contractor's liability for the delay only. The payment of liquidated damages shall not relieve the Contractor from its obligation to provide the System Ready for Use, complete the Parallel Run and System Cut-over or from any other liability or obligation under this Contract. The liquidated damages are not the applicable compensation where the Contractor has failed to make available the System in Ready for Use condition and/or failed to successfully complete the Parallel Run and/or System Cut-over and the Government elects to terminate the Contract under Clause 55.1 or 55.4 of this Part.

21.3.2 For the avoidance of doubt, for the determination of the amount as mentioned in Clause 21.2(a)(i) above, all amounts and costs incurred by the Government shall be taken into account regardless of (i) whether the relevant contractors and/or suppliers are appointed through open tendering or through standing offer agreement or through direct appointment; and (ii) whether one single or multiple contractors or suppliers have been appointed for the replacement services and/or replacement system; and (iii) the design, methodology and technology (including programming language) of the replacement system and the replacement services.

- 21.4 Without prejudice to the other rights and remedies of the Government including those stated in Clauses 18 and 21.5 of this Part, in the event that the Contractor fails to successfully complete, or commence any Activity (including any part of the System Acceptance Tests, the Parallel Run and the System Cut-over) in accordance with the terms of the Contract for more than eight (8) weeks after the date specified in the Implementation Plan by which that Activity should have been completed or commenced, or by such longer period as the Government may allow in writing, the Government shall be entitled to reject the System and to terminate this Contract pursuant to Clause 55.1.8 of this Part by giving a written notice to the Contractor. Alternatively, the Government shall be entitled to reject a part of the System and partially terminate the Contract pursuant to Clause 55.4 of this Part.
- 21.5 If the Contractor fails to provide the System Ready for Use within eight (8) weeks after the Completion Date, then notwithstanding anything else contained in this Contract, the Government Representative shall be entitled to reject the System and to terminate this Contract pursuant to Clause 55.1.8 of this Part by giving a written notice to the Contractor. Alternatively, the Government Representative shall be entitled to reject a part of the System and partially terminate the Contract pursuant to Clause 55.4 of this Part.

22. Title to and Risks to the System

- 22.1 All physical items of the Contractor Supplied Hardware, all Licences to the Contractor Supplied Software and their Off-the-shelf Documentation, all Custom Programs, all Deliverables (excluding the System Data and the Project Documentation) shall be beneficially owned by the Contractor (or the relevant sub-contractor of the Contractor performing any part of the Work, provided that a sub-contractor undertaking in the form set out in Annex D shall have been executed in favour of the Government) free and clear of all liens, claims, mortgages, charges, any other form of encumbrances, contractual rights, or third party right or interest of whatsoever nature all encumbrances in favour of any person (collectively, "Contractor Retained Property"). The Contractor Supplied Public Cloud may be owned by the Contractor or another third party operator from whom the Contractor subscribes to the Public Cloud Services.
- 22.2 A separate licence to use all Off-the-shelf Documentation of all Contractor Supplied Hardware and Software to be granted in favour of the Government, all Project Documentation and all System Data shall vest in and become the property of the Government upon their delivery to the Government (or immediately upon creation from time to time in the case of System Data) free and clear of all liens, claims, mortgages, charges, any other form of encumbrances, contractual rights, or third party right or interest of whatsoever nature (collectively, "Government Acquired Property").
- 22.3 All Government Property which have existed prior to the commencement of the Contract including the name of 城市電腦售票網 and 城市售票網 URBTIX (in Chinese (Simplified and Traditional) and English (in upper or lower case)), the URBTIX logo, the URBTIX website and its domain name (<https://www.urbtix.hk>), all contents on such website, and any existing equipment, and all future Government

Property from time to time vested in or acquired by the Government separately from this Contract and to which the Contractor is given access or licence to use for the provision of the Services shall remain the property of the Government (“Government Retained Property”).

22.4 At no time shall the Contractor claim any ownership in any of the Government Property.

22.5 Notwithstanding anything herein contained, all risks of damage or loss or infringement of any Intellectual Property Rights, and all liabilities to third parties arising from the operation of the Contractor Retained Property, the Government Acquired Property and any other Government Property which the Contractor is licensed to use for the provision of the Services shall be borne by the Contractor who shall have and/or be deemed to have the exclusive care, custody, and control of the same until end of the Contract. The Contractor shall take out and maintain adequate insurance as it considers appropriate.

23. Ownership of Intellectual Property Rights

23.1 Without prejudice to the Licences to be granted under Clause 25 of this Part, the Government does not claim the ownership of the Intellectual Property Rights in the Contractor Retained Property under the Contract.

23.2 The Contractor and/or where applicable its sub-contractor as mentioned in Clause 22.1 of this Part:

23.2.1 are either the owner of the Intellectual Property Rights subsisting in the Contractor Retained Property with the rights fully protected and enforceable by all necessary registration and filing under all applicable jurisdictions; or

23.2.2 have a valid, perpetual and subsisting licence to use the Contractor Retained Property for performing the Contract and the Services.

23.3 The Intellectual Property Rights of whatever nature in the Government Acquired Property (excluding the Off-the-Shelf Documentation) shall vest in the Government at the same time when ownership of such item is vested in the Government under Clause 22.2 of this Part.

23.4 Save with the prior written approval of the Government on a case by case basis in the case of the Custom Programs, the Contractor shall not, and shall ensure that its associates and associated persons, and the Contractor Personnel and their respective associates and associated persons will not, use the System, the Contractor Retained Property, the Government Property including the Government Data, the Government Acquired Property, and the Government Retained Property otherwise than for the purpose of performing the Services. Without prejudice to the generality of the foregoing, doing any acts restricted by the copyright specified in section 22(1) of the Copyright Ordinance (Chapter 528 of the Laws of Hong Kong) in relation to any of the aforesaid items or any part thereof any time during the Contract Period shall be prohibited.

24. Licence to the Contractor

- 24.1 The Government hereby grants in favour of the Contractor a licence to use the Government Retained Property and the System Data strictly and solely for the purpose of performing the Services and throughout the Contract Period only.
- 24.2 For all Contractor Retained Property and Government Acquired Property which the Contractor does not own any Intellectual Property Right and that such Intellectual Property Right is owned by a third party (including a sub-contractor of the Contractor), regardless of whether the usage and licensing arrangement governing such Property requires that a licence be also issued in favour of the Government and/or any of the authorised users as mentioned in Clause 25.1.2, the Contractor shall ensure that it and where applicable its sub-contractor shall be granted the licence to use the same on the same terms as the Licence for the 3rd Party Licence Items as specified in Clause 25.1.2 below (including the terms covered in Clause 25.1.2, 25.2 to 25.9, mutatis mutandis) but the licensee shall be the Contractor and where applicable its sub-contractor(s).

25. Licence to the Government

- 25.1 The Contractor hereby grants (for the property mentioned in Clause 25.1.1) or in case it is not empowered to do so (for the property mentioned in Clause 25.1.2), shall at its own cost and expense procure that there will be granted, in favour of the Government, its authorised users, assigns and successors-in-title (collectively “licensees”) all of the following:
- 25.1.1 to the extent the Contractor is owner of the physical items of the hardware in the Contractor Retained Property which is not subject to any usage and licensing arrangement, or in the case of the Contractor Supplied Software and Deliverables comprised in the Contractor Retained Property, the Contractor does own the Intellectual Property Rights in such items, an exclusive, irrevocable, worldwide, transferable, assignable, sub-licensable licence and effective throughout the Licence Term, for any purposes whatsoever (whether related to and/or contemplated by this Contract), to use all of the aforesaid items for all purposes specified in or contemplated by the Contract; and
- 25.1.2 (a) to the extent the physical items or Public Cloud Service of the hardware in the Contractor Retained Property is subject to any usage and licensing arrangement, or (b) in the case of the Contractor Supplied Software and Deliverables comprised in the Contractor Retained Property (excluding the Off-the-shelf Documentation), where the Contractor does not own the Intellectual Property Rights in such items, and (c) provided further the terms of usage and licensing agreement for the items as mentioned in (a) or (b) published by the manufacturer requires that the Contractor as well as the Government and/or any other authorised users be named as the licensee for the use of such item for the purposes provided for or contemplated in the Contract (the property mentioned in (a) and (b) above are collectively “3rd Party Licence Items”), the Contractor shall ensure that it will at its cost comply with all such licensing terms by procuring the licence in the name of itself as well as the Government and/or any other authorised users to ensure that itself, the Government

and where applicable each group of authorised users shall have the right to use the Contractor Supplied Hardware or Software for all purposes provided for or contemplated under the Contract throughout the Licence Term without infringement of the usage and licensing agreement.

All the rights and licences granted under Clauses 25.1.1 and 25.1.2 of this Part shall be collectively referred to as “Licences” and all subject matters covered by these Licences are “Government Licensed Property”. The rights exercisable under these Licences are collectively referred to as “Licensed Rights”.

- 25.2 The Contractor shall at its own expense produce for inspection by the Government within 7 days upon written request all proper licences clearances waivers and releases in writing and completion of all other formalities and requirements necessary to ensure that all Licences have been validly and legally granted to each licensee in accordance with Clause 25.1 of this Part.
- 25.3 Notwithstanding anything in the Contract to the contrary, in relation to each item of the Contractor Supplied Software including any 3rd Party Licence Items:
- 25.3.1 if the Contractor Supplied Software cannot be used with the System because that System or any part thereof is inoperative or non-functional or becomes inadequate in terms of performance or capacity or reliability or security (“faulty component”) for any reason, the Licensed Rights shall be extended without additional charge to the licensees for use on any other unit which replaces the faulty component;
- 25.3.2 the Contractor, the Government and where applicable other authorised users shall be entitled to use the Contractor Supplied Software on any other hardware or Cloud Service provided or supplied by the same Contractor or other contractors for the purposes of assessing whether such other hardware is compatible with the Contractor Supplied Software; and
- 25.3.3 the Contractor, the Government and where applicable other authorised users shall be entitled to use the Contractor Supplied Software on and in conjunction with any unit which replaces a component of the System if the manufacture or production of any such component is discontinued. The replacement unit shall be treated as a component of the System.
- 25.4 Apart from the Ticketing System Service Fee and other types of Service Fee (if and when payable), under no circumstances whatsoever shall the Government or any other licensee be liable or responsible for paying to the Contractor or any other person any money (whether on a recurrent or non-recurrent basis) for all or any of the Licences or for the Licensed Rights.
- 25.5 Reference to the Licence Term in Clause 25.1 of this Part shall mean:
- 25.5.1 in the case of the Licence referred to in Clause 25.1.1 of this Part, the Contract Period (as from time to time extended); and
- 25.5.2 in the case of the Licences referred to in Clause 25.1.2 of the Part, the full remaining period (as from time to time extended, renewed or revived) during which all or any of the respective Intellectual Property Rights in the Contractor Supplied Software and

its related Off-the-Shelf Documentation continue to subsist under all and any applicable laws including the laws of Hong Kong, counting from the date the relevant Contractor Supplied Software and its related Off-the-Shelf Documentation are delivered to the Government. Where the Licence concerns Contractor Supplied Hardware whether it be physical item or Cloud Service and their Off-the-Shelf Documentation, then Licence Period shall mean the Contract Period only.

- 25.6 If for any reason whatsoever any of the Licences has not been granted in favour of a licensee, the Contractor shall forthwith, or shall ensure that the owner(s) of the Intellectual Property Rights or the licensor(s) who is capable of granting the Licence will respectively forthwith, upon the first written demand of the Government execute deeds and all other necessary documents under which the licensees shall be granted such Licence on the terms set out in this Clause 25 of this Part.
- 25.7 References to “authorised users” in this Clause 25 of this Part and other parts of the Contract shall include, without limitation, users of the System or any part thereof (within or outside the Government including all patrons, event organisers and ticketing agents operating the outlets which are not owned by the Government, where applicable).
- 25.8 The Contractor hereby irrevocably waives and undertakes to procure at its own cost and expense all relevant authors of the Deliverables or any part thereof to irrevocably waive all moral rights (whether past, present or future) in the respective items. The waiver shall operate in favour of the Government, its authorised users, assigns and successors-in-title and shall take effect upon creation of such items or upon delivery of such items to the Government or upon the grant of Licence to the Government, its authorised users, assigns and successors-in-title (as the case may be).
- 25.9 In the event that application(s) for registration and grant of patents for any patentable inventions in any Deliverables is or are to be made, the Contractor shall ensure that the person effecting the registration (whether it be the Contractor or any other person) shall register and/or record the Licence(s) granted to the Government, its authorised users, assigns and successors-in-title as licensees pursuant to this Contract and/or particulars thereof as is appropriate at the time such application(s) is or are made at its own cost and expense. Where application(s) for registration of patents for any patentable inventions in any Deliverables has or have been made by any person prior to the date of this Contract, the Contractor shall ensure that the person effecting the registration shall register and/or record the Licence(s) granted or procured to be granted under Clause 25 and/or particulars of such Licence(s) as is appropriate in respect of the said application(s) within fourteen (14) days after the Contract Date. The Contractor shall procure at its own cost and expense such obligations as specified in this Clause 25.9 from any third party who owns any part of patent in the Deliverables.

26. Documentation and Approvals

- 26.1 On the dates specified in the Implementation Plan or in the absence of which, in any event no later than the date when the System becomes Ready for Use, the Contractor shall provide, at no cost to the Government, copies of the Documentation including those specified in Schedule 6 – Documentation of Part V – Contract Schedules. If

the Government requires further copies of the Off-the-Shelf Documentation, these shall be provided by the Contractor free of charge.

- 26.2 In the event that the Documentation or any part thereof fails to contain sufficient information to enable the Government on its own to make full and proper installation, set-up, testing, use, operation, support and maintenance of the System, the Contractor, if requested by the Government, shall within fourteen (14) days or such later date as may be granted by the Government perform all such services necessary to rectify the Documentation at its sole cost and expense to the Government's satisfaction.
- 26.3 The Contractor shall comply with the Documentation when performing the Services.
- 26.4 The Contractor shall update the Documentation as and when necessary as part of the System Support and Maintenance Services and in accordance with the service specifications set out in Section 18.20 – Documentation of Part VII – Project Specifications. The updates made to the Documentation by the Contractor shall form part of the Documentation for the purpose of the Contract.
- 26.5 Without prejudice to any other provision of the Contract, the Contractor shall prior to the commencement of the Contract Period procure the issue of all licences, certification (including those professional certifications required for the Contractor and the Key Roles), certificates, permits and approvals for the performance of the Services and all other Contractor's obligations under the Contract as required under the Contract and under all applicable laws and regulations (regardless of the applicable jurisdiction) including the supply and delivery of all Contractor Supplied Hardware and Software and the deployment of Contractor Personnel to work in Hong Kong (collectively, "Regulatory Approvals"). The Contractor shall maintain all these Regulatory Approvals throughout the Contract Period or throughout such period as required under the Contract or the applicable laws and jurisdiction and renew them where necessary. Without limiting the generality of the foregoing, the Contractor shall submit and handle the application for the said Regulatory Approvals from the relevant government authorities. All costs and duties payable arising from the application and issuance and renewal shall be borne by the Contractor.

27. Training

- 27.1 The Contractor shall submit a draft training plan and draft training materials to the Government for approval at least one (1) month prior to the date scheduled for commencement of training under the Implementation Plan. The draft training plan shall cover such Mandatory Training and such Optional Training as may be selected by the Government specified in Schedule 18 - Training of Part V – Contract Schedules and Section 19 of Part VII – Project Specifications. The draft training plan and the draft training materials shall comply with the requirements specified in Section 19 of Part VII – Project Specifications. The Contractor shall amend the draft training plan as the Government may reasonably require. The training plan as approved by the Government shall be referred to as the Training Plan.

- 27.2 The Contractor undertakes to provide the training to the Government personnel in accordance with the Training Plan as approved by the Government pursuant to Clause 27.1 of this Part. From time to time during the Operation Period, the Government reserves the right to ask repeat of all or any of the training as part of the Operation Services at no additional charge to the Government.
- 27.3 Training shall be carried out at the venue provided by the Government or as may otherwise be agreed by the Government.
- 27.4 All training (whether during the Implementation Period or the Operation Period), all training materials and equipment necessary for the Training shall be provided by the Contractor with no additional charge to the Government or any other person. Any charge shall be covered and shall be deemed to have been covered by the Ticketing System Service Fee.

28. Operation Services

- 28.1 The Contractor shall provide the Operation Services (including the System Support and Maintenance Services) throughout the Operation Period except that the System Support and Maintenance Services shall start as soon as the System is Ready for Use.
- 28.2 The Contractor has to make available to the System on an exclusive basis for performing the Operation Services throughout the parallel run and the Operation Period. The Operation Services to be performed shall include the Public Cloud Services, the Private Cloud Services, the data centre service, the ticketing equipment and admission equipment service, the system administration service, the ticketing management service, the administrative service, the counter ticketing service, the online ticketing service (or Internet ticketing service) and online enquiry service (or Internet enquiry service), the mobile ticketing service and mobile enquiry service, telephone ticketing service and telephone enquiry service, the self-service kiosk service, the accounting and reporting service, the e-payment services, the ticket collection service, the system interfacing service, the admission control service, the presenter portal service, the marketing service including email direct marketing service, the system upgrade service, the miscellaneous service, the network service, the resilience and DR service, the consumable supply service, the ad hoc customer service, the operation team service, the System Support and Maintenance Services and the training. The scope of these respective services are summarised in Section 1.2.7 of Part VII – Project Specifications.
- 28.3 The Contractor shall provide the Operation Services including the System Support and Maintenance Services in compliance with the Service Levels and other requirements in the Contract to ensure that the System shall comply at all times with the Overall Specifications, the Performance Criteria, and the Reliability Levels.
- 28.4 Where the Contractor has proposed any Innovative Suggestions in Schedule 26 of Part V – Contract Schedules or other Excess Proposals in Schedule 4 of Part V – Contract Schedules which have been accepted by the Government, the Contractor shall also implement and perform these Innovative Suggestions and Excess

Proposals as part of the Implementation Services and Operation Services (where applicable).

29. Reliability

29.1 The Contractor warrants that the System shall achieve:

- (a) the minimum serviceability level or any higher level committed by the Contractor (“Committed Serviceability Level”); and
- (b) the minimum mean time between failures or any higher level committed by the Contractor (“Committed MTBF”)

as specified in Schedule 13 – Reliability Specifications of Part V – Contract Schedules.

29.2 The Committed Serviceability Level and Committed MTBF shall be measured in accordance with the procedure laid down in Schedule 13 of Part V – Contract Schedules.

29.3 In the event that in respect of any Given Period, the System cannot achieve the monthly Committed Serviceability Level and/or the monthly Committed MTPF, the Contractor shall pay to the Government liquidated damages as follows:

29.3.1 Where the time connoted by “(P)” as defined in paragraph 13.2.13 of Schedule 13 of Part V – Contract Schedules for any Given Period is of such length which leads to the actual Serviceability Level to be less than the Committed Serviceability Level as specified in Schedule 13 of Part V – Contract Schedules, the Contractor shall pay to the Government as and for liquidated damages and not as a penalty for each hour and part thereof of the time covered by difference of (D) - (I) - (P) (all as defined in Scheduler 13 of Part V – Contract Schedules) for such Given Period, an amount to be calculated in accordance with the following formula:

for each hour and part thereof of the difference, an amount equal to the Ticketing System Service Fee for each ticket quoted by the Contractor in Item (A) of Table 23.1 of Schedule 23 of Part V – Contract Schedules (without taking into account any Rebate) to be multiplied by the average hourly volume of tickets issued through URBTIX (which will be calculated as the total volume of tickets issued through the URBTIX system in the twelve (12) calendar months preceding the Given Period divided by 8,760 service hours).

29.3.2 Where the time connoted by the actual MTBF as calculated in accordance with the formula specified in Schedule 13 of Part V – Contract Schedules for any Given Period is less than the Committed MTBF as specified in Schedule 13 of Part V – Contract Schedules, the Contractor shall pay to the Government as and for liquidated damages and not as a penalty for each hour and part thereof of the time covered by difference between the Committed MTBF and the actual MTBF for such Given Period, an amount to be calculated in accordance with the following formula:

for each hour and part thereof of the difference, an amount equal to the Ticketing System Service Fee for each ticket quoted by the Contractor in Item (A) of Table 23.1 of Schedule 23 of Part V – Contract Schedules (without taking into account any Rebate) to be multiplied by the average hourly volume of tickets issued through URBIX (which will be calculated as the total volume of tickets issued through the URBIX system in the twelve (12) calendar months preceding the Given Period divided by 8,760 service hours)

- 29.4 In the event that the System fails to achieve the Committed Serviceability Level or the Committed MTBF for four (4) consecutive months, the Government shall be entitled to terminate forthwith the Contract and to recover from the Contractor the amount of all damages and loss suffered by the Government resulting from such failure.

30. Contractor's Warranties and Undertaking

- 30.1 The Contractor hereby warrants and represents to the Government that:

30.1.1 it has the full capacity and authority and all necessary licences, permits and consents required by all applicable laws and regulations to enter into the Contract and to perform the Work in accordance with the terms and conditions of the Contract and any other transactions to be entered into, or effected by it under the Contract including without limitation the vesting of the Intellectual Property Rights in the Government and/or the grant of the Licences to the licensees according to Clause 25 of the Contract;

30.1.2 each of the documents contained in the tender submitted by the Contractor, and the Articles of Agreement, have been duly executed by the Contractor in accordance with the laws of the place of its incorporation;

30.1.3 the Contract constitutes valid, binding and enforceable obligations of the Contractor enforceable in accordance with their terms;

30.1.4 the entry into the Contract and the performance by the Contractor of its obligations under it and the performance of the Work and the provision of the System, the Deliverables and any location and network for the System (if required) will not conflict or result in breach of:

- (a) any provision of the Memorandum and Articles of Association, or other equivalent constitutional documents governing the Contractor;
- (b) any contract or arrangement to which the Contractor is a party or by which the Contractor is bound;
- (c) any order, judgment or decree of any court or government agency to which the Contractor is a party or by which the Contractor is bound; or
- (d) any applicable laws or regulations;

30.1.5 all statements, representations and warranties in the Contractor's tender for the

- Contract, and from time to time made by the Contractor to the Government (via the Government Representative or other person or means) throughout the continuance of the Contract are true, complete and accurate;
- 30.1.6 the Contractor and each of the Contractor Personnel shall have all the necessary skills, qualifications and experience to perform the Work on the terms and conditions of the Contract;
- 30.1.7 the Work shall be performed and completed in an impartial, timely and diligent manner, and the Contractor, and each of the Contractor Personnel, shall use all proper, professional and reasonable skill, experience, care and diligence in the performance of the Work and the discharge of all its duties and obligations under the Contract as may be expected from a person who is an expert in providing, or assisting in providing, services of a kind similar to the Work;
- 30.1.8 the Work shall be performed, and the System and all Deliverables and the provision of any location and network for the System (if required) shall be in compliance with all applicable laws and regulations; all Work shall be performed, the System and all Deliverables, any location and network shall be in accordance with all professional methodologies, standards and guidelines as published on the website of OGCIO from time to time, unless and to the extent any provisions therein are inconsistent with any express requirements of the Contract or unless otherwise agreed by the Government on a case by case basis (including without limitation methodologies, standards and guidelines concerning software lifecycle, quality management, quality policy and requirements, project management, resource estimation, system development, IT security, software asset management);
- 30.1.9 when performing the Work, it shall comply with such instructions or directions as the Government Representative may give from time to time;
- 30.1.10 the Contractor and where applicable its sub-contractor appointed to perform any part of the Work have altogether good and marketable title to the Contractor Retained Property with absolute legal and beneficial entitlement;
- 30.1.11 the Government will have obtained good and marketable title to the Government Acquired Property with absolute legal and beneficial entitlement;
- 30.1.12 there is no option, right to acquire, mortgage, charge, pledge, lien, hire purchase, or other form of security or encumbrance on, over or affecting the Contractor Retained Property or the Government Acquired Property (i.e. any time before the vesting of the same in favour of the Government); and there is no agreement or commitment to give or create any of the foregoing and no claim has been made by any person to be entitled to any of the foregoing;
- 30.1.13 in respect of the Contractor Retained Property and the Government Acquired Property:
- (a) the use, production, development and supply (as the case may be) by the Contractor of the Contractor Retained Property and the Government Acquired Property for performance of the Services and for granting the Licensed Rights to the Government, its successor in title, assigns and authorised users;

- (b) the use, operation, custody or possession by the Government, its authorised users, assigns and successors-in-title of the Contractor Retained Property and the Government Acquired Property or any part thereof including without limitation the System, the Operation Services, the Contractor Supplied Hardware and Software, the Custom Programs, the Documentation, all other Deliverables, or any part thereof on the terms set out in the Contract; or
- (c) the exercise by the Government, its authorised users, assigns and successors-in-title of all or any of the rights granted under the Contract including the Licensed Rights (as the case may be)

does not and will not infringe any Intellectual Property Rights or any other rights of any person;

- 30.1.14 each item of the Contractor Supplied Hardware and Software and Customs Programs is free from defects in design, material, workmanship and installation; all such items which are off the shelf have been procured directly from the manufacturer/distributors, and at the time of delivery to the Location, they are unopened and retain their original packaging when leaving the manufacturer;
- 30.1.15 the System, all the Contractor Supplied Hardware and Software, the Deliverables and the Operation Services, any location and network for the System provided by the Contractor (if required) are of merchantable quality and they shall be fit for the purposes for which they are intended under the Contract;
- 30.1.16 in respect of each item of the Government Licensed Property (as defined in Clause 25.1 of this Part);
 - (a) for the property covered in Clause 25.1.1 of this Part, the Intellectual Property Rights in respect of the same vest in the Contractor, and the Contractor has the full power, authority and capacity to grant the Licences on the terms set out in Clause 25 of this Part; or
 - (b) for the property covered in Clause 24.2 of this Part, the Contractor has a valid and continuing licence under which it is entitled to use the same to the extent necessary or desirable for performing the Services, and for producing the Deliverables in accordance with the requirements of the Contract on the terms specified in Clause 24.2;
 - (c) for the property covered in Clause 25.1.2 of this Part, the Contractor has separately procured all necessary Licences clearances and consents in favour of the Government and each of its authorised users, assigns and successors-in-title on the terms set out in Clause 25 of this Part; and
 - (d) the exercise by the Government, its authorised users, assigns and successors-in-title of all or any of the Licensed Rights (as the case may be) does not and will not infringe any Intellectual Property Rights or any other rights of any person;

- 30.1.17 the System and the Operation Services provide all the facilities and functions set out in the Overall Specifications;
- 30.1.18 the Documentation provides adequate instructions to enable the Government to install, set-up, test, use, operate, support and maintain the System either on its own or through a third party contractor;
- 30.1.19 the System and the Operation Services shall conform fully to the Overall Specifications, the Reliability Levels and the Performance Criteria;
- 30.1.20 in respect of any software and other materials supplied or used by the Contractor, its employees, agents or sub-contractors in the performance of this Contract and in respect of which any Intellectual Property Right is vested in a third party, prior to the use of such software and other materials and/or their incorporation into the Contractor Retained Property or the Government Acquired Property, the Contractor shall have obtained the grant of all necessary consents, licences, approvals and agreements for itself and its authorised users and for the Government, its authorised users, assigns and successors-in-title to use such software and materials for all purposes contemplated by this Contract. The costs of the above consents, licences, approvals and agreements shall be borne by the Contractor; and
- 30.1.21 the Contractor will inform the Government immediately if any claim or allegation of infringement of Intellectual Property Rights is lodged or threatened against it in respect of the System, the Operation Services, the Contractor Supplied Hardware or Software or any of the Deliverables supplied under this Contract.
- 30.2 The warranties, representations and undertakings contained in this Clause 30 and those contained in the Contract Schedules, and other parts of the Contract (collectively “Warranties”) shall be true without limitation in time.
- 30.3 Each of the Warranties shall be separate and independent and without prejudice to any other Warranty and, except where expressly stated otherwise, shall not be limited by reference to or inference from any other Warranty or any other provision of the Contract.
- 30.4 The Contractor accepts and acknowledges that the Government is entering into the Contract strictly in reliance upon each of the Warranties notwithstanding any knowledge (actual or constructive) of the Government or investigations which the Government or its agent or advisor may have made.
- 30.5 If the Contractor receives written notice from the Government of any breach of any of the Warranties, the Contractor shall, without prejudice to any other rights and claims the Government may have (including without limitation its right to seek indemnity under Clause 33 or 34 of this Part), at its own expense and as soon as possible after receiving such notice, take all such remedial action to the satisfaction of the Government within such time period as stipulated by the Government in the written notice to ensure that the breaches of the Warranties are remedied to the satisfaction of the Government.

31. No Warranty on the Part of the Government

- 31.1 The Government gives no warranty, representation or undertaking that (a) any information, statistics and forecast provided in the Tender Documents or in the Contract are sufficient, accurate, complete, suitable or timely for any purpose whatsoever; or (b) there will be any purchase of any equipment, hardware, software, program or service from the Contractor which are specified in the Contract to be provided upon request or demand.
- 31.2 To the maximum extent permitted by laws, the Government does not accept any liability or responsibility for (a) any claim, legal proceeding, liability, loss (*including* any direct or indirect loss, any loss of revenue, profit, business, contract or anticipated saving), (b) damage (*including* any direct, special, indirect or consequential damage of whatsoever nature), or (c) any cost or expense, suffered or incurred by the Contractor arising from the use of, or reliance on, any information, statistics or forecast provided in the Contract or in the Tender Documents, or otherwise that the Total Estimated Contract Value or the Charges payable under the Contract does not recoup the investment cost of the Contractor by any margin or has not met the expectation or projection of the Contractor.
- 31.3 The Contractor acknowledges to the Government that it has not relied on or been induced to enter into the Contract by any representation, warranty, forecast, estimate, or projection given by the Government or any of its officers, employees, agents or advisers.
- 31.4 The Contractor shall not in any way be relieved from any obligation under the Contract nor shall it be entitled to claim against the Government on grounds that any information, whether obtained from the Government or otherwise (*including* information made available by the Government), is incorrect or insufficient and shall make its own enquiries and seek independent advice as to the accuracy and adequacy of all such information.
- 31.5 Notwithstanding anything in this Contract to the contrary, in no event during the Contract Period or thereafter shall the Government be liable to the Contractor whether in tort (including, but not limited to, negligence), contract, strict liability or otherwise for lost profits, lost revenues, lost saving, delay in realisation of saving, lost business opportunities or lost goodwill, exemplary, punitive, special, incidental, indirect or consequential damages, regardless of whether such damages were foreseeable or whether the Government or any other person has been advised of the possibility of such damages.

32. Year 2000 Compliance Warranty

- 32.1 The Contractor warrants that the System shall be year 2000 compliant as defined in “BSI DISC PD2000-1: 1998, A Definition of Year 2000 Conformity Requirement” throughout the Contract Period.
- 32.2 The Contractor shall immediately on demand by the Government remedy or correct any defect in the System which causes a breach of the warranty in Clause 32.1 of this Part whether or not such defect has resulted in a failure by the System at the time of the Government becoming aware of it.

32.3 The Contractor shall indemnify, keep indemnified and hold the Government harmless on the terms set out in Clause 33 of this Part arising which the Government may sustain or incur as a result of a breach of the warranty in Clause 32.1 of this Part.

33. Indemnities

33.1 In addition to and without prejudice to Clause 34 of this Part, the Contractor shall indemnify and keep indemnified the Government, its authorised users, assigns and successors-in-title (each an “Indemnified Party”) from and against:

- (a) all and any liabilities and indebtedness (including liabilities to pay damages or compensation), losses, damage, costs, charges and expenses incurred or suffered by an Indemnified Party of whatsoever nature (including all legal and expert costs, charges and expenses on a full indemnity basis); and
- (b) all and any demands, allegations, claims, actions, arbitrations, proceedings, threatened, brought or instituted by any person against an Indemnified Party or by an Indemnified Party against any person (regardless of whether or not they have been settled or compromised) (collectively, “Claims” and each a “Claim”) and everything stated in (a) above incurred or suffered by an Indemnified Party in all and such Claims,

which arise directly or indirectly as a result of or in connection with, or which relate in any way to, all or any of the following:

- (1) a breach of any provision of the Contract by the Contractor;
- (2) any Warranty which is incorrect, inaccurate, incomplete or misleading;
- (3) the negligence, recklessness, or wilful misconduct of the Contractor or of any Contractor Personnel in the conduct of the Services; or
- (4) (whether or not involving any element of fault or negligence on the part of the Contractor) any act or omission of the Contractor, or of any Contractor Personnel, in the discharge of the Services.

Each of the above is separate and shall be construed independently and shall not prejudice or be limited by reference to or inference from the other of them or other provisions of this Contract.

34. Intellectual Property Rights Indemnities

34.1 In addition to, and without prejudice to Clause 33 and Clauses 34.2 to 34.5 of this Part, the Contractor shall indemnify and keep the Government, its authorised users, assigns and successors-in-title (each an “Indemnified Party”) fully and effectively indemnified from and against

- (a) all and any liabilities and indebtedness (including liabilities to pay damages or compensation), losses, damage, costs, charges and expenses incurred or suffered by an Indemnified Party (including all legal and expert costs, charges and expenses on a full indemnity basis); and
- (b) all and any demands, allegations, claims, actions, arbitrations, proceedings, threatened, brought or instituted by any person against an Indemnified Party or by an Indemnified Party against any person (regardless of whether or not they have been settled or compromised) (collectively, “Claims” and each a “Claim”) and everything stated in (a) above incurred or suffered by an Indemnified Party in all and such Claims,

which arise directly or indirectly as a result of or in connection with, or which relate in any way to, the infringement or alleged infringement of any Intellectual Property Rights or any other rights of any person due to all or any of the following:

- 34.1.1 the exercise of the rights granted to any Indemnified Party by the Licences;
- 34.1.2 the performance by the Contractor of all or any of the Services or the supply of all or any of the Contractor Retained Property or the Government Acquired Property in the manner provided for or contemplated under the Contract;
- 34.1.3 the enjoyment or exercise by an Indemnified Party of any of the Services or of any of its rights or powers under the Contract;
- 34.1.4 (whether or not involving any element of fault or negligence on the part of the Contractor) any act, omission or default by the Contractor in the performance of the Contract;
- 34.1.5 the breach of any Warranties concerning Intellectual Property Rights;
- 34.1.6 the use, operation or possession by the Contractor of any hardware or software or Cloud Service for the purposes of, or otherwise in connection with the performance of, this Contract; or
- 34.1.7 the use, production, development, supply, use, operation, custody or possession of any of the Contractor Retained Property or the Government Acquired Property in performing this Contract.

Each of the above is an “infringing act” and is separate and shall be construed independently and shall not prejudice, or be limited by reference to or inference from, the other of them or other provisions of this Contract.

- 34.2 In the event that there is an infringing act or an alleged infringing act, the Contractor shall forthwith upon the first written request of the Government, at its own costs and expenses, without prejudice to any other rights and claims of an Indemnified Party (including in particular those under Clause 34 of this Part):
 - 34.2.1 procure or obtain the consent or licence of all relevant persons on such terms to the satisfaction of the Government to authorise the infringing act or alleged infringing act failing which the Government shall procure or obtain the same and any costs and

- expenses incurred by the Government shall be recovered from the Contractor on a full indemnity basis; or
- 34.2.2 adapt, modify or replace the Contractor Retained Property or the Government Acquire Property as the case may be so as to avoid the infringing act or alleged infringing act (in which event the Contractor shall compensate the Government for the full amount of any loss and damage sustained or incurred by the Government arising from such adaptation, modification or replacement) provided always that any suggestion to make any adaptation, modification or replacement must first be raised by the Government in writing, and then the details of which be proposed by the Contractor for the Government's approval and be subject to the same Installation Test and System Acceptance Tests (as the Government may stipulate) and other applicable terms and conditions of the Contract. If the Government does not raise any suggestion or refuses approval in relation to any proposed adaptation, modification or replacement, the Contractor shall procure or obtain the consent and licence in accordance with Clause 34.2.1 of this Part.
- 34.3 Without prejudice to any other rights and claims that the Government may have under the Contract or at law, if neither Clause 34.2.1 nor Clause 34.2.2 of this Part can be complied with,
- 34.3.1 the Contractor shall forthwith abstain from performing the infringing act or alleged infringing act;
- 34.3.2 where applicable, remove any item which gives rise to the infringing act or alleged infringing act and refund the total sum paid by the Government for that item;
- 34.3.3 the Government shall have the same options as specified in Clauses 18.1.2 and 18.1.3 of this Part (*mutatis mutandis*) and if the infringing act or alleged infringing act occurs prior to the issuance of the System Acceptance Certificate, also the option under Clause 18.2 of this Part (*mutatis mutandis*); and
- 34.3.4 the Government may, at its option, terminate the Contract in accordance with Clause 55.1.8 of this Part.
- 34.4 Whether during or after the Contract Period, the Contractor shall forthwith notify the Government in writing if any claim, allegation or demand is made or if any action or proceedings is brought against it for infringement or alleged infringement of Intellectual Property Rights of person arising from any of the circumstances mentioned in Clause 34.1 of this Part.
- 34.5 As and when the Government may require whether during or after the Contract Period, the Contractor shall, at its own cost and expense, forthwith upon receiving written directions and instructions from time to time of the Government, take all such actions (including initiating or defending a legal action in its name or in such other manner as the Government deems fit), or provide to the Government all such documents or information in the possession or under the control of the Contractor, to cause all and any claims, allegations, demands, proceedings or actions made or instituted against the Government and/or the Contractor referred to in Clause 34.4 of this Part be withdrawn, resisted, disputed, counter-claimed, settled or compromised in such manner as the Government may direct.

35. Service Levels

- 35.1 Unless with the prior written consent of the Government Representative, the Contractor shall ensure that the Services are provided in compliance with the Service Levels, and all other applicable requirements and specifications in the Contract; and the System operates in accordance with and in compliance with the Overall Specifications, the Reliability Levels and the Performance Criteria.
- 35.2 Prior written consent from the Government Representative shall be sought by the Contractor for permission to deviate from Clause 35.1 of this Part when in the Contractor's reasonable opinion temporary deviation is necessary for the purposes of effecting any improvement, upgrade, repair of the System or any part thereof. The Government may (but is not obliged to) give such consent, and if it does so, it will be on such terms and conditions as it deems fit.
- 35.3 If at any time during the Contract Period, Clause 35.1 of this Part or any other requirement or specification set out in the Contract is not complied with, the Contractor shall, without prejudice to the Government's other rights and claims, immediately do all or any of the following at no additional charge to the satisfaction of the Government:
- (a) provide all additional resources (including staff resources of the appropriate roles) and adopt and implement all measures necessary to perform the Services in compliance with the Service Levels and the Overall Specifications, and to ensure that the System will comply with the Overall Specifications, the Performance Criteria and the Reliability Levels;
 - (b) provide such replacement and/or additional hardware, software, Cloud Service, or customisation of the software or custom programs to ensure that the System and the Operation Services will comply with the Overall Specifications, the Performance Criteria and the Reliability Levels;
 - (c) within one (1) day (or such later date as may be granted by the Government) investigate into remedy and remove the cause for any non-compliance; and
 - (d) re-perform any non-conforming Services forthwith at the request of the Government.
- 35.4 In addition to or as an alternative to the Contractor providing the remedial measures as mentioned in Clause 35.3 of this Part, in the event that Clause 35.1 of this Part or any other requirement or specification set out in the Contract is not complied with, without prejudice to other rights and remedies of the Government, the Government reserves the right to on its own or appoint a third party to provide such part of the Services and/or provide additional manpower as the Government considers appropriate. Any expenditure incurred by the Government in procuring all of the foregoing shall be borne fully by the Contractor.

36. Deductions of Charges and Thresholds for Early Termination

- 36.1 If at any time during the Contract Period, a non-compliance event specified in the column of the table in Clause 36.2 of this Part occurs (“Non-compliance Event”), the Government shall be entitled, without prejudice to the Government’s other rights or claims, to obtain refund (in the case of Charges paid in advance (if any)) or make deduction from the Charges from time to time payable for such Non-compliance Event in the applicable amount specified in the second column of that table corresponding to the relevant Non-compliance Event, as and for liquidated damages and not as a penalty. The Contractor acknowledges and confirms that the deductions of Charges pursuant to this Clause 36.1 shall be regarded as an abatement of those Charges calculated based on a reasonable estimate of the losses and damage which will be suffered by the Government arising from the relevant Non-compliance Event, and shall not be regarded as onerous or a penalty. All or any of the deductions in accordance with this Clause 36.1 may be made from the Charges payable to the Contractor in respect of the period in which the Non-compliance Event occurs or any subsequent period.
- 36.2 If at any time during the Contract Period, any one or more of the non-compliance thresholds specified in the column titled “Threshold for Early Termination of the Contract” in the table below have been reached, without prejudice to its other rights and claims under the Contract or at law, the Government shall be entitled to terminate the Contract in accordance with Clause 55.1.8 of this Part:

Non-compliance Event	Deduction of Charges	Threshold for Early Termination of the Contract
(a) Non-compliance with the Committed Serviceability Level in respect of a Given Period	The amount to be calculated in accordance with Clause 29.3 of this Part and to be made by the Contractor to the Government in cheque within twenty-one (21) days on demand in writing by the Government.	Failure to achieve the Committed Serviceability Level for four (4) consecutive Given Periods
(b) Non-compliance with the Committed MTBF in respect of a Given Period	The amount to be calculated in accordance with Clause 29.3 of this Part and to be made by the Contractor to the Government in cheque within twenty-one (21) days on demand in writing by the Government.	Failure to achieve the Committed MTBF for four (4) consecutive Given Periods
(c) Unfilled role in the Implementation Team based on the composition prescribed or specified for such Team in the Contract (including a role which has to be refilled due to a mandatory replacement pursuant to Clause 5 of	For every unfilled role in the Implementation Team for each working day, there shall be a deduction of an amount equal to one (1) man-month’s rate for the unfilled role as specified in Table 23.5 of Schedule 23 of Part V – Contract Schedules and divided by 22.5.	Failure to fill an unfilled role for an aggregate of sixty (60) man-days (whether or not continuous) in any three (3) consecutive months

Non-compliance Event	Deduction of Charges	Threshold for Early Termination of the Contract
this Part)	The amount shall be made by the Contractor to the Government in cheque within twenty-one (21) days on demand in writing by the Government.	
(d) Implementation Team member not fulfilling the qualification or experience requirements as set out in the Contract	<p>For every non-qualified Team member whose appointment has not been approved by the Government for each working day, there shall be a deduction of an amount equal to one (1) man-day's rate for the role that person purportedly fills to be calculated in the same manner as specified in row (c) above.</p> <p>The amount shall be made by the Contractor to the Government in cheque within twenty-one (21) days on demand in writing by the Government.</p>	Failure to deploy one or more qualified person(s) to discharge a role for an aggregate of sixty (60) man-days (whether or not continuous) in any three (3) consecutive months
(e) Unfilled role in the Maintenance Team based on the composition prescribed or specified for such Team in the Contract (including a role which has to be refilled due to a mandatory replacement pursuant to Clause 5 of this Part)	<p>For every unfilled role in the Maintenance Team for each working day, there shall be a deduction of an amount equal to one (1) man-month's rate for the unfilled role as specified in Table 23.5 of Schedule 23 of Part V – Contract Schedules and divided by 22.5.</p> <p>The amount shall be made by the Contractor to the Government in cheque within twenty-one (21) days on demand in writing by the Government.</p>	Failure to fill an unfilled role for an aggregate of sixty (60) man-days (whether or not continuous) in any three (3) consecutive months
(f) Maintenance Team member not fulfilling the qualification or experience requirements as set out in the Contract	For every non-qualified Team member whose appointment has not been approved by the Government for each working day, there shall be a deduction	Failure to deploy one or more qualified person(s) to discharge a role for an aggregate of sixty

Non-compliance Event	Deduction of Charges	Threshold for Early Termination of the Contract
	<p>of an amount equal to one (1) man-day's rate for the role that person purportedly fills to be calculated in the same manner as specified in row (e) above.</p> <p>The amount shall be made by the Contractor to the Government in cheque within twenty-one (21) days on demand in writing by the Government.</p>	(60) man-days (whether or not continuous) in any three (3) consecutive months
(g) Unfilled implementing/operating role for the Innovative Suggestion as specified in Schedule 26 - Innovative Suggestions of Part V – Contract Schedules (including the situation where a role is filled by an unqualified person or has to be refilled due to a mandatory replacement pursuant to Clause 5 of this Part)	<p>For every unfilled implementing/operating role for each working day, there shall be a deduction of an amount equal to one (1) man-month's rate for the unfilled role as specified in Table 23.5 of Schedule 23 of Part V – Contract Schedules and divided by 22.5.</p> <p>The amount shall be made by the Contractor to the Government in cheque within twenty-one (21) days on demand in writing by the Government.</p>	Failure to fill an unfilled implementing role for an aggregate of sixty (60) man-days (whether or not continuous) in any three (3) consecutive months

36.3 For the avoidance of doubt, if more than one person has to be deployed to perform a role based on the composition requirements for the Implementation Team or Maintenance Team or for Innovative Suggestions as set out in the Contract, the failure of the Contractor to provide each such qualified person to fill such role shall each be treated as Non-compliance Event for the purposes of (c) to (g) of the table in Clause 36.2 of this Part. The failure to provide each such qualified person for each working day shall be treated as failure for one man-day for the purposes of the “Threshold for Early Termination” in (c) to (g) of the table in Clause 36.2 of this Part.

36.4 Any refund or deductions of Charges pursuant to Clause 36.1 of this Part are to be conclusively determined by the Government Representative whose determination shall be binding on the Contractor (in the absence of manifest error). Any refund or deductions of Charges pursuant to this Clause shall not relieve the Contractor from its obligations under the Contract (including in particular those under Clause 35 of this Part).

36.5 Without prejudice to the Government's other rights and claims (including the right to terminate the Contract or to make deductions under Clause 36.1 of this Part), the Government may withhold payment of the Charges for any material or persistent non-compliance with any of the terms and conditions of the Contract (including without limitation the Service Levels, the Overall Specifications, the Reliability Levels and the Performance Criteria), until and unless all actions and measures specified in Clause 35.3 of this Part have been taken to remedy the non-compliance to the absolute satisfaction of the Government.

37. Policy of Insurance and Compensation

37.1 Throughout the Contract Period, the Contractor shall at its cost effect and keep in force, and renew upon expiry, a policy of insurance against liabilities to indemnify the Government or to pay compensation to the Government under all or any of the provisions of the Contract subject to a limit of indemnity of an amount as acceptable to the Government for each individual claim or a series of claims arising from one event and in aggregate throughout a policy period of not more than one year each ("Professional Indemnity Insurance"). The Professional Indemnity Insurance shall contain such terms and conditions to be approved in advance by the Government, including coverage against liability for data loss. Without prejudice to the generality of the foregoing, the Professional Indemnity Insurance shall contain a reinstatement clause under which in the event if the original indemnity limit is used up, the indemnity limit shall be automatically reinstated to its original level at least once during the policy period.

37.2 The Contractor shall effect and maintain all such policies of insurance as required under the laws of Hong Kong including employees' compensation insurance policy under the requirements of the Employees' Compensation Ordinance (Chapter 282 of the Laws of Hong Kong).

37.3 Upon commencement of the Contract, the Contractor shall deposit with the Government Representative for record, and immediately upon renewal, copies of such policies of insurance, or if not available, copies of the insurance certificates, together with the receipt of payment of the current premium, certified as true and correct by the project manager or maintenance manager.

37.4 If the Contractor fails to effect and keep in force the insurance policies required under Clause 37.1 of this Part, or fails to pay the premium thereunder or otherwise required for the reinstatement of the indemnity limit, the Government may effect and keep in force any such insurance policy and pay such premium or premiums as may be necessary for those purposes and from time to time deduct the amount so paid by the Government as aforesaid from any monies due or which may become due to the Contractor or recover the same as a debt due from the Contractor.

37.5 In the event of any of the Contractor's Representatives, employees, agents or sub-contractors suffering any injury or death in the course of or arising out of the Contract and whether there be a claim for compensation or not, the Contractor shall notify the Government Representative as soon as practicable, followed by a notice in writing of such injury or death to the Government Representative within seven (7) clear working days.

38. Terms of Payment

38.1 Ticketing System Service Fee Rebate and Top-up for Excess Proposals and Innovative Suggestions

38.1.1 In consideration of and subject to the provision by the Contractor of the System, the Contractor Supplied Hardware and Software (including the Cloud Services), the Documentation, the Custom Programs, the Licences, all other Deliverables (regardless of whether they are Contractor Retained Property or Government Acquired Property, and whether a third party licence is required under Clause 24.2 or Clause 25.1.2 of this Part), and provision of all of the Implementation Services, the Operation Services and the Excess Proposals including any Innovative Suggestions, and subject always to any set-off, deductions, withholding and refund, and subject to all remaining provisions of this Clause 38 (including all rebates payable under Clauses 38.1.2 and 38.1.3),

- (a) for each event held during the Operation Period, the Contractor shall be paid by the event organiser the Ticketing System Service Fee for each ticket sold (regardless of the sale mode) or issued for that event at the rate specified in Table 23.1 – Item (A) of Schedule 23 of Part V – Contract Schedules (i.e., sale mode: sold at an outlet or through self-service kiosk or online ticketing service or mobile ticketing service or telephone ticketing service to a member of the public, or issued to the event presenter as a complimentary or consignment ticket) (collectively, “Item A tickets”). Unless otherwise expressly allowed elsewhere in this Clause 38, the Ticketing System Service Fee shall be and shall be deemed to be all-inclusive all charges which the Contractor wishes to impose on the event presenter including the LCSD, and including without limitation inclusive of all costs and expenditure (capital or recurrent) incurred by the Contractor **in performing the whole of the Contract** including without limitation including the making available of the System, the Contractor Supplied Hardware and Software (including the Cloud Services), the Documentation, the Custom Programs, the Licences, all other Deliverables (regardless of whether they are Contractor Retained Property or Government Acquired Property, and whether a third party licence is required under Clause 24.2 or Clause 25.1.2 of this Part), and provision of all of the Implementation Services and the Operation Services.

38.1.2 Notwithstanding Clause 38.1.1, the Government (and regardless of whether it is the event presenter for the relevant event) shall be entitled to a rebate at the rate as specified in Table 23.1 – Item (B) of Schedule 23 of Part V – Contract Schedules, from the Contractor for every Item A ticket issued or sold which exceeds the five (5) million ticket threshold in every 12-month period counting from the commencement date of the Operation Period (“Operation Year”) and which exceeds the pro rata threshold (as stated in Table 23.1 – Item (B) of Schedule 23 of Part V – Contract Schedules) over the remainder period after the last complete 12-month period during the Operation Period (“Excess Item A ticket”).

- 38.1.3 Notwithstanding Clause 38.1.1, the Government (and regardless of whether it is the event presenter for the relevant event) shall be entitled to another rebate at the respective rates as specified in Table 23.1 – Item (C) of Schedule 23 of Part V – Contract Schedules from the Contractor per ticket which was sold to a member of the public through the provision of Internet ticketing service or mobile ticketing service in every Operation Year and the remainder period of the Operation Period after the last complete Operation Year (“Item C ticket”). The total number of Item C tickets sold in that Operation Year after deduction of the first one (1) million shall be split into groups of 250,000. These groups from 1st to nth shall accrue **progressively at a lower rate** of rebate amount as specified in Table 23.1 – Item (C) of Schedule 23 of Part V – Contract Schedules. The rebate amount for each group of 250,000 tickets shall be added up to determine the total rebate amount payable. For the remainder period of the Operation Year which is less than one year, the aforesaid one (1) million and 250,000 shall each be divided by 365 and multiplied by the number of days in the remainder period to determine the applicable rebate rate payable and the resulting rebate amount.
- 38.1.4 The calculation of the Ticketing System Service Fee as well as the calculation of the Rebate as mentioned in Clauses 38.1.2 and 38.1.3 above shall not take into account any number of tickets issued under any other circumstances, such as for System or Operation Services’ testing purpose, events designated for the parallel run, for management seats to be allocated in an event (i.e. seats reserved by the venue management for internal use regardless of whether the event is organised by the Government or another organiser, and the Government shall have the absolute discretion to determine the number of such seats), or those tickets issued and returned due to the System or ticketing operator errors as defined by the Government. The Contractor shall not be entitled to any Service Fee or any other amount whatsoever during the parallel run.
- 38.1.5 The Contractor shall be entitled an additional service fee on top of the Ticketing System Service Fee at the applicable annual rate as specified in Table 23.6 of Schedule 23 of Part V – Contract Schedules for each Innovative Suggestion covered by such service fee (“Top-up Service Fee for Innovative Suggestions”). The charge for each of the Innovative Suggestions (if accepted) shall be payable by the Government (regardless of whether it is the event organiser) but the Government fully reserves the power not to accept the Innovative Suggestions at the time of award or any time after the Contract award from the Contractor. Furthermore, what should be treated as “multiple” or “one” Innovative Suggestions with each Innovative Suggestion earning a top-up fee which have been put forward shall be as approved by the Government but not necessarily as per the proposal of the Contractor.
- 38.1.6 The Contractor shall be entitled an additional service fee on top of the Ticketing System Service Fee at the applicable annual rate as specified in Table 23.7 of Schedule 23 of Part V – Contract Schedules for each charge-permitted type of Excess Proposal covered by such service fee (“Top-up Service Fee for Excess Proposals”). The charge for each of the charge-permitted Excess Proposal (if accepted) shall be payable by the Government (regardless of whether it is the event organiser) but the Government fully reserves the power not to accept the Excess Proposals at the time of award or any time after the Contract award from the Contractor. The charge-permitted Excess Proposals are the four different types of Excess Proposals

elaborated in Part A to Part D of Table 4.1 of Schedule 4 of Part V – Contract Schedules.

38.2 e-Payment Transaction Fee

38.2.1 Provided that the Contractor and the Clearing Service Contractor (“CSC”) shall have duly and punctually performed their respective obligations as stated in Annex E to this Part (viz., e-payment services), in relation to each event, the event organiser shall pay to the Contractor a transaction fee for such e-payment services provided through all Electronic Payment Means operated by all CSC for accepting payment for tickets of such event (collectively, “e-Payment Transaction Fee”) to be calculated as follows: for each of the aforesaid Electronic Payment Means, an amount equal to the applicable Transaction Fee Percentage as specified in the Articles of Agreement for that Electronic Payment Means (but if none is specified, the Transaction Fee Percentage shall never exceed the maximum cap percentage as specified in Item E in Table 23.1 of Schedule 23 of Part V – Contract Schedules) and further multiplied by the value of all tickets successfully sold for such event through that Electronic Payment Means; and the aforesaid amount for each Electronic Payment Means shall be added up to become the collective e-Payment Transaction Fee payable for an event. The e-Payment Transaction Fee for each event during the Operation Period shall be payable by an event presenter to the Contractor for using different Electronic Payment Means to accept payment for tickets for all types of Ticketing Services. Any charges payable to the CSC to be appointed by the Contractor for providing those e-Payment Services as stated in Annex E (including the Transaction Fee due to CSC (as defined in Annex E)) shall be included and deemed to have been included in the e-Payment Transaction Fee. The Contractor shall be solely responsible for paying the CSC the aforesaid charges including the Transaction Fee due to CSC in the manner specified in Annex E to this Part. No other amount shall be payable by the event presenter or the Government or any patron for accepting or using any Electronic Payment Means to settle the ticket price whether to the Contractor or any CSC or any other person.

38.3 Manner of payment of the Ticketing System Service Fee, the e-Payment Transaction Fee and the Top-up Service Fee for Innovative Suggestions and Excess Proposals

38.3.1 For Ticketing System Service Fee and e-Payment Transaction Fee payable by an event presenter which is not the Government

38.3.1.1 Payment of the Ticketing System Service Fee and the e-Payment Transaction Fee for an event not organised by the Government shall be due and owing by the event presenter of that event to the Contractor. In the case that the event presenter is not the Government, the Government has neither the obligation nor liability to settle the same for that event presenter. Notwithstanding, the Government shall ensure that the URBTIX terms and conditions to which the event presenter is bound (if and when it does elect to use the URBTIX for issuing and selling tickets for its event) shall allow the Government to deduct the event presenter’s Ticketing System Service Fee and the e-Payment Transaction Fee payable by the event presenter from the ticket proceeds or deposits of the relevant URBTIX event, and transfer the amount to a Ticketing System Service Fee deposit account (for third party event organisers) and a third party e-Payment Transaction Fee deposit account (for third party event organisers)

respectively within twenty-one (21) days from the last performance of the relevant event. Both deposit accounts will not generate any interest.

- 38.3.1.2 In the middle of each month during the Operation Period after the first and second months as well as each of the two months following from the end of the Operation Period (each a “reconciliation month”), the Government will determine the amount of Ticketing System Service Fee and the e-Payment Transaction Fee for all events organised by event organisers which are not the Government and have been completed in the first of the two months immediately preceding that reconciliation month (or in the case of the last reconciliation month, for the events completed in last month of the Operation Period but just before the Termination). These amounts as determined by the Government shall be notified to the Contractor for issuance of invoices of these amounts for settlement by the Government by drawing from the proceeds of the deposit accounts as mentioned in Clause 38.3.1.1 above. Where the Contractor has any objection to the amount as determined by the Government as aforesaid, it shall must raise its objection within 7 days after receipt of the notification from the Government together with all necessary records and information to prove its claim to the satisfaction of the Government. Otherwise, the amounts as determined by the Government shall be final and conclusive (but without prejudice to the rights of the Government under Clause 39 of this Part).
- 38.3.1.3 For the avoidance of doubt, it is declared that the Government will only act as an agent of the event presenters in the capacity of facilitating the transfer of Ticketing System Service Fee and e-Payment Transaction Fee from the event presenters’ deposit accounts for payment to the Contractor, and the Government will not incur any liability of the event presenters.
- 38.3.2 For Ticketing System Service Fee and e-Payment Transaction Fee payable by the Government for events organised by the Government
- 38.3.2.1 Where the Government is the event presenter in relation to an event, the Government will settle the Ticketing System Service Fee and the e-Payment Transaction Fee for that event;
- 38.3.2.2 regardless of whether the Government is the event presenter in relation to an event, the Government will settle the Top-up Service Fee for Innovative Suggestions and for Excess Proposals (if any is chargeable);
- 38.3.2.3 for the amounts mentioned in Clause 38.3.1.2, in the middle of each month during the Operation Period after the first and second months as well as each of the two months following from the end of the Operation Period (each a “reconciliation month”), the Government will determine the amount of Ticketing System Service Fee and the e-Payment Transaction Fee for all events organised by the Government and have been completed in the first of the two months immediately preceding that reconciliation month (or in the case of the last reconciliation month, for the events completed in last month of the Operation Period but just before the Termination). These amounts as determined by the Government shall be notified to the Contractor for issuance of invoices of these amounts for settlement by the Government. Where the Contractor has any objection to the amount as determined by the Government as aforesaid, it shall must raise its objection within 7 days after receipt of the notification from the Government together with all necessary records and information to prove its claim to

the satisfaction of the Government. Otherwise, the amounts as determined by the Government shall be final and conclusive (but without prejudice to the rights of the Government under Clause 39 of this Part);

38.3.2.4 for each Top-up Service Fee, it shall be payable on a monthly basis in arrears after the end of each month of the Operation Period at a fixed rate equal to 1/12th of the annual rate as specified in Table 23.6 or Table 23.7 of Schedule 23 of Part V – Contract Schedules (where applicable); apart from the first and second monthly payment, the invoice for the amount specified in Clause 38.3.2.3 shall cover this amount payable up to end of the Operation Period only;

38.3.2.5 provided further before each monthly payment under Clauses 38.3.2.3 and 38.3.2.4 shall be made, the Contractor must have submitted the following:

- (a) in respect of the Operation Year in which the month covered by the monthly payment falls, the documentary evidence as specified in Clause 8.4 of this Part in respect of that Operation Year and to be received within one month after the commencement of that Operation Year and shall be satisfactory to the Government; and
- (b) the documentary evidence to be produced including weekly time sheets certified as true and complete by the Project Manager of the Maintenance Team or a director of the Contractor specifying time duration spent by each member of the Maintenance Team proving that all member(s) of each role of the Maintenance Team and such other Contractor Personnel has spent not less than the requisite quantity of man-months for performing the Operation Services and the System Support Services and where applicable the Innovative Suggestions for the relevant billing period in the performance of such Services but not other work. In the case of the System Support Services, such quantity is to be determined based on the annual quantity of man-months to be performed by that role as specified in Table 7.5 of Schedule 7 – Contractor Personnel and Their Duties of Part V – Contract Schedules. In the case of Contractor Personnel allocated to perform the Innovative Suggestions, such quantity is to be determined based on the annual quantity of man-months to be performed by that role as specified in Schedule 26 – Innovative Suggestions.

38.3.3 Under no circumstances whatsoever is the Contractor or the CSC permitted to settle the Ticketing System Service Fee or the e-Payment Transaction Fee or the Top-up Service Fees or any other Service Fees from the gross proceeds of the tickets sold (regardless of the applicable sale mode). The entire gross proceeds without any deduction whatsoever must be paid into the Designated Bank Account in accordance with the requirements of Annex E to this Part.

38.4 Manner of payment of the Rebate

38.4.1 In respect of each Operation Year or the remainder period of the Operation Period, the Contractor shall reimburse to the Government a Rebate for every excess Item A ticket sold or issued in that Operation Year (or remainder period of the Operation Period) and a Rebate for Item C tickets to be determined, in the manner mentioned in Clause 38.1.2 and Clause 38.1.3 respectively.

38.4.2 The Government shall issue an invoice to the Contractor for the total amount of Rebates payable under Clauses 38.1.2 and 38.1.3 in respect of each Operation Year which shall be settled by the Contractor within fourteen (14) days after the date of the invoice failing which the Government reserves the right to make deduction from any other amount payable by the Contractor to the Government to settle the outstanding Rebates.

38.4.3 Where the Contractor disputes any amount of Rebate determined by the Government as aforesaid, it shall raise its objection within fourteen (14) days after receipt of the notification from the Government together with all necessary records and information to prove its claim to the satisfaction of the Government. Otherwise, the amounts as determined by the Government shall be final and conclusive (but without prejudice to the rights of the Government under Clause 39 of this Part).

38.5 Ad Hoc Customer Service Fee

38.5.1 The Contractor shall be entitled a service fee at the applicable rate quoted in Table 23.1 – Item (D) of Schedule 23 of Part V – Contract Schedules (depending on the contact method to be used) (“Ad Hoc Customer Service Fee”) payable by an Event Presenter (including LCSD) to the Contractor for making ad hoc announcement to patrons using such contact method as selected by the event organiser about late change of event information such as change of cast and/or programme, special arrangement of events such as replacement and refund arrangement for event cancellation or other information which the Event Presenters may consider necessary to inform the ticket buyers (viz., ad hoc customer service).

38.6 Internet or Mobile Ticketing Service Fee

38.6.1 The Contractor shall be entitled a service fee at the rate quoted in Table 23.2 of Schedule 23 of Part V – Contract Schedules per ticket sold through the Internet ticketing service or mobile ticketing service (“Internet or Mobile Ticketing Service Fee”) payable directly by a customer using such Internet ticketing service or mobile ticketing service for buying the ticket(s).

38.7 Telephone Ticketing Service Fee

38.7.1 The Contractor shall be entitled a service fee per ticket sold through the telephone ticketing service (“Telephone Ticketing Service Fee”) payable directly by a customer using such telephone ticketing service for buying the ticket(s).

38.8 Email Direct Marketing Service Fee

38.8.1 The Contractor shall be entitled a service fee at the rate specified in Table 23.4 of Schedule 23 of Part V – Contract Schedules for any email direct marketing service performed at the request of any event presenter (“Email Direct Marketing Service Fee”) payable directly by that event presenter to the Contractor for the Email Direct Marketing Service provided to the event presenter.

38.9 Manner of payment of the Service Fees specified in Clauses 38.5 to 38.8 above

38.9.1 The Internet/mobile ticketing service fee and the telephone ticketing service fee shall be collected by the Contractor directly from the purchaser of the ticket without any recourse whatsoever to the event presenter or the Government or any other person.

38.9.2 The Ad Hoc Customer Service Fee and the Email Direct Marketing Service Fee shall be collected by the Contractor directly from the event presenter using the service without any recourse whatsoever to the Government or any other person. The request for the relevant service shall be on demand to be issued by the event presenter but not the Government.

38.10 Charges for the System Changes

38.10.1 The manpower resources required for performing the System Changes during the Implementation Period or Operation Period shall only become payable to the Contractor by the Government (without the option of adjustment of any of the Service Fees) if the man-days as specified in Section 17.3.20.3 of Part VII – Project Specifications (for System Changes during the Implementation Period) and all man-days for all years of the Operation Period as specified in Section 18.15.3 of Part VII – Project Specifications (for System Changes during the Operation Period) have been used up. Any charges shall only be payable upon the System Changes are Ready for Use as confirmed by the Government in a written acceptance.

38.10.2 Any new item of Contractor Supplied Hardware or Software implemented in a System Change as agreed in a System Change agreement under Clause 7 of this Part shall be settled direct by the Government when the System Changes are Ready for Use as confirmed by the Government in a written acceptance without the option of any adjustment to any of the Service Fees.

38.10.3 In the case of System Changes during the Implementation Period, they shall not be considered as Ready for Use unless the entire System incorporating the System Changes is Ready for Use.

38.11 For the avoidance of doubt, all of the Service Fees mentioned in this Clause 38 constitute the sole remuneration and expenses payable to the Contractor whether by the Government under the Contract or by the event organiser or by the purchaser of the ticket for any event and whether in respect of the System, the Services, the Deliverables, and the Contractor Supplied Hardware and Software or anything otherwise whatsoever. No other money or compensation whatsoever shall be payable by the Government to the Contractor in respect thereof (whether by way of upfront payment or reimbursement). All costs and expenses incurred by the Contractor whether or not purportedly in discharge of its obligations under the Contract shall be deemed as costs and expenses incurred for performing the Services, and be compensated for in the form of the Service Fees only. The Contractor shall perform all Services at its own cost, and will receive no reimbursement or payment in advance from the Government, except in the form of the Service Fees.

38.12 Charges shall only be payable after acceptance by the Government of the relevant items or Services. Unless the Government Representative otherwise notifies in writing, all invoices and correspondence to be issued to the Government for settlement shall be addressed to:-

Director of Leisure and Cultural Services
Leisure and Cultural Services Department
Ticketing Office
Level 6, Administration Building
Hong Kong Cultural Centre
10 Salisbury Road, Tsim Sha Tsui
Kowloon, Hong Kong.
(Attn.: Senior Manager (Ticketing))

- 38.13 If there is any change to the Government Representative or address mentioned in Clause 38.12 of this Part, the Government will inform the Contractor in writing about such change(s). The Government shall not be held responsible or liable for any delay in payment and no interest or other surcharge or any other payment howsoever described shall be charged to the Government due to (a) invoices not having been issued in accordance with this Clause 38, or (b) the invoices containing Charges not having been duly calculated in accordance with the provisions of the Contract (including without limitation not having taken into account all applicable service credits and deductions), or (c) the Contractor disputing any deductions or withholding made by the Government pursuant to the Contract, or (d) any invoice or correspondence being improperly addressed. Each invoice shall include all service credits which may accrue and all deductions which may be made pursuant to the terms of the Contract and shall show the net Charges payable. If the Contractor does not render an invoice charging a correctly stated net amount due to its failure to take into account all appropriate deductions or otherwise, the Government may, but is not obliged to, pay the net amount which duly takes into account all appropriate deductions.
- 38.14 During the Operation Period, all rates of the Service Fees (or the maximum cap in the case of e-Payment Transaction Fee) as specified in Schedule 23 of Part V – Contract Schedules shall remain unchanged. The Contractor shall not be entitled to any increase in the Charges by reason of foreign exchange fluctuations or consumer price index (of whatever type) fluctuation.
- 38.15 In the event that the Contractor fails to pay any sum of money on the date it falls due or upon demand by the Government under the Contract, for interest before any judgment debt which may be awarded by the court, it shall pay interest on such sum to accrue from the due date up to the date of actual payment in full (or where applicable up to the date of award of the judgment debt) at the rate of one per cent (1%) above the rate per annum which shall be a simple average of the rates per annum announced by the note-issuing banks of Hong Kong from time to time to be its prime lending rate for Hong Kong dollars. Such interest shall accrue on a daily basis in year of 365 days. For interest on any judgment debt (if applicable), it shall be at the aforesaid rate or at such rate as may be determined from time to time by the Chief Justice by order for judgment debt interest (whichever rate is the higher rate).
- 38.16 Any other interest specified as payable in other parts of the Contract (regardless of whether it is stated that such interest shall be calculated in accordance with this Clause) shall equally be chargeable at the same rate as mentioned in Clause 38.15 of this Part to accrue from the date(s) of receipt by the Contractor of the relevant sum(s) up to the date of actual refund by the Contractor to the Government of such sum(s).

38.17 In the event that the Government Representative requires the termination or suspension of the all or any of the Excess Proposals including any Innovative Suggestions under any applicable provision of the Contract, no Top-up Service Fee whatsoever for such Excess Proposals or Innovative Suggestions (as the case may be) shall be payable by the Government after they are to be terminated or during the period they are suspended.

38.18 Where: (a) the Contractor has failed to implement an Excess Proposal as part of the Implementation Services or failed to implement an Innovative Suggestion before the stipulated deadline date as stated in Schedule 26 of Part V – Contract Schedules; and/or failed to provide the System Support and Maintenance Services or Operation Services for such Excess Proposal during the Maintenance Period; and/or failed to operate the Innovative Suggestion during the Operation Period (in each case a “Failed Excess Proposal”); (b) regardless of whether a Top-up Service Fee is payable under this Contract for such Failed Excess Proposal; (c) where such failure is not remedied to the satisfaction of the Government within such period as the Government may allow in one or more reminder letter(s) to be issued to the Contractor; (d) the failure is of such materiality in the reasonable judgment of the Government; (e) provided that all of the condition (1) to condition (3) as further specified below are fulfilled, and without prejudice to and in addition to any amounts payable under Clause 36.2 of this Part, and without prejudice to Clause 38.17 above, and without prejudice to any other rights and claims of the Government including the right to early terminate the Contract:

the Contractor shall immediately upon the demand of the Government pay an amount as compensation to the Government as and for liquidated damages but not as a penalty comprising the following amount:

- (i) the difference between (1) the Total Estimated Contract Value payable and/or paid to the Contractor over a period of 7 years; and (2) such amount which would have been payable to the Next Ranking Tenderer had it won the Contract.

For the purpose of this Clause 38.18,

“condition (1)” shall mean the condition that there was a conforming Tenderer which ranked immediately after the Contractor after completion of the evaluation of the tenders as described in Annex A to Part II – Conditions of Tender (viz., the evaluation which was conducted prior to the award of this Contract) (“Next Ranking Tenderer”);

“condition (2)” shall mean that the combined score of the Next Ranking Tenderer would have been higher than that attained by the Contractor if there were no mark awarded to the Contractor in relation to the Failed Excess Proposal; and

“condition (3)” shall mean that the amount specified in Clause 38.18(i)(1) above is higher than the amount specified in Clause 38.18(i)(2) above.

39. **Assurance Report**

- 39.1 Subject to Clause 39.4 below, the Contractor shall, in respect of each period of twelve (12) months of the Operation Period (each an “Operation Year”), provide to the Government Representative, an independent assurance report in the form and substance set out in Annex F to this Part (“Assurance Report”) covering that Operation Year. Subject as aforesaid, an Assurance Report in respect of an Operation Year shall be submitted to the Government Representative within three (3) months after the end of that Operation Year, and the last of the Assurance Report shall be submitted within three (3) months after the expiry or early termination of this Contract. The Assurance Report shall contain detailed audited financial records and information as specified in Annex F to this Part and such other information, details and breakdown as the Government Representative may require from time to time. Whilst the Assurance Report shall be in such form and substance as specified in Annex F to this Part, the Government Representative shall have the right from time to time by notice in writing to the Contractor to revise or amend the required form and substance.
- 39.2 The Assurance Report referred to in Clause 39.1 above shall be prepared and issued by a Certified Public Accountant (Practising) within the meaning of the Professional Accountants Ordinance (Cap. 50) (“Certified Public Accountant (Practising)”) and shall comply with the Hong Kong Standards on Assurance Engagement 3000 (Revised) issued by the Hong Kong Institute of Certified Public Accountants.
- 39.3 If the Assurance Report in respect of an Operation Year confirms that there is any underpayment of the Gross Entitlement Amounts for all Successful Transactions (terms as defined in Annex E to this Part) covered by that Operation Year (remainder period of the Operation Period as the case may be); or over-payment of the Ticketing System Service Fee or e-Payment Transaction Fee or the Top-up Service Fee or under-payment of any of the Rebates in respect of that Operation Year (or remainder period as the case may be), the Contractor shall pay the difference to the Government plus interest to accrue at the rate as specified in Clause 38.15 of this Part within thirty (30) days after the issue of the Assurance Report.
- 39.4 If:
- 39.4.1 the Contractor fails to furnish the Government with an Assurance Report within the specified time and in the required form and substance; or
- 39.4.2 the Contractor’s auditor refrains from forming an opinion or an adverse or qualified opinion is expressed,
- the Government may appoint, at the expense of the Contractor, an independent Certified Public Accountant (Practising) to investigate the correctness and completeness of the information required under Annex F to this Part for each month of the relevant Operation Year. The result of this investigation will be final and any monies found to be due from the Contractor in respect of the relevant Operation Year shall be paid by the Contractor within seven (7) days of receipt by the Contractor of the result of the investigation including without limitation any under-paid Gross Entitlement Amount (as defined in Annex E to this Part) or any over-paid Service Fee or Top Up Service Fees or under-paid Rebates plus interest to accrue at the rate specified in Clause 38.15 of this Part.

39.5 If this Contract is extended or terminated under any provision of this Contract and the remainder of the Operation Period following from the Operation Year covered by the last Operation Period is less than twelve (12) months, the Contractor shall still have to submit to the Government Representative an Assurance Report containing such information and in such form and substance referred to in Clause 39.1 above within three (3) months in respect of such remainder Operation Period.

40. Not Used

41. System Tuning

41.1 The Contractor shall from time to time carry out tuning on the System in order to enhance the performance of the System. The Contractor shall carry out tuning on the System from time to time and to enhance the System as part of the System Support and Maintenance Services provided under the terms of this Contract and at no cost to the Government so that the performance level of the System can be maintained by complying with or the Overall Specifications, the Performance Criteria and the Reliability Levels.

42. Data Backup

42.1 In the event of any corruption to data and files resulting from malfunction or deficiency of the System or negligence on the part of the Contractor, its employees, sub-contractors or agents, the Contractor shall (without prejudice to any other rights or claims that the Government may have against the Contractor) recreate the data and files established before corruption and remedy the corrupted data and files and to reprocess the necessary jobs as the Government may direct at the Contractor's sole cost and expense and compensate the Government for the cost and expense incurred in so doing.

43. Disclosure of Intellectual Property Rights

43.1 The Contractor shall report and fully disclose to the Government full information relating to the subsistence of Intellectual Property Rights in the Contractor Retained Property and the Government Acquired Property and their owners not later than the time of completion of the Implementation Period, or at such time specified in other parts of the Contract or such earlier time as the Government may require.

43.2 The Government shall have the right to examine all relevant information and documents which the Government reasonably deems pertinent to the identification of Intellectual Property Rights in the Contractor Retained Property.

43.3 The Contractor shall upon request provide the Government with all relevant information and documents pursuant to this Clause 43 within two (2) weeks of the Government's request (or such later date as may be granted by the Government).

44. Confidentiality

- 44.1 The Contractor shall not disclose the Deliverables or the Government Data or the System Data or any other Government Property or the Records, or any other information, report, document, plan, record, data, database, code or particulars (i) furnished by or on behalf of the Government or by any other person to the Contractor or any of the Contractor Personnel, or any part respectively thereof; or (ii) otherwise is accessible by or available to the Contractor or any of the Contractor Personnel in the course of performing the Services; or (iii) processed by the System or transmitted to the System or stored in the System (collectively “confidential information”), provided that the restrictions on disclosure contained in this Clause 44.1 shall not apply to the disclosure of any confidential information:
- 44.1.1 to any person employed, used or engaged by the Contractor in the conduct of the Services in circumstances where such disclosure is necessary in the reasonable opinion of the Contractor for the performance of the Contractor’s duties and obligations under the Contract, provided that the Contractor has imposed on the said person employed, used or engaged an absolute and legally binding obligation to the Contractor to refrain from disclosing the confidential information to a third party;
 - 44.1.2 already known to the recipient other than as a result of disclosure by the Contractor or any of the Contractor Personnel or their respective associates or associated persons in breach of this Clause 44;
 - 44.1.3 which is or becomes public knowledge other than as a result of disclosure by the Contractor or any of the Contractor Personnel or their respective associates or associated persons in breach of this Clause 44;
 - 44.1.4 in circumstances where such disclosure is required pursuant to any laws of Hong Kong or an order of a court of Hong Kong; or
 - 44.1.5 with the prior consent in writing of the Government.
- 44.2 Any disclosure permitted under Clause 44.1 (excluding Clause 44.1.4 above) of this Part shall be in strict confidence and shall extend only so far as may be necessary for the purposes specified in Clause 44.1 of this Part and the Contractor shall ensure the confidentiality of any such disclosure by taking appropriate action to restrain or restrict any further disclosure.
- 44.3 The Contractor shall not, and shall procure and ensure each of the Contractor Personnel and other person who may be imparted with any confidential information in accordance with Clause 44.1 of this Part shall not disclose, make use of or reproduce any confidential information other than in the performance of the Contractor’s obligations under the Contract or with the prior written consent of the Government.
- 44.4 If and when requested by the Government, the Contractor shall forthwith require each member of the Implementation Team or Maintenance Team and such other Contractor Personnel as the Government may stipulate, and such other persons to whom disclosure is made pursuant to this Clause 44, to execute a written undertaking in favour of the Contractor and the Government in a form to be

determined by the Government agreeing to abide by the restrictions attached to the confidential information set out in this Clause 44 and the Contractor shall provide original or certified true copies of such undertakings to the Government upon commencement of the Implementation Period or Operation Period (as the case may be). The Contractor further undertakes that, if so required by the Government, it will, at its own cost and expense, take such actions and steps as are lawful and necessary to enforce such undertakings in the event of any breach thereof by anyone who has executed such undertakings.

- 44.5 The Contractor shall establish and maintain all necessary security measures and procedures for the safe custody of the confidential information in the Contractor's possession or under its control and to prevent unauthorised access thereto or use thereof. All obligations of the Contractor specified in Clause 45 of this Part applicable to Personal Information shall also be deemed incorporated herein and extend to confidential information, mutatis mutandis.
- 44.6 The Contractor shall ensure that all of the Contractor Personnel and any other persons engaged in any work in connection with the Contract are aware of and comply with the provisions of this Clause 44 and the Official Secrets Ordinance (Chapter 521 of the Laws of Hong Kong) and the Contractor shall indemnify and keep the Government, its authorised users, assigns and successors-in-title fully and effectively indemnified on the terms set out in Clauses 33 and 34 of this Part as a result of any breach of confidence (whether actionable based on this Contract or at law) by any such persons.
- 44.7 The Contractor shall promptly notify the Government of, and give the Government all reasonable assistance in connection with, any proceedings which the Government may institute against any person pursuant to any of the provisions in this Clause 44.
- 44.8 The Contractor acknowledges that any unauthorised disclosure or use of the confidential information can cause irreparable harm and significant injury to the Government, the degree of which may be difficult to ascertain or that damages may not be an adequate remedy. Accordingly, the Contractor agrees that in the event of any threatened or actual breach of this Clause 44, the Government shall have the right to obtain and be immediately granted an injunction prohibiting any breach of this Clause 44 and/or specific performance ensuring the compliance of this Clause 44, without prejudice to its other rights and claims including those available under the Contract or at law arising from such breach.
- 44.9 Without prejudice to the generality of the foregoing provisions, the Contractor further undertakes that it will not at any time itself or through any associate or associated person or employee, sub-contractor or agent use, sell, license, sub-license, create, develop or otherwise deal in any confidential information.
- 44.10 For the avoidance of doubt, to the maximum extent permitted by the law, and without prejudice to any provision in the Code on Access to Information, the Government does not owe any duty of confidentiality to the Contractor in respect of the Contractor or the Contract or the Work or the Deliverables and nothing in the Contract or in the Tender Documents or at law shall be construed or apply to give rise to any such duty. Any alleged loss or claim or liability incurred by the Contractor arising from any alleged breach of any alleged duty of confidentiality

shall be denied and disclaimed to the fullest extent.

45. Protection of Personal Data

- 45.1 The Contractor shall (and shall ensure that its Contractor Personnel) comply with:
- (a) any applicable privacy or data protection laws (including the Personal Data (Privacy) Ordinance, Chapter 486 of the Laws of Hong Kong) and all guidelines issued by the Office of the Privacy Commissioner for Personal Data, Hong Kong; and
 - (b) any privacy procedures or policies stipulated by the Government from time to time.
- 45.2 In this Clause 45, “Personal Information” shall mean personal data as defined in section 2(1) of the Personal Data (Privacy) Ordinance, Chapter 486 of the Laws of Hong Kong. This Clause 45 shall be in addition to, and without prejudice to, the generality of Clause 44 of this Part.
- 45.3 If the Contractor collects, stores, controls, processes or discloses any Personal Information in connection with the provision of the Services, the Contractor:
- (a) shall take all reasonable steps to ensure that the Personal Information is protected against misuse and loss, and from unauthorised access, modification or disclosure;
 - (b) shall not, directly or indirectly use the Personal Information except to the extent necessary to provide the Services;
 - (c) shall not disclose the Personal Information whether directly or indirectly to any person without the prior written consent of the Government;
 - (d) shall disclose the Personal Information to Contractor Personnel only to the extent that they have a need to know for the purpose of providing the Services;
 - (e) shall provide appropriate training to Contractor Personnel with respect to the correct handling of the Personal Information so as to minimise the risk of accidental security breaches;
 - (f) shall ensure that its internal operating systems permit only properly authorised personnel to access the Personal Information; and
 - (g) shall notify the Government as soon as possible after it becomes aware that use or disclosure of the Personal Information is required by an order of the court.
- 45.4 On termination or expiry of the Contract, the Contractor shall promptly return to the Government or, if requested by the Government, destroy all copies of the Personal Information, in which case any right to use, copy or disclose that Personal Information ceases.

- 45.5 With relation to the Contractor Personnel's access to Personal Information:
- (a) the Contractor shall implement and maintain a system for logging and identifying all of the Contractor Personnel that access any Personal Information. If requested by the Government, the Contractor shall provide to the Government a copy of that access log.
 - (b) If required by the Government, the Contractor shall, in addition to the training, arrange for any of its Contractor Personnel with access to Personal Information to sign an undertaking in accordance with Clause 44.4 of this Part.
- 45.6 If the Contractor becomes aware that any Contractor Personnel is using, or has used, Personal Information in contravention of any of Clauses 45.1 to 45.7 of this Part, the Contractor must promptly notify the Government in writing with full details of the contravention. The Government's knowledge of, or response to, such notification, will not affect any other rights of the Government under the Contract.
- 45.7 The Personal Information of any individual provided by the Contractor to the Government will be used by the Government for the purposes of, arising from or incidental to this Contract, including for the purposes of exercising or enforcing any of its rights and powers under this Contract or at law, and for resolution of any dispute arising from this Contract. The Government may disclose the Personal Information to any public officer within the Government, its adviser, contractors and consultants or any public body (as defined in the Interpretation and General Clauses Ordinance, Chapter 1 of the Laws of Hong Kong) or any entity having the jurisdiction to adjudicate over any dispute arising from this Contract for all or any of the aforementioned purposes.
- 45.8 The Contractor shall ensure that each individual whose Personal Information has been passed by the Contractor to the Government has been made aware of (prior to the passing of such Personal Information to the Government), acknowledged and consented that his Personal Information may be disclosed to the Government, and in turn disclosed by the Government to those persons for such as purposes as mentioned in Clause 45.7 of this Part.
- 45.9 The Contractor shall indemnify the Government on the terms set out in Clause 33 of this Part in the event of any non-compliance with any provisions of this Clause 45 or any claim instituted by any person in relation to his Personal Information or the Privacy Commissioner for Personal Data, which claim would not have arisen but for any act, omission, breach of this Contract or negligence on the part of the Contractor or any of the Contractor Personnel.

46. Security Requirements

- 46.1 The Contractor shall perform all necessary work to ensure that the security requirements specified in Section 12 – Security Requirements of Part VII – Project Specifications and to the extent not inconsistent with the aforesaid requirements in accordance with the methodologies, guidelines and standards for IT security as published on the website of OGCIO and mentioned in LCSD IT security documents, are fulfilled throughout the Implementation Period and Operation Period. Formal

testing and review on the security control shall be performed prior to issue of the System Acceptance Certificate.

47. Contractor's Obligation to Inform Government of Relevant Facts

47.1 The Contractor shall keep itself informed and immediately inform the Government in writing of any or all circumstances, facts and matters which will or may lead to default or non-compliance with any of the Contractor's obligations under the Contract, based on or arising from the acts or omissions of the Contractor.

47.2 The Contractor shall notify in writing the Government Representative immediately of any circumstances relating to the Contractor and/or the Services, of which the Contractor is aware or which it anticipates may justify the Government taking action to protect its interests (including its reputation and standing).

48. Probity

48.1 The Contractor acknowledges it has been reminded that:

- (a) dishonesty, theft and corruption on its part or that of its employees, officers (including directors), agents, sub-contractors or representatives are criminal offences and may lead to prosecution under section 9 of the Prevention of Bribery Ordinance (Chapter 201 of the Laws of Hong Kong), sections 17, 18D and 19 of the Theft Ordinance (Chapter 210 of the Laws of Hong Kong) and section 161 of the Crimes Ordinance (Chapter 200 of the Laws of Hong Kong); and
- (b) the soliciting or accepting of advantages, as defined in the Prevention of Bribery Ordinance (Chapter 201 of the Laws of Hong Kong) is not permitted.

48.2 The Contractor shall inform all of the Contractor Personnel in writing, and keep them informed in writing regularly and not less than once every three (3) months, that soliciting or accepting advantages, as defined in the Prevention of Bribery Ordinance (Chapter 201 of the Laws of Hong Kong), is a serious crime and may in addition result in substantial civil liability. Without limitation, the Contractor shall inform the Contractor Personnel that offering any advantage to a public servant, as defined in the Prevention of Bribery Ordinance (Chapter 201 of the Laws of Hong Kong), as an inducement to or reward for or otherwise on account of that public servant's performing or abstaining from performing any act in his capacity as a public servant, or expediting, delaying, hindering or preventing the performance of an act, or assisting, favouring, hindering or delaying any person in the transaction of any business with a public body, is an offence under section 4 of the Prevention of Bribery Ordinance (Chapter 201 of the Laws of Hong Kong). Also, offering any advantage to any prescribed officers in the Government while having dealings with that Government department, disregarding whether any abuse of power or acts are involved, is an offence under section 8 of the Prevention of Bribery Ordinance (Chapter 201 of the Laws of Hong Kong).

48.3 The Contractor shall arrange to circulate among all Contractor Personnel regularly

and not less than once every three (3) months the information contained in such internal guidelines concerning prevention of bribery as the Government may distribute to the Contractor (“Internal Guidelines”), and extracts of relevant provisions of the Prevention of Bribery Ordinance (Chapter 201 of the Laws of Hong Kong).

48.4 Notwithstanding anything herein to the contrary, if the Contractor or any of its employees, officers (including directors), agents, sub-contractors or representatives shall be convicted (whether or not such conviction is subject to any appeal to a higher court) to have offered or given any advantage, gratuity, bonus, discount, bribe or loan of any sort to any officer, employee, contractor, agent or representative of the Government whether in relation to this Contract or any other Government contract, the Government shall be at liberty forthwith to terminate the Contract in accordance with Clause 55.1.8 of this Part.

48.5 The Contractor shall within two (2) weeks after the commencement of the Contract draw up and submit a staff code of conduct to the Government Representative covering, among other probity issues, a statement explicitly prohibiting its sub-contractors (if any) and its employees deployed by it to provide the Services from soliciting or accepting any form of advantages. It shall ensure that its sub-contractor (if any) and its employees deployed by it to provide the Services are well aware of the prohibited acts specified in this Clause 48.5 and in the staff code of conduct. The code of conduct should form part of the sub-contracts or employment contracts to ensure acknowledgement and compliance by the sub-contractors or the employees (as the case may be).

49. Conflict of Interest

49.1 The Contractor shall during the Contract Period and for six (6) months thereafter:

49.1.1 ensure that it, each member of the Contractor Personnel (including employees of the Sub-contractors), and the associates and associated persons of the Contractor and of each member of the Contractor Personnel (collectively “Restricted Group”), shall not undertake any service, task or job or do anything whatsoever for or on behalf of any third party (other than in the proper performance of the Contract) or on its own account which conflicts or which may be seen to conflict with the Contractor’s duties or obligations under the Contract without the prior written approval of the Government; and

49.1.2 forthwith notify the Government in writing of all or any facts which may reasonably be considered to give rise to a situation where the interests of any member of the Restricted Group, conflict or compete, or may be seen to conflict or compete, with the Contractor’s duties or obligations under the Contract. Without prejudice to other rights and claims of the Government, the Contractor shall immediately take all reasonable actions to avoid or remove the cause of any such actual or potential conflict of interest to the satisfaction of the Government Representative.

49.2 The Contractor shall ensure that each member of the Contractor Personnel informs the Contractor and keep it informed regularly of all facts in relation to himself and his associates and associated persons which may reasonably be considered to give

rise to a situation in which his or their interests conflict or compete, or may be seen to conflict or compete, with the Contractor's obligations under this Contract.

50. Publicity

50.1 Whether before, during or after the expiry or termination of the Contract Period, the Contractor shall not use the Government's name in any document, publication, advertisement or publicity material without the prior written consent of the Government.

50.2 Subject to Clause 50.1 of this Part, the Contractor shall submit to the Government Representative for approval all the proposed advertising or other publicity material relating to the Contract, the System or other products supplied or other work done in connection with the Contract wherein the Government's name is mentioned or language used from which a connection with the Government can reasonably be inferred or implied.

50.3 Notwithstanding any consent or approval given under Clause 50.1 or 50.2 of this Part, whenever required by the Government, the Contractor shall remove all advertisement and publicity material relating to the Contract wherein the Government is mentioned or language used from which a connection with the Government can reasonably be inferred or implied and the Contractor must comply with such request.

51. Government's Right to Deduction or Set-Off

51.1 If any sum of money (of whatsoever nature) shall be due or payable from the Contractor to the Government under the Contract, the same may be deducted from or set off against any sum then due or payable or which at any time thereafter may become due or payable to the Contractor by the Government under the Contract or any other contract between the Contractor and the Government.

51.2 Where the Contractor is a Non-resident, unless the Contractor has from time to time provided evidence to the Government Representative that it has filed the necessary tax return with the Hong Kong Inland Revenue Department ("IRD") in relation to the Charges from time to time payable for Services performed in Hong Kong under the Contract for each relevant financial year covered by the Contract Period, the following withholding arrangement shall apply:

51.2.1 the Government Representative shall be entitled to withhold from the following Charges:

- (a) all Ticketing System Service Fee and other Charges from time to time payable after commencement of the Operation Period under the Contract

for the settlement of profits tax chargeable on any Charges (whether those Charges which are to be withheld as mentioned in (a) above, and/or any earlier Charges which have been paid without any withholding) (collectively, "Taxable Charges"). The amount to be withheld each time shall be a percentage (equivalent to the

prevailing Hong Kong profits tax rate prescribed by the Inland Revenue Ordinance (Chapter 112 of the Laws of Hong Kong)) of the Taxable Charges.

- 51.2.2 Without prejudice to the Government's other rights and claims including any further right to make any deduction set-off or withholding, for each withholding, the Government shall return to the Contractor the balance representing the Charges so withheld (if any) without interest within a reasonable time upon final determination and settlement of the Contractor's tax liabilities for all Taxable Charges to which such withholding relates.
- 51.2.3 The Contractor hereby agrees that regardless of whether the withholding arrangement as mentioned in this Clause 51.2 applies, (a) the Government Representative may provide all such details about the Contractor, this Contract and the Services performed to the IRD for tax assessment and reporting and other related purposes; and (b) the Contractor shall provide all such filing clarification and supplemental information to the Government Representative or the IRD as any of them may request.
- 51.2.4 A Non-resident shall mean that the Contractor does not have its central management and control in Hong Kong.

52. Guarantees

- 52.1 Within twenty-one (21) days from the date of the notification of conditional acceptance of tender in accordance with Clause 28 of Part II – Conditions of Tender, the Contractor shall submit to the Government:
- 52.1.1 contract deposit in an amount equivalent to two (2) per cent or six (6) per cent (depending on whether Clause 24.5 or 24.6 of Part II – Conditions of Tender is applicable) of the Total Estimated Contract Value as a continuing security for the due and punctual performance and observance of its obligations under the Contract ("Contract Deposit") either in cash or a duly issued bank guarantee to be executed by a bank with a valid banking licence (as defined in the Banking Ordinance (Chapter 155 of the Laws of Hong Kong)) approved by the Government and in the form appearing in Annex A to this Part; and
- 52.1.2 if expressly required in the notification of conditional acceptance of tender, a duly executed performance guarantee in the form appearing in Annex B to this Part from one or more guarantor which is acceptable to the Government which may be the ultimate holding company of the Contractor or each individual shareholder of the Contractor (as the case may be), the identity of whom shall have been submitted in writing to the Government and whom the Government shall have raised no objection ("Performance Guarantee").
- 52.2 The Contract Deposit, if in the form of cash, will be retained by the Government, or if in the form of a bank guarantee, must remain in force, in either case, from the date of the commencement of the Contract until (a) the date falling three (3) months after the expiry of the Contract Period, or (b) in the case if at the time of expiry of the Contract Period, there is any outstanding right or claim which has accrued to the Government prior to the expiry of the Warranty Period (whether arising from

antecedent breach(es) by the Contractor of the Contract or otherwise), the date falling thirty-six (36) months after the expiry of the Contract Period. The aforesaid period (depending on whichever is applicable) is hereinafter referred to as the "Guarantee Period". Where the Guarantee Period in the bank guarantee is expressed in actual dates determined based on the scheduled Completion Date, but subsequently in the event of any delay, the Guarantee Period as stated in the bank guarantee is no longer valid to fulfil the Guarantee Period requirement as aforesaid, the Contractor shall, immediately upon the demand of the Government, procure the extension of the Guarantee Period as stated in the bank guarantee to fulfil the aforesaid Guarantee Period requirement based on the latest projected Completion Date and the extent of the delay.

- 52.3 Only upon the expiry of the Guarantee Period, will the Contract Deposit (if in the form of cash and if any is remaining) be refunded to the Contractor without interest; or, if in the form of a bank guarantee, be discharged or released together with the Performance Guarantee (if any).
- 52.4 The Government Representative shall have the right to deduct from time to time from the Contract Deposit in cash or call on the bank guarantee (irrespective of whether or not a demand for payment has been made against the Contractor) any amount due or payable by the Contractor to the Government under the Contract but which remains outstanding, in such order as the Government in its absolute discretion deems fit. The Contract Deposit (whether in cash or in the form of the bank guarantee) and/or the Performance Guarantee may be deducted or called on, without the Government first having recourse to any other security or rights or taking any other steps or proceedings against the Contractor or any other person, or may be enforced for any balance due after resorting to any one or more of other means of obtaining payment or discharge of the monies, obligations and liabilities owing by the Contractor to the Government.
- 52.5 If any deduction shall be made by the Government from the Contract Deposit in cash or a call shall be made on the bank guarantee during the Guarantee Period, the Contractor shall, within twenty-one (21) days on demand in writing by the Government, deposit a further sum or provide a further bank guarantee, in a sum equal to the amount so deducted or so called, which further sum shall be added to the residue of and form part of the Contract Deposit and, where applicable, the additional security amount required under Clause 52.1.1 of this Part.
- 52.6 Where by the time of expiry of the Guarantee Period, any claim of the Government or any liability of the Contractor, whether under or arising from or in relation to the Contract cannot yet be quantified, the Government may, without prejudice to its other rights and remedies, pay the entire Contract Deposit or any part thereof (whether in cash or in Banker's Guarantee) into a suspense account, for so long as it considers necessary, and pending the quantification of the amount of the claim or liability. Upon quantification of the amount of all or any claims or liabilities, the Government shall apply the amount in the suspense account in or towards satisfaction of the quantified amount. Where there is any remaining amount in the suspense account after such application, the Government will return the remaining amount to the Contractor without interest. Where the amount in the suspense account is insufficient to cover all or any claims or liabilities, the Government

reserves all rights and remedies against the Contractor in respect of such claims and liabilities.

- 52.7 The Government may conduct periodic financial vetting of the Contractor with a view to ensuring that the Contractor remains financially healthy for the performance of the Contract and depending on the results, take necessary actions as the Government considers appropriate. Periodic financial vetting may be conducted at an interval of every three (3) years of the Contract Period. Upon request of the Government, the Contractor shall within seven (7) days provide all such information to the Government for such periodic financial vetting which may include information as specified in Annex C to this Part.

53. Records

- 53.1 The Contractor shall keep proper records of all the Services performed during the contract period in accordance with this Clause 53. The Contractor shall on demand produce to the Government all and any such records and give to the Government any information and explanation relating to such records as the Government may require whether during or after the termination or expiry of the Contract. Forthwith on the termination or expiry of the Contract (howsoever occasioned), the Contractor shall at its own cost and expense deliver all such records to the Government.

- 53.2 The Contractor shall keep proper records and accounts of all time spent by each member of the Implementation Team and the Maintenance Team and expenditure incurred in the performance of the Services and of its other obligations and duties under the Contract. The Contractor shall, whether during or after early termination or expiry of the Contract, forthwith upon request by the Government Representative, produce to the Government copies of all such records and accounts, and all other supporting documents, including all time sheets, books, papers, invoices, receipts, and give to the Government such information and explanation relating to such records and accounts as the Government may require.

54. Software Asset Management

- 54.1 The Contractor shall at all times during the validity of this Contract exercise due diligence in software asset management and in accordance with the methodologies, guidelines and standards for software asset management as published on the website of OGCIO, and as and when required by the Government, furnish to the Government satisfactory evidence that this Clause has been complied with.

55. Termination of the Contract

- 55.1 Without prejudice to other rights and claims of the Government under the Contract or at law, the Government shall be entitled to terminate the Contract by serving a seven (7) days' notice in writing on the Contractor if:

- 55.1.1 the Contractor persistently or flagrantly fails to carry out the whole or any part of the Services punctually or in accordance with the terms and conditions of the Contract; or

- 55.1.2 the Contractor fails to observe or perform any of its material obligations under the Contract and (in the case of a breach capable of being remedied) has failed to remedy the breach to the satisfaction of the Government Representative within fourteen (14) days (or such longer period as the Government Representative may, in its sole discretion, allow) after the issuance by the Government Representative to the Contractor of a notice in writing requiring it to do so; or
- 55.1.3 the Contractor fails to pay any of the sums payable by the Contractor under the Contract; or
- 55.1.4 any of the warranties, representations or undertakings made or deemed to have been made by the Contractor to the Government in the Contract or in its tender for the Contract or otherwise during the continuance of the Contract (including without limitation any of the Warranties) is untrue or incomplete or inaccurate; or
- 55.1.5 a petition is presented or a proceeding is commenced or an order is made or an effective resolution is passed for the winding-up, insolvency, bankruptcy, administration, reorganisation, reconstruction, or dissolution of the Contractor otherwise than for the purpose of a solvent reconstruction or amalgamation previously approved by the Government Representative in writing, or the Contractor makes any composition or arrangement with creditors; or a receiver, administrator, trustee or similar officer has been appointed in respect of the Contractor or all or any part of its business or assets; or
- 55.1.6 the Contractor abandons the Contract in part or in whole; or
- 55.1.7 the Contractor assigns or transfers or purports to assign or transfer all or any part of the Contract or all or any of its rights or obligations thereunder without the prior written consent of the Government; or
- 55.1.8 without prejudice to the generality of the foregoing grounds for termination, if any event or circumstance occurs which enables the Government to terminate the Contract under Clause 37.3 (Warranty against Collusion) of Part II – Conditions of Tender or any one of the following provisions in this Part IV – Conditions of Contract:
- Clause 16.3.3 (Installation Test);
 - Clause 18.2 (Failure in Testing);
 - Clause 21.4 (Delay);
 - Clause 21.5 (Delay);
 - Clause 34.3.4 (Intellectual Property Rights Indemnities);
 - Clause 36.2 (Deduction of Charges and Thresholds for Early Termination);
 - Clause 48.4 (Probity);
 - Clause 57.6 (Force Majeure);
 - Clause 59 (Illegal Workers); and
 - Clause 60.4 (Admission of Contractor Personnel to Government Premises).
- 55.2 Notwithstanding anything herein to the contrary, the Government may at any time and from time to time during the Contract Period, at its option and without cause, early terminate or suspend the Contract by giving the Contractor three (3) months' written notice of such termination or suspension. In the case of suspension, the

written notice shall specify the period of the suspension (“Suspension Period”) and the scope of the suspension (viz., the Services to be suspended, which may be all or any of the Services covered by the Contract) (“Suspended Services”).

- 55.3 Notwithstanding anything herein to the contrary, the Government may at any time during the continuance of the Contract, and by not less than one (1) month’s prior written notice to the Contractor, make such changes (whether addition or reduction) as the Government deems appropriate to the scope of the Services to be carried out or the Contractor Supplied Hardware and Software and the Off-the-Shelf Documentation or other Deliverables to be required from the Contractor whether it be Contractor Retained Property or Government Acquired Property or all or any of the Excess Proposals including any of the Innovative Suggestions. Unless there is any provision in the Contract which obliges the Contractor to implement any change at no additional charge to the Government, the revised Service Fee(s) (if any) shall be arrived at, where applicable, on the basis of the breakdown specified in Schedule 23 - Price Schedule (if any) and other applicable Schedules of Part V – Contract Schedules or in the case of Excess Proposals including any Innovative Suggestions, on the basis of the charging rates specified in Tables 23.6 and 23.7 of the Price Schedule. If there is no charging rate for any Excess Proposal, (either because the original requirement prohibit any charging or the Contractor did not ask for any charge), it shall be deemed that the relevant Excess Proposal was provided free of charge anyway. Where any revised Service Fee(s) because of any change cannot be deduced based on the breakdown in the Schedules of Part V – Contract Schedules, any revision shall be agreed between the Government and the Contractor. For the avoidance of doubt, any changes may include without limitation changes (addition or reduction) of such parts of the System or of the Contractor Supplied Hardware or Contractor Supplied Software or the Deliverables (or any part thereof), changes in the scope of the Services, changes to the Operation Period, and without prejudice to the generality of any of the foregoing, changes or suspension or termination of any of the Excess Proposals. For the avoidance of doubt, all provisions allowing the Government to make changes to the scope of the Services or the System or the Implementation Plan or the Operation Period or other terms of the Contract shall be construed independently without reference to or inference from one another unless otherwise expressly stated.
- 55.4 Instead of terminating the whole of the Contract pursuant to Clause 55.1 of this Part, upon occurrence of any of the events specified in Clause 55.1 of this Part or otherwise pursuant to Clause 16.3.3 or 18.2 or 21.4 or 21.5 of this Part, the Government may elect to partially terminate the Contract in relation to such part of the Services and/or such part of the System as the Government may specify in a seven (7) days’ notice of partial termination (“Partial Termination”).

56. Consequences of Early Termination and Contract Expiry or Suspension or Changes to the Services

56.1 Upon early termination (howsoever occasioned) or expiry of the Contract (“Termination”):

56.1.1 the Contract shall be of no further force and effect, but without prejudice to:

- (a) the Government's rights and claims under the Contract or otherwise at law against the Contractor arising from antecedent breaches of the Contract by the Contractor (including any breach(es) which entitle the Government to terminate the Contract);
 - (b) the rights and claims which have accrued to a party prior to the Termination; and
 - (c) the continued existence and validity of those provisions which are expressed to or which in their context appropriately survive Termination and any provisions of the Contract necessary for the interpretation or enforcement of the Contract including without limitation the following Clauses in these Conditions of Contract: Clause 1 (Definitions), Clause 22 (Title to and Risks to the System), Clause 23 (Ownership of Intellectual Property Rights), Clause 25 (Licence to the Government), Clause 30 (Contractor's Warranties and Undertaking), Clause 31 (No Warranty on the Part of the Government), Clause 32 (Year 2000 Compliance Warranty), Clause 33 (Indemnities), Clause 34 (Intellectual Property Rights Indemnities), Clauses 38.15 and 38.16 (Terms of Payment) and all provisions in Clause 38 concerning Rebates, and all remaining Clauses thereafter except for Clause 41 (System Tuning), Clause 42 (Data Backup), Clause 46 (Security Requirements); the obligations of the parties under these provisions shall continue to subsist notwithstanding the Termination regardless of whether or not it is so expressly stated in these individual provisions;
- 56.1.2 the Government shall not be responsible for any claim, legal proceeding, liability, loss (including any direct or indirect loss, any loss of revenue, profit, business, contract or anticipated saving), damage (including any direct, special, indirect or consequential damage of whatsoever nature) or any cost or expense, suffered or incurred by the Contractor due to the Termination;
- 56.1.3 in the event of Termination pursuant to Clause 55.1 of this Part, without prejudice to the other rights and claims of the Government, the Contractor shall be liable for all losses, damage, liabilities, costs and expenses incurred or sustained by the Government arising from the Termination including without limitation all of the following:
- (a) (i) the amounts payable to contractors and/or suppliers and/or the cost of maintaining an in-house team for services and/or goods in replacement of all or any of the Services which are in excess of the Total Estimated Contract Value which would have been payable to the Contractor had there been no Termination (the aforesaid services are collectively referred to as "replacement services" and the aforesaid goods are collectively referred to as "replacement system"); and (ii) the amounts payable by the Government for all other procurements and arrangements which the Government has to make for the commissioning of the replacement system and the replacement services in excess of the amounts which could have been payable for such procurements and arrangements (even if not covered by this Contract) if the Contract had not been terminated and the System were commissioned in accordance with the Implementation Timetable;

- (b) all administrative and legal costs incurred in (i) monitoring the Contract over any delay prior to the Termination; (ii) effecting the Termination; and (iii) procuring replacement services and/or replacement system or setting up an in-house team as mentioned in sub-clause (a)(i) above;
- (c) any delay in realisation of saving which could have been realised had the System been implemented including saving in manpower resources which could have been cut due to the automation by the System;
- (d) the amount to be determined under the same formula as specified in Clause 21.2 of this Part except that (i) the amount specified in Clause 21.2(a)(ii) shall be replaced by any amount for services similar or equivalent to the services covered by all or any of the Top-up Service Fee(s); and (ii) the amount specified in Clause 21.2(b) shall also include the Top-up Service Fees which would have been payable; and (iii) all references therein to “period of delay” shall mean the full period counting from the time of Termination until the replacement services and replacement system are commissioned;
- (e) the costs of all procurement of services (including the appointment of contractor for the conduct of privacy impact assessment and security risk assessment and audit) which have become wasted due to the Termination;
- (f) interim and/or final statements of these losses, damage, liabilities, costs and expenses may be issued from time to time after the Termination by the Government to the Contractor whereupon the Contractor shall be liable to pay such amount as demanded in each of these statements within seven (7) days; and
- (g) for the avoidance of doubt, for the determination of the losses as mentioned in sub-clause (a)(i) above, all amounts and costs incurred by the Government shall be taken into account regardless of (i) whether the relevant contractors and/or suppliers are appointed through open tendering or through standing offer agreement or through direct appointment; and (ii) whether one single or multiple contractors or suppliers have been appointed for the replacement services and/or replacement system; (iii) whether an in-house team is deployed alone or in conjunction with such contractors and suppliers for performing the replacement services; (iv) the composition of the in-house team and their employment arrangement with the Government (i.e., whether on civil service terms or non-civil service contract terms or other terms); (v) the design, methodology and technology (including programming language) adopted for the implementation of the replacement system and performance of the replacement services; or (vi) the duration of the replacement project for the implementation of the replacement system or commencement date of the replacement project;

56.1.4 for the avoidance of doubt, the Government may exercise its right under Clause 51 (Government’s Right to Deduction or Set-off) of this Part;

56.1.5.1 regardless of whether the System Acceptance Certificate has ever been issued, the Contractor shall forthwith deliver to the Government all Government Property including all Government Retained Property, all Government Data, all System Data,

- all Records, and all confidential information; and
- 56.1.5.2 where a System Acceptance Certificate has been issued prior to the Termination, the Contractor shall also deliver to the Government the 3rd Party Licence Items which are Software (but not 3rd Party Licence Items which are Contractor Supplied Hardware), and their related Off-the-Shelf Documentation in whatever format, and stored in whatever media, which are in the possession or under the control of the Contractor; and
- 56.1.5.3 the Contractor shall remove all Contractor Supplied Hardware from the Government Locations, failing which the Government shall be free to dispose of them any after one month after the Termination with no obligation to give any account to the Contractor in relation to such disposal;
- 56.1.5.4 in the event that any of the aforesaid materials or items is located within the premises of the Contractor, the Government Representative and any person(s) authorised by the Government are hereby granted an irrevocable licence to, at any time and from time to time within one (1) year after Termination including any of the Locations, enter such premises for the purpose of taking possession of such materials or items. In the event that any of the aforesaid materials or items is lost or damaged whilst in the possession or control of the Contractor or its employees, sub-contractors or agents, the Contractor shall pay to the Government for such loss or damage being an amount equal to the original cost (subject to normal depreciation on such basis as determined by the Government) plus all administrative costs incurred by the Government for replacing the lost or damaged item. A stock-taking inspection of the articles or materials in the possession or control of the Contractor may be made at any time by the Government and the Contractor shall render such assistance as is necessary for this purpose;
- 56.1.6 the Contractor shall certify to the Government that no hard copies or soft copies or duplicates of any of the items referred to in Clause 56.1.5 of this Part have been retained;
- 56.1.7 the Contractor shall compile and submit to the Government a report of the Services performed, including without limitation a report on all Implementation Services, the Operation Services and the System Support and Maintenance Services which have thus far been completed and discharged up to the date of the Termination;
- 56.1.8 the Contractor shall make good, to the satisfaction of the Government, any damage to the Government Property especially but not with limitation the Government Data and the System Data or any part thereof or the Government Retained Property or the Records except that the Contractor may retain some of the System Date for performing any outstanding Services for a limited duration of up to 6 months;
- 56.1.9.1 where the System Acceptance Certificate has been issued prior to the Termination pursuant to Clause 55.2 of this Part, subject to the right of deductions, set-off and counter-claim which the Government may have under the Contract or at law, pay to the Contractor such portion of the Service Fees which are payable by the Government or for third party event presenters by the Government as is fairly and equitably payable to the Contractor for such part of the Services performed by the Contractor in the period up to the effective date of Termination (and which remains unpaid pursuant to the payment schedule under the Contract), having regard to the Services actually

performed by the Contractor fully and punctually in due accordance with the terms and conditions of the Contract, and the applicable unit rates specified in Schedule 23 - Price Schedule of Part V – Contract Schedules; for the avoidance of doubt, the Government shall not be obliged to pay any compensation to the Contractor for any alleged inability to recover the capital cost of the System due to any Termination including any Termination under Clause 55.2 of this Part;

56.1.9.2 the Contractor shall procure all outstanding Assurance Reports as required under Clause 39 of this Part including the one in relation to the final Operation Year or the remainder period up to Termination since the year covered by the last Assurance Report; and settle all outstanding Rebates which have accrued up to the Termination but remains unpaid as well as any reconciliation amounts payable to the Government under Clause 39 of this Part;

56.1.10 at the request of the Government, the Contractor shall enter into and perform all deeds of assignment, transfer or novation in favour of the Government or in favour of any person whom the Government may designate, for the assignment, transfer or novation of any contract, arrangement or other subject matter whatsoever (including service contracts with Data Centre, those for the provision of any of the Operation Services, the service contract with the Public Cloud Operator, insurance policy, equipment lease, software licences or other licence) on such terms and conditions as the Government may stipulate; and procure any other third party whom the Government considers necessary for effecting or perfecting such assignment, transfer or novation to enter into and perform any such deeds of assignment, transfer or novation;

56.1.11 the Contractor agrees and acknowledges that notwithstanding any agreement or restriction binding on any past or existing Contractor Personnel to the contrary (if any), the Government or any other person designated by the Government (who will act on its own account) may employ or appoint any past or existing Contractor Personnel (“nominated Contractor Personnel”). Any such employment or appointment may come into effect forthwith immediately following the last day of the Contract Period or such other date, and on such other terms and conditions, as the parties to the relevant appointment or employment may agree. The Contractor hereby waives and will at the request of the Government Representative or the nominated Contractor Personnel separately execute all such deeds of waiver in favour of that nominated Contractor Personnel under which it will waive, or will procure any of its associates or associated persons to waive (to the extent necessary and in the manner as aforementioned), all rights and claims which the Contractor or any of its associates or associated persons may have on or against such nominated Contractor Personnel arising from a breach of contract or otherwise at law due to the employment or appointment by the Government or by such other person designated by the Government of such nominated Contractor Personnel;

56.1.12 the Contractor shall, and shall procure its associates or associated persons to, do all such acts, and sign all such deeds and documents, which are required to be done or signed, under the Contract, or otherwise as directed by the Government Representative, to ensure the complete handover of the System and the Services to the Government or a succeeding contractor, or otherwise as may be necessary or desirable to implement or to give legal effect to the provisions of the Contract, and the transactions provided for or contemplated by the Contract including this Clause 56;

- 56.1.13 all Contractor Personnel shall as soon as the notice for Termination is given or otherwise within such time as may stipulated by the Government vacate the Government premises where they were allowed to be stationed or were given access to for performing the Services and surrender all access cards/keys;
- 56.1.14 (a) if for any reason whatsoever the Intellectual Property Rights of a Licence referred to in Clause 25.1.2 of this Part concerning Contractor Supplied Software is not granted in favour of a licensee, the Contractor shall forthwith, or shall ensure that the owner(s) of the Intellectual Property Rights or the licensor(s) who is capable of granting the Licence will respectively forthwith, upon the first written demand of the Government execute a deed of assignment or other documents under which the Government, its authorised users, successors-in-title and assigns shall be granted such Licence on the terms set out in Clause 25 of this Part;
- (b) the Contractor shall report and fully disclose to the Government all relevant information in accordance with all applicable provisions of the Contract; and
- 56.1.15 the Contractor shall without prejudice to the generality of Clauses 56.1.10 and 56.1.12 of this Part:
- (a) assign or novate, insofar as the Contractor has the right to do so, all sub-contracts and licences of Intellectual Property Rights, and any other contracts which are necessary for the performance and/or completion of this Contract in favour of the Government or at the Government's discretion, a new contractor/contractors nominated by the Government; and
- (b) in the event that the Contractor does not have the right to assign or novate such sub-contracts, licences or such other contracts, the Contractor shall use all its reasonable endeavours to procure the assignment or novation of sub-contracts, licences and contracts for the benefit of the Government or the new contractor/contractors nominated by the Government.
- 56.2 Upon the issue of a suspension notice pursuant to Clause 55.2 of this Part for the Suspension Period and in relation to the Suspended Services specified therein ("Suspension"):
- 56.2.1 the Contract in relation to the Suspended Services shall be of no force and effect during the Suspension Period but subject to the same provisions set out in Clauses 56.1.1 (a) to (c) of this Part save that references therein to Termination shall mean Suspension;
- 56.2.2 the Contract in relation to the Suspended Services shall resume immediately upon expiry of the Suspension Period (or such other date as the Government may subsequently stipulate by varying the Suspension Period by serving at least one (1) month's notice on the Contractor) until expiry of the Contract Period (unless earlier terminated);
- 56.2.3 unless and to the extent waived by the Government Representative in writing, each of Clauses 56.1.2 to 56.1.15 of this Part (except for Clause 56.1.3 of this Part) shall apply in the case of a Suspension save that references therein to Termination shall mean

Suspension; and

- 56.2.4 the Contractor shall not and has no obligation to perform the Suspended Services as at the date when the Suspension comes into effect or at any time during the Suspension Period; and no Service Fee shall accrue during the Suspension Period; and save as directed by the Government in relation to any uncompleted part of the Suspended Services as at the date of the Suspension, any such obligation will resume as the Contract resumes pursuant to Clause 56.2.2 of this Part whereupon the Contractor shall resume the Suspended Services strictly on and subject to the terms and conditions of the Contract.
- 56.3 Upon a Partial Termination, or changes to the scope of all or any part of the Services pursuant to Clause 55.3 of this Part or any changes to the System pursuant to Clause 7 of this Part or any other changes pursuant to any other provisions (“Changes”):
- 56.3.1 there shall be changes to the Contract on the terms set out in the relevant notice issued by the Government for effecting the Partial Termination, or Changes pursuant to Clause 7 or 55.3 of this Part or any other relevant provision of this Part or the change agreement referred to in Clause 7.3 of this Part, but save to that extent the remaining parts of the Contract shall remain in full force and effect;
- 56.3.2 the Partial Termination or Changes shall not prejudice the rights and claims mentioned in Clauses 56.1.1 (a) and (b) of this Part save that references therein to Termination shall mean the Partial Termination or Changes (as the case may be);
- 56.3.3 Clause 56.1.2 of this Part shall apply to any Partial Termination or any kind of Changes save that reference therein to Termination shall mean Partial Termination or Changes (as the case may be);
- 56.3.4 in the case of a Partial Termination, or Changes involving, reduction of scope of, or early termination of, any part of the Services (the Implementation Services or the Operation Services or the System Support and Maintenance Services or the Innovative Suggestions or any other services) (“Terminated Services”) or Changes to the scope of the System or any part of any other Contractor Retained Property or Government Acquired Property which are 3rd Party Licence Items, Clauses 56.1.4 to 56.1.15 of this Part shall, unless and to the extent waived by the Government Representative, apply save that references therein to the Termination shall mean the Partial Termination or the Changes (as the case may be), and references therein to the Services shall mean the Terminated Services; and references therein to the System, the Contractor Supplied Hardware and Software, the Deliverables and/or other subject matter falling within the scope of the Contractor Retained Property and/or Government Acquired Property which are 3rd Party Licence Items shall mean the whole or such parts of these items which the Government is no longer requiring from the Contractor after the Partial Termination or the Changes (collectively, “Terminated Property”);
- 56.3.5 references in the Contract to the Contractor Supplied Hardware, the Contractor Supplied Software, the System, the Deliverables shall henceforth exclude the Terminated Property to extent prior to such Partial Termination or Changes, such Terminated Property forms part of the scope of such subject matter; and references any of the Services falling within the definition “Services” in Clause 1.1 of this Part shall exclude the Terminated Services to the extent such Terminated Services prior to

such Partial Termination or Changes form part of the scope of such Services;

- 56.3.6 for any Innovative Suggestion and any other Excess Proposal(s) which have been terminated under the Partial Termination or the Changes, all provisions concerning such Innovative Suggestion and Excess Proposal(s) in the Contract shall henceforth cease to have effect;
- 56.3.7 in the case of Partial Termination or Changes pursuant to Clause 7.4 of this Part, without prejudice to other rights and claims of the Government, the Contractor shall be liable for all losses, damage, liabilities, costs and expenses incurred or sustained by the Government arising from the Partial Termination or Changes as the case may be, including without limitation all amounts as stated in Clause 56.1.3 of this Part save that references therein to Termination shall mean Partial Termination or Changes (as the case may be), and references therein to Services shall mean the Terminated Services; and references therein to any material covered by the term “Contractor Retained Property” and “Government Acquired Property” which are 3rd Party Licence Items including the System, the Contractor Supplied Hardware and Software, Documentation, and other Deliverables shall mean the Terminated Property.

57. Force Majeure

- 57.1 Within seven (7) days after the occurrence of a Force Majeure event or earlier, the Contractor shall notify the Government in writing of the full particulars of the Force Majeure event including its nature, extent, reasons why the Force Majeure event has and/or will materially prevent it from performing the Contract or such part thereof, and likely duration of such material prevention.
- 57.2 Provided the Government is satisfied with the Contractor’s claim of a Force Majeure event which has materially prevented and/or will continue to materially prevent it from performing its obligations under the Contract or such part thereof, the Contract or such part thereof strictly to the extent of such prevention shall be suspended during the subsistence of such Force Majeure event commencing from a date to be agreed between the parties (“Suspension due to the Force Majeure”). A notice issued by the Contractor pursuant to this Clause is hereinafter referred to as the “Suspension Notice”.
- 57.3 Without prejudice to the generality of Clause 57.2, whilst the Suspension due to the Force Majeure subsists:
- (a) the Contractor shall not be required to perform any part of the Services to the extent it is materially prevented from doing so by the Force Majeure event (“Affected Services”) but it shall use its best endeavours to remove or mitigate the effect of the Force Majeure event on the Affected Services but no obligations of the Contractor under the Contract shall be subject to any change save with the prior written consent from the Government;
 - (b) the Government may make alternative arrangements for the procurement of the Affected Services, whether from another person or in-house, without compensation to the Contractor;

- (c) the Contractor shall not be entitled to any payment of money in respect of the Affected Services;
- (d) notwithstanding anything in the Contract to the contrary, no compensation shall be payable by either party to the other due to any losses or damage arising from the Suspension due to the Force Majeure; and
- (e) the Contractor shall continue to fully and punctually perform and observe all of its other obligations which are not affected by the Force Majeure event in full accordance with the requirements of the Contract including those Services which are not Affected Services, and to that extent, all terms and conditions of the Contract shall continue to apply and be in full force and effect.

57.4 Following the issue of a Suspension Notice by the Contractor or the Government, the Contractor shall keep the Government informed once every two (2) weeks or at such longer frequency as may be allowed by the Government, and in any event from time to time upon the request of the Government, of:

- (a) the likely duration of the relevant Force Majeure event and of its effect of materially preventing the Contractor from performing the Affected Services;
- (b) the actions taken or proposed to be taken by the Contractor to mitigate or minimise the effects of that Force Majeure event; and
- (c) any other matters relevant to that Force Majeure event or the Contractor's performance affected by that Force Majeure event.

57.5 As soon as the relevant Force Majeure event has terminated, the Contractor shall forthwith notify the Government of such termination, or the Government may on its own, after consultation with the Contractor, by notice in writing to the Contractor, determine the appropriate date for resuming the Affected Services ("Resumption Date"). The Contractor shall immediately after the termination of the Force Majeure event or with effect from the Resumption Date as determined by the Government in the aforesaid manner, resume performance of the Affected Services in accordance with the terms and conditions of the Contract. In the event of any disagreement between the Government and the Contractor on the appropriate Resumption Date, the Government's decision shall be final in the absence of manifest error.

57.6 Should a Suspension due to the Force Majeure subsists for more than thirty (30) days, the Government shall be entitled to terminate the Contract pursuant to Clause 55.1.8 of this Part.

58. Assistance in Legal Proceedings

58.1 If and whenever requested to do so by the Government Representative, the Contractor shall provide to the Government all relevant information, documents (including documentation and statements from staff) and other assistance in connection with any inquiry, investigation, arbitration, tribunal hearings or court proceedings in which the Government may become involved or any internal disciplinary hearing of the Government that arises out of or in connection with the

Contract, or the Services performed by the Contractor or the Contractor's presence at the Government's premises. If requested by the Government, the Contractor shall arrange for relevant staff to give evidence at such inquiries, investigations, arbitrations, hearings or proceedings.

- 58.2 Where the Contractor or any employees, agents or sub-contractors become aware of an incident, accident or other matter which may give rise to a claim or legal proceedings by a third party against the Government or the Contractor or in respect of the Contract or the Services performed or failed to be performed by the Contractor, it shall notify the Government Representative immediately in writing giving full details of such incident, accident or matter as the Government Representative may require.

59. Illegal Workers

- 59.1 The Contractor undertakes not to employ illegal workers in the execution of this Contract or any other Government contracts. Should the Contractor be found to have employed illegal workers in breach of this undertaking, the Government Representative may, on behalf of the Government, by notice, terminate this Contract pursuant to Clause 55.1.8 of this Part.

60. Admission of Contractor Personnel to Government Premises

- 60.1 The Contractor shall provide to the Government a list of the names, posts, staff identity card numbers, addresses and telephone numbers of all Contractor Personnel who may at any time require admission on behalf of the Contractor to any premises occupied by the Government for the purposes of the Contract if so required by the Government Representative, and in that event such list shall specify the capacities in which those persons are employed by or connected with the Contractor and shall contain such other particulars as the Government Representative may reasonably require.
- 60.2 The Contractor shall ensure that while any of the Contractor Personnel is on the Government's premises they will conform to the Government's normal codes of staff and security practice.
- 60.3 The Government Representative reserves the right to refuse to admit to the Government premises any person, whose admission would be, in the sole and absolute opinion of the Government Representative, undesirable.
- 60.4 In the event that the Contractor fails to comply with this Clause 60 and it is determined that such failure is prejudicial to the interests of the Government, the Government Representative may thereupon terminate the Contract forthwith pursuant to Clause 55.1.8 of this Part.

61. Relationship of the Parties

61.1 The Contractor enters into the Contract with the Government as an independent contractor only and nothing in the Contract shall create a contract of employment, a relationship of agency or partnership, or a joint venture between the Government and the Contractor. Unless otherwise expressly provided for in the Contract, neither party is authorised to act in the name of, or on behalf of, or otherwise bind the other party to any legal obligation.

62. Assignment

62.1 The Contract shall be binding upon and ensure for the benefit of the respective successors and permitted assigns of the parties hereto provided always, the Contractor may not assign, novate, sub-contract (unless in accordance with Clause 63 of this Part), transfer or otherwise dispose of the Contract or any of its rights and obligations hereunder, whether in whole or in part, without the prior written consent of the Government.

62.2 The Government may assign, novate, sub-contract or otherwise dispose of any or all of its rights and/or obligations under this Contract to any person without the consent of the Contractor.

63. Sub-contracts

63.1 Unless the Government objects to such appointment, the Contractor shall appoint the sub-contractor(s) (if any) specified in Schedule 17 – Sub-contracts of Part V – Contract Schedules to undertake such part of the Work as specified in Schedule 7 – Contractor Personnel and Their Duties and Schedule 17 – Sub-contracts of Part V – Contract Schedules. The sub-contractor(s) shall not be replaced unless prior written approval has been given by the Government Representative.

63.2 The Contractor shall not, without the prior written consent of the Government, enter into any sub-contract with any person for the performance of any part of this Contract provided that this provision shall not apply to:

- (a) the purchase by the Contractor of equipment and materials; and
- (b) the sub-contractor(s) (if any) specified in Schedule 17 – Sub-contracts of Part V – Contract Schedules to which the Government does not object.

63.3 The Contractor shall not be relieved from any of its obligations hereunder by entering into any sub-contract for the performance of any part of this Contract. The Contractor shall not be relieved from any of its obligations hereunder by entering into any sub-contract for the performance of any part of this Contract. The Contractor shall be responsible for all acts, omissions, defaults and neglects of each sub-contractor, and the agents and employees of such sub-contractor as fully as if they were the acts, omissions, defaults or neglects of the Contractor.

63.4 If requested by the Government, the Contractor shall within seven (7) days (or such later date as may be granted by the Government) provide the Government with copies of any sub-contracts. The Government may require that as a condition for any

approval to any proposed appointment of a sub-contractor, the proposed sub-contractor shall execute the undertaking in the form set out in Annex D to this Part in favour of the Government.

64. Assignment, Transfer or Transmission of Intellectual Property Rights

- 64.1 In any assignment, transfer and/or transmission (or any agreement to do so, whether conditional or otherwise) of Intellectual Property Rights to a person (“Assignee”) including by way of mortgage, assent, testamentary disposition or by operation of law in the Contractor Retained Property as permissible under the laws of Hong Kong (but excluding cases of licence) by the Contractor or any third party who owns the Intellectual Property Rights in the Contractor Retained Property, the Contractor shall procure at its own cost and expense the imposition on the Assignee as a term of such assignment, transfer and/or transmission (or any agreement to do so, whether conditional or otherwise) an obligation to comply with all of the Contractor’s obligations to the Government, its authorised users, assigns and successors-in-title in relation to the Intellectual Property Rights and any restrictions set out in this Contract on the use of the Intellectual Property Rights commencing on the date of acquisition of any ownership or title or right or interest of whatsoever nature in the Intellectual Property Rights by that Assignee, including the obligation to procure at that Assignee’s own cost and expense the imposition of the same obligations and restrictions on any subsequent assigns or successors-in-title of that Assignee.
- 64.2 The Contractor shall procure at its own cost and expense a condition on the Assignee in receipt of any title, rights and/or interest in the Intellectual Property Rights referred to in Clause 64.1 of this Part and its assigns or successors-in-title that the validity and subsistence of the Licences conferred on the licensees pursuant to Clause 25 of this Part shall be acknowledged in writing by the Assignee and its assigns or successors-in-title at no additional costs to the licensees of the Licences. The Contractor shall also procure at its own cost and expense the imposition of the same obligations from any subsequent assigns or successors-in-title of that Assignee.
- 64.3 The Contractor shall within seven (7) days (or such later date as may be granted by the Government) notify the Government of the name, address and other pertinent information in relation to any Assignee, and shall undertake to procure at its own cost and expense that such Assignee is required to do the same with regard to any subsequent assignment, transfer and/or transmission of Intellectual Property Rights in the Contractor Retained Property. The Contractor shall also procure at its own cost and expense the imposition of the same obligations from any subsequent assigns or successors-in-title of that Assignee.
- 64.4 The Government shall not be liable for any actions, claims, demands, costs, damages and expenses arising from any use or exploitation of the Intellectual Property Rights vested in the Contractor and any third party, any and all of their authorised users, assigns or successors-in-title in accordance with the provisions in this Contract.
- 64.5 The Contractor shall indemnify and keep the Government, its authorised users, assigns and successors-in-title fully and effectively indemnified on the terms set out

in Clause 34.1 of this Part arising out of or in connection with any breach of this Clause 64.

65. Execution of Further Documents

65.1 The Contractor shall at its own cost and expense do and execute any further things and document(s) (or procure that the same be done or executed) as may be required by the Government to give full effect to the provisions in this Contract and shall provide all such documents and materials to the Government within fourteen (14) days of the date of the Government's written request or such longer period as may be agreed by the Government in writing.

66. Notices

66.1 All notices, demands or other communications given or made under the Contract shall be in writing and delivered or sent to the Contractor at its address or facsimile number set out in the Articles of Agreement (or such other address or facsimile number as the Contractor has by five (5) days' prior written notice specified to the Government Representative). The Government will not accept the use of a postal box. Where the Contractor has to perform all or any of the Services in Hong Kong and should have a place of business in Hong Kong, the Government will also not accept an address outside Hong Kong or an outside Hong Kong facsimile number as the Contractor's correspondence address or facsimile number. Notices and other communications given or made under the Contract by the Contractor to the Government Representative shall be in writing and delivered or sent to the Government Representative at its address or facsimile number set out below:

Director of Leisure and Cultural Services
Leisure and Cultural Services Department
Ticketing Office
Level 6, Administration Building
Hong Kong Cultural Centre
10 Salisbury Road, Tsim Sha Tsui
Kowloon, Hong Kong.
Attn.: Senior Manager (Ticketing)
Fax No.: (852) 2312 6244

66.2 Such notices, demands or other communications shall be addressed as provided in Clause 66.1 of this Part and, if so addressed, shall be deemed to have been duly given or made as follows:

- (a) if sent by personal delivery during normal business hours on a working day, upon delivery at the address of the relevant party;
- (b) if sent by post, two (2) days (for any place in Hong Kong) and seven (7) days (for any place outside Hong Kong) after the date of posting; or
- (c) if sent by facsimile during normal business hours on a working day, when despatched with confirmed receipt as evidenced by the transmission report

generated at the end of the transmission of such facsimile by the facsimile machine used for such transmission.

66.3 For the avoidance of doubt, nothing herein shall affect the validity of any notice, demand or communication despatched by personal delivery or by facsimile outside normal business hours. Notwithstanding Clause 66.2 of this Part, any such notice, demand or communication fulfilling the conditions specified in Clause 66.2(a) or 66.2(c) of this Part (apart from conditions as to time) shall be deemed to have been duly given or made on the next working day. The expression “normal business hours” shall mean 0900 to 1800 hours.

67. Waiver

67.1 No failure, delay, forbearance or indulgence by any party to the Contract to exercise any right, power or remedy available to it under the Contract or at law shall operate as a waiver thereof; nor shall any single or partial exercise of the same preclude any other or further exercise thereof or the exercise of any other right, power or remedy. A right or a remedy of each party under the Contract shall be cumulative and not exclusive of any other rights, power or remedies provided by the Contract, or at law. Without limiting the foregoing, no waiver by any party of any breach by the other party of any provision hereof shall be deemed to be a waiver of any subsequent breach of that or any other provision hereof.

67.2 Without prejudice to the generality of Clause 67.1 of this Part, any right of termination of the Contract or any other right, power or remedy of whatsoever nature conferred upon the Government under the Contract shall be exercisable by it in addition to and without prejudice to any other rights and remedies available to it under the Contract or at law (and, without prejudice to the generality of the foregoing, shall not extinguish any right to damages to which the Government may be entitled in respect of the breach of the Contract) and no exercise or failure to exercise a right of termination shall constitute a waiver by the Government of any other right, power or remedy.

68. Severability

68.1 If any provision of the Contract is found by any authority or court of competent jurisdiction to be illegal, invalid or unenforceable, such illegality, invalidity or unenforceability shall not affect the other provisions of the Contract, all of which shall remain in full force and effect.

69. Variations

69.1 Subject to the provisions of the Contract, no waiver, cancellation, alteration or amendment of or to the provisions of the Contract shall be valid unless made by an instrument in writing and duly signed by the Contractor and the Government.

70. Entire Agreement

70.1 The Contract constitutes the whole agreement between the parties thereto and supersedes any previous agreements or arrangements between them relating to the subject matter hereof. The Contractor acknowledges that in entering into the Contract, it has not relied on any statements, warranties or representations given or made by the Government. On the other hand, the Government has relied on the Warranties when entering into the Contract.

71. Joint and Several Obligations in the Case of an Unincorporated Joint Venture

71.1 Where the Contractor comprises more than one person or are parties to an unincorporated joint venture, each such person or each such party to the unincorporated joint venture (as the case may be) assumes all obligations of the Contractor under the Contract on a joint and several basis.

71.2 A reference to the Contractor in this Contract is a reference to each of the persons constituting the Contractor.

72. Governing Law and Jurisdiction

72.1 This Contract shall be construed and interpreted in accordance with the laws of Hong Kong.

72.2 Each of the parties hereto submits to the exclusive jurisdiction of the courts of Hong Kong in relation to any dispute arising from or in connection with the Contract.

73. Complaints

73.1 If any person or organisation makes a complaint concerning the System and/or the Work, the Government shall investigate or request the Contractor to immediately investigate, at the Contractor's sole cost and expense, the complaint. The Contractor shall take such corrective action as is appropriate.

73.2 The Contractor shall immediately upon receipt of a complaint notify in writing the Government Representative of such complaint.

73.3 The Contractor shall record all complaints of any nature received from whatever source in a register kept for that purpose. A copy of the register of complaints shall be provided by the Contractor to the Government Representative at such time as the Government Representative may specify. Sufficient details shall be recorded in the register to enable the Government Representative to ascertain the nature of the complaint, the name of the person making the complaint, the date and time when it is received, the action taken to remedy the complaint, the time and date when the remedy is completed, names of the Contractor's supervisory and other staff involved in the action complained of.

73.4 The Contractor shall upon request provide the Government with all relevant information relating to a complaint raised directly against the Government but arising out of the acts or omissions of the Contractor in its performance of the Services.

73.5 The Government reserves the right to disclose any information, outcome and conclusion relating to a complaint concerning the System and/or the Work.

74. Ombudsman / Auditor / Independent Commission Against Corruption (ICAC) Investigations and Recommendations

74.1 In the event that the Ombudsman or the Government's internal and/or external auditors or ICAC identify any inappropriate practices or procedures being undertaken by the Contractor in its performance of the Services or where any practice or procedure undertaken by the Contractor has resulted in a finding of maladministration causing injustice against the Government, the Contractor shall forthwith upon written notice from the Government cease the practice or procedure specified therein and shall amend the practice or procedure to the satisfaction of the Government.

74.2 In the event that the Ombudsman or the Government's internal and/or external auditors or ICAC make recommendations for the amendment and/or improvement of any of the practices or procedures undertaken by the Contractor in its performance of the Services, the Contractor shall amend the practice or procedure to take into account the recommendations made.

75. Contracts (Rights of Third Parties) Ordinance

75.1 It is noted that there is no provision in Contracts (Rights of Third Parties) Ordinance (Chapter 623 of the Laws of Hong Kong) ("Chapter 623") which states that Chapter 623 applies to the Government or contracts entered into by the Government.

75.2 Notwithstanding Clause 75.1 of this Part, it is hereby declared that no person, who or which is not a party to the Contract, may enforce any term of the Contract under or pursuant to or for the purposes of Chapter 623 (including section 4 of Chapter 623).

75.3 Nothing in Clause 75.2 of this Part is intended to affect the following:

- (a) the power of the Government Representative to act for the Government including the exercise of any right under, or the enforcement of any claim or remedy, arising from or in connection with or in relation to, this Contract;
- (b) the power of a public officer under any law or regulation including any Ordinance or subsidiary legislation or any other legal instrument;
- (c) the power of a public officer to act by his own title or for the Government Representative or for the Government in any legal proceedings arising from or in connection with or in relation to the Contract (including the Secretary for Justice);

- (d) the rights and obligations of any personal representative, administrator or other successor-in-title of the Contractor;
- (e) the rights and obligations of any assignee or transferee of the Contractor under any assignment or transfer which has been approved by the Government pursuant to Clause 62 of this Part but not otherwise;
- (f) the rights and obligations of any Government's successor-in-title and person deriving title under any of them, and the Government's assignee and transferee (and in the case of assignee or transferee, in accordance with the terms of the assignment and transfer agreed by the Government); and
- (g) the rights of the Government and the Government Representative under any guarantee or undertaking or insurance policy or other collateral contract granted or issued or entered into by any person other than the Contractor pursuant to the terms of the Contract.

76. Order of Precedence

76.1 In the event of, and only to the extent of, any conflict or inconsistency amongst or between any provisions of the Contract, the following order of precedence shall be applied, but only in so far as is necessary to resolve that conflict or inconsistency:

- (a) Part IV – Conditions of Contract and their Annexes;
- (b) Part VII – Project Specifications and their Annexes;
- (c) Part V – Contract Schedules in their original form as issued by the Government as part of the Tender Documents;
- (d) Part V – Contract Schedules in the form as submitted by the Contractor as part of its tender for the Contract subject to such modifications as found in the version of the Contract Schedules attached to Part III – Articles of Agreement;
- (e) Part III – Articles of Agreement; and
- (f) any other materials which were submitted by the Contractor as part of its tender for the Contract

For the avoidance of doubt, any provisions in the Contractor's tender which are to be excluded or ignored pursuant to the Conditions of Tender or other provisions of the Tender Documents will not form part of the Contract even if they can be found in any copy of the documents forming part of the Contract.

76.2 The Deliverables and Documentation are items to be prepared and/or supplied by the Contractor pursuant to the requirements of the Contract. Unless the Government Representative otherwise stipulates whether before or after the creation of such Deliverables, they shall form part of the Contract provided that they have been prepared and/or supplied by the Contractor in accordance with the requirements of the Contract. Notwithstanding, Deliverables or Documentation which are, or which contain, provisions concerning or relating to project management plan or project initiation document or overall project plan or quality plan or detailed implementation plan or any other action or service plan prepared by the Contractor (including without limitation provisions concerning the management of the project, approval of

test plans including test specification and test incident report, testing of the System and procedures for effecting changes (including System Changes or changes to the Contract) must not be inconsistent with the provisions of any of the documents as mentioned in Clause 76.1 above. Notwithstanding anything in the Contract to the contrary, no overall approval or signature by the Government of any such Deliverable or Documentation shall be taken as approval of any such inconsistency, unless the Government expressly acknowledges and agrees on a case-by-case basis that the relevant provision in the Deliverable or Documentation shall prevail in the event of any inconsistency. This shall apply even if any such Documentation or Deliverable is signed or given approval after the signing of the Articles of Agreement. In the case of specifications set out in system analysis and design report and test plans for the System Acceptance Tests or the User Acceptance Tests which have been in form and substance approved by the Government in writing, or which have otherwise been signed by both parties in writing, the Contractor hereby expressly acknowledges and agrees that they serve to further elaborate the objectives and requirements set out in the Contract. None of such further elaboration shall be taken as inconsistency or out-of-scope of the original requirements of the Contract.

Annex A - Form of Bank Guarantee

THIS GUARANTEE is made on the day of 20
BY.....
..... of, a bank with a valid banking licence within the meaning of the Banking Ordinance, Chapter 155 of the Laws of Hong Kong (“Guarantor”)

IN FAVOUR OF

The Government of the Hong Kong Special Administrative Region of the People’s Republic of China (“Government”)

WHEREAS

- (A) By an invitation to tender issued by the Government (Tender Ref: LCT 5012/19(S)), the Government invited tenders for a contract to supply hardware and software, and to provide implementation, maintenance and other services in relation to the Provision of the Ticketing System and Operation Services to the Leisure and Cultural Services Department (“Contract”) upon the terms and conditions of the Contract.
- (B) It is proposed that the Contract shall be awarded to <Name of the Contractor>, a company whose registered office is situated at <registered office address> (“Contractor”).
- (C) It is a condition precedent to the Government agreeing to grant the Contract the Contractor that, inter alia, the Guarantor executes this Guarantee in favour of the Government.

Now this Deed witnesses as follows :-

- (1) Where applicable, words and expressions used in this Guarantee (including the recitals) shall have the meaning assigned to them in the Contract. The interpretation principles set out in Clause 1.2 of Part IV of the Contract shall also apply to this Guarantee.
- (2) In consideration of the Government agreeing to enter into the Contract with the Contractor:
 - (a) The Guarantor hereby irrevocably and unconditionally guarantees, as a primary obligor and not as a surety, and as a continuing security, the due and punctual performance and observance by the Contractor of all of its obligations under the Contract and the Guarantor shall pay to the

Government on demand and without cavil or argument all monies and liabilities which are now or at any time hereafter shall become due or owing by the Contractor to or in favour of the Government under or in connection with the Contract together with all costs, charges and expenses on a full indemnity basis which may be sustained or incurred by the Government by reason or in consequence of any default on the part of the Contractor in performing or observing any of its obligations under the Contract.

- (b) The Guarantor, as a principal obligor and not as a surety, and as a separate and independent obligation and liability from its obligations and liabilities under sub-clause (a) above, irrevocably and unconditionally agrees to indemnify and keep indemnified the Government from and against and shall pay to the Government on demand and without cavil or argument all losses, damages, costs, charges and expenses on a full indemnity basis suffered or incurred by the Government arising from or in connection with the failure of the Contractor to perform or observe fully or punctually any of its obligations under the Contract.
 - (c) The Government may place and keep any monies received by virtue of this Guarantee to the credit of a suspense account for so long as the Government may think fit in order to preserve the rights of the Government to sue or prove for the whole amount of its claims against the Guarantor, the Contractor or any other person.
- (3) This Guarantee shall not be affected by any change of name or status in the company, firm or individual described as “the Contractor” or where the Contractor is a partnership, any change in the partners or where the Contractor is a company, any change in its members or directors.
 - (4) The Guarantor shall not be discharged or released from this Guarantee by any arrangement made between the Government and the Contractor or by any change in obligations of the Contractor under the Contract or by any forbearance granted by the Government to the Contractor as to payment, time, performance or otherwise whether or not such arrangement, change or forbearance may have been or is made or granted with or without knowledge or assent of the Guarantor.
 - (5) Without prejudice to Clause 4 above, the obligations of the Guarantor under this Guarantee shall remain in full force and effect and shall not be affected or discharged in any way by, and the Guarantor hereby waives notice of:
 - (a) any suspension of, variation or amendment or supplement to the Contract (including without limitation extension of time for performance) or any concession or waiver by the Government, in whole or in part, in respect of the Contractor's obligations under the Contract;

- (b) any provision of the Contract being or becoming illegal, invalid, void, voidable or unenforceable;
 - (c) the termination of the Contract for any reason;
 - (d) any forbearance or waiver of any right of action or remedy that the Government may have against the Contractor and/or the negligence, failure, omission, indulgence or delay by the Government in enforcing any right, power, privilege to or remedy available to the Government in relation to the obligations of the Contractor set out in the Contract;
 - (e) the voluntary or involuntary liquidation, bankruptcy, dissolution, sale of assets, receivership, general assignment for benefit of creditors, insolvency, reorganisation arrangement, composition, or other proceedings of or affecting the Contractor or its assets, or any change in the constitution or membership or shareholding of the Contractor (as the case may be);
 - (f) any assignment or sub-contracting by the Contractor of any or all of its obligations set out in the Contract, whether or not such assignment or sub-contracting has been consented to; and
 - (g) without prejudice to the generality of the foregoing, any fact or event (whether similar to any of the foregoing or not) which in the absence of this provision would or might constitute or afford a legal or equitable discharge or release of or defence to the Guarantor, other than an express release of its obligations by the Government.
- (6) This Guarantee shall extend to all obligations of the Contractor under the Contract as the same may from time to time be amended or supplemented and the Guarantor hereby prospectively consents to whatever amendment, variation or supplement which may be made to the Contract.
- (7) This Guarantee shall have immediate effect upon execution and is a continuing security. This Guarantee shall cover all of the obligations and liabilities of the Contractor under the Contract and shall remain in full force and effect and irrevocable until:-
- (a) the date falling three (3) months after the expiry or earlier termination of the Contract Period; or
 - (b) in the case if at the time of expiry or earlier termination of the Contract Period, there is any outstanding right or claim which has accrued to the Government prior to the expiry or earlier termination of the Contract Period (whether arising from antecedent breach(es) by the Contractor of the Contract or otherwise), the date falling thirty-six (36) months after the expiry of or earlier termination of the Contract Period;

whichever is the applicable.

- (8) This Guarantee is in addition to and shall not merge with or otherwise prejudice or affect any contractual or other right or remedy or any guarantee, indemnity, lien, pledge, bill, note, charge or any other security which the Government may at any time hold (collectively “Other Security”) and this Guarantee may be enforced by the Government without first having recourse to any of the Other Security or taking any steps or proceedings against the Contractor, and notwithstanding any release, waiver or invalidity of the Other Security.
- (9) Any demand, notification or certificate given by the Government specifying amounts due and payable under or in connection with any of the provisions of this Guarantee shall be conclusive and binding on the Guarantor.
- (10) The obligations expressed to be undertaken by the Guarantor under this Guarantee are those of primary obligor and not as a surety.
- (11) This Guarantee shall be governed by and construed according to the laws for the time being in force in the Hong Kong Special Administrative Region of the People’s Republic of China (“Hong Kong”) and the Guarantor agrees to submit to the exclusive jurisdiction of the courts of Hong Kong.
- (12) All documents arising out of or in connection with this Guarantee shall be served:-
- (a) upon the Government, at the Leisure and Cultural Services Department of 9/F Pai Tau Street, LCS Headquarters, Shatin, New Territories, Director of Leisure and Cultural Services>, marked for the attention of _____, facsimile number _____;
 - (b) upon the Guarantor, at _____, marked for the attention of _____, facsimile number _____.
- (13) Documents to be served under this Guarantee shall be deemed to have been duly served by one party if sent by letter or facsimile addressed to the other party at the address stated above or to the facsimile number set out above. The documents so served shall be effective (a) on the date of delivery if hand-delivered; (b) on the date of transmission if sent by facsimile (as evidenced by confirmed transmission report); and (c) if despatched by mail (whether registered or not), on the day on which they are tendered for delivery by the postal authority in Hong Kong.
- (14) Notwithstanding anything herein to the contrary, the aggregate amount of the Guarantor’s liability under this Guarantee shall not exceed _____.

IN WITNESS whereof the Guarantorhas caused its [Common Seal/ Seal*] to be hereunto affixed the day and year first above written.

The [Common Seal/Seal*] of the said)
Guarantor was hereunto affixed)
and signed by)
.....)
[Name and Title])
duly authorised by its board of directors:)
.....)
.....)

Signed Sealed and Delivered)
for and on behalf of and as)
lawful attorney of the Guarantor)
under power of attorney dated)
..... and deed of delegation)
dated)
by)
[Name and Title])
and in the presence of.....)
.....)
.....)
[Name and Title]

Please delete as appropriate.

See Powers of Attorney Ordinance, Chapter 31 of the Laws of Hong Kong.

When the bank guarantee is executed under power of attorney, a photocopy of the power of attorney, certified on each page by a Hong Kong solicitor that it is a true and complete copy of the original must be submitted.

Annex B - Form of Performance Guarantee

THIS GUARANTEE is made on the day of 20

BY:

- (1) GUARANTOR, a company incorporated under the laws of [] whose registered/principal office is at [] (“Guarantor”)

IN FAVOUR OF:

- (2) The Government of Hong Kong Special Administrative Region of the People’s Republic of China (“Government”)

WHEREAS

- (A) By an invitation to tender issued by the Government (Tender Ref: LCT 5012/19(S)), the Government invited tenders for a contract to supply hardware and software, and to provide implementation, maintenance and other services in relation to the Provision of the Ticketing System and the Operation Services to the Leisure and Cultural Services Department (“Contract”) upon the terms and conditions of the Contract.
- (B) It is proposed that the Contract shall be awarded to <Name of the Contractor>, a company whose registered office is situated at <registered office address> (“Contractor”).
- (C) It is a condition precedent to the Government agreeing to grant the Contract the Contractor that, inter alia, the Guarantor executes this Guarantee in favour of the Government.

Now this DEED WITNESSES as follows:

- (1) Where applicable, words and expressions used in this Guarantee shall have the meaning assigned to them under the Contract. The interpretation principles set out in Clause 1.2 of Part IV of the Contract shall also apply to this Guarantee.
- (2) In consideration of the Government entering into the Contract with the Contractor:
- (a) The Guarantor as a primary obligor and not as a security, and as a continuing security hereby irrevocably and unconditionally guarantees the due and punctual performance and discharge by the Contractor of all of his, her and their obligations and liabilities under the Contract and the Guarantor shall pay to the Government on demand and without cavil or argument all monies and discharge all liabilities which are now or at any

time hereafter shall become due or owing by the Contractor to or in favour of the Government under or in connection with the Contract together with all costs, charges and expenses on a full indemnity basis which may be incurred by the Government by reason or in consequence of any default on the part of the Contractor in performing or observing any of the obligations terms conditions stipulations or provisions of the Contract.

- (b) The Guarantor, as a primary obligor and as a separate and independent obligation and liability from its obligations and liabilities under sub-clause (a) above, irrevocably and unconditionally agrees to indemnify and keep indemnified the Government against and shall pay to the Government on demand and without cavil or argument all losses, damages, costs, charges and expenses on a full indemnity basis suffered or incurred by the Government arising from or in connection with the failure of the Contractor to perform fully or promptly any of his, her or their obligations terms conditions stipulations or provisions of the Contract.
 - (c) The Government may place and keep any monies received by virtue of this Guarantee to the credit of a suspense account for so long as the Government may think fit in order to preserve the rights of the Government to sue or prove for the whole amount of its claims against the Guarantor, the Contractor or any other person.
- (3) This Guarantee shall not be affected by any change of name or status in the company, firm or individual described as “the Contractor” or where “the Contractor” is a partnership, any change in the partners or in its constitution or where the Contractor is a company, any change in its directors or members.
 - (4) The Guarantor shall not be discharged or released from this Guarantee by any arrangement made between the Government and the Contractor or by any alteration in the obligations imposed upon the Contractor by the Contract or by any waiver or forbearance granted by the Government to the Contractor as to payment, time, performance or otherwise whether or not such arrangement, alteration, waiver or forbearance may have been or is made or granted with or without knowledge or assent of the Guarantor.
 - (5) Without prejudice to Clause 4 above, the obligations of the Guarantor under this Guarantee shall remain in full force and effect and shall not be affected or discharged in any way by, and the Guarantor hereby waives notice of or assents to:
 - (a) any suspension, termination, amendment, variation, novation or supplement of or to the Contract from time to time (including without limitation extension of time for performance);
 - (b) any provision of the Contract being or becoming illegal, invalid, void, voidable or unenforceable;
 - (c) the termination of the Contract or of the engagement of the Contractor under the Contract for any reason;

- (d) any forbearance, variation, extension, discharge, compromise, dealing with exchange, waiver or renewal in respect of any right of action or remedy that the Government may have, now or after the day of this Guarantee, against the Contractor and/or the negligence, failure, omission, indulgence or delay by the Government in enforcing any right, power, privilege to or remedy available to the Government in relation to the obligations of the Contractor set out in the Contract;
 - (e) the voluntary or involuntary liquidation, bankruptcy, dissolution, sale of assets, receivership, general assignment for benefit of creditors, insolvency, reorganisation arrangement, composition, or other proceedings of or affecting the Contractor or its assets, or any change in the constitution or membership or shareholding of the Contractor (as the case may be);
 - (f) any assignment, novation or sub-contracting by the Contractor of any or all of its obligations set out in the Contract; and
 - (g) without prejudice to the generality of the foregoing, any fact or event (whether similar to any of the foregoing or not) which in the absence of this provision would or might constitute or afford a legal or equitable discharge or release of or defence to the Guarantor, other than the express release of its obligations.
- (6) This Guarantee shall extend to any variation, novation of or amendment to the Contract and to any agreement supplemental thereto agreed between the Government and the Contractor and for the avoidance of doubt, the Guarantor hereby authorises the Government and the Contractor to make any such amendment variation, novation or supplemental agreement without its notice or assent.
- (7) This Guarantee shall have immediate effect upon execution and is a continuing security. This Guarantee shall cover all of the obligations and liabilities of the Contractor under the Contract and shall remain in full force and effect and irrevocable until:-
- (a) the date falling three (3) months after the expiry or earlier termination of the Contract Period; or
 - (b) in the case if at the time of expiry or earlier termination of the Contract Period, there is any outstanding right or claim which has accrued to the Government prior to the expiry or earlier termination of the Contract Period (whether arising from antecedent breach(es) by the Contractor of the Contract or otherwise), the date falling thirty-six (36) months after the expiry of or earlier termination of the Contract Period;

whichever is the applicable.

- (8) This Guarantee is in addition to and shall not merge with or otherwise prejudice or affect any contractual or other right or remedy or any guarantee, indemnity, lien, pledge, bill, note, charge or any other security which the Government may at any time hold (collectively “Other Security”) and this Guarantee may be enforced by the Government without first having recourse to any of the Other Security or taking any steps or proceedings against the Contractor, and notwithstanding any release, waiver or invalidity of the Other Security.
- (9) Any demand, notification or certificate given by the Government specifying amounts due and payable under or in connection with any of the provisions of this Guarantee shall be conclusive and binding on the Guarantor.
- (10) The obligations expressed to be undertaken by the Guarantor under this Guarantee are those of primary obligor and not as a surety.
- (11) This Guarantee shall be governed by and construed according to the laws for the time being in force in the Hong Kong Special Administrative Region of the People’s Republic of China (“Hong Kong”) and the Guarantor agrees to submit to the exclusive jurisdiction of the courts of Hong Kong.
- (12) All documents arising out of or in connection with this Guarantee shall be served:
 - (a) upon the Government, at Leisure and Cultural Services Department of 9/F Pai Tau Street, LCS Headquarters, Shatin, New Territories, Director of Leisure and Cultural Services>, marked for the attention of _____, facsimile number _____;
 - (b) upon the Guarantor, at _____, marked for the attention of _____, facsimile number _____.
- (13) Documents to be served under this Guarantee shall be deemed to have been duly served by one party if sent by letter or facsimile addressed to the other party at the address stated above or to the facsimile number set out above. The documents so served shall be effective (a) on the date of delivery if hand-delivered; (b) on the date of transmission if sent by facsimile ; and (c) if despatched by mail (whether registered or not), on the day on which they are tendered for delivery by the postal authority in Hong Kong.

IN WITNESS whereof the said Guarantor has caused its [Common Seal/Seal*] to be hereunto affixed the day and year first above written.

The [Common Seal/Seal*] of the said)
Guarantor was hereunto affixed)
and signed by)
.....)
[Name and Title])

duly authorised by its board of directors:

.....)
.....)

@ Signed Sealed and Delivered)
for and on behalf of and as)
lawful attorney of the Guarantor)
under power of attorney dated)
..... and deed of delegation)
dated)
by)
[Name and Title])
and in the presence of.....)
.....)
.....)
[Name and Title])
)
)

* Please delete as appropriate.

@ See Powers of Attorney Ordinance (Chapter 31 of the Laws of Hong Kong)

- Note:
1. When guarantees are executed under power of attorney, a photocopy of the power of attorney, certified on each page by a Hong Kong solicitor that it is a true and complete copy of the original must be submitted.
 2. Please adopt and modify the execution clause in accordance with the execution requirements of the applicable laws of the place of incorporation of the Guarantor. For example, if the Guarantor does not and is not required to keep a common seal or seal, it is not required that the Guarantor affixes a common seal or seal in the execution of this document but the execution of this document as a deed must be in accordance with the laws of the place of its incorporation.

Annex C – Information Required for Periodic Financial Vetting

The Contractor shall from time to time upon request by the Government (“Request”), submit the following information for assessment of its financial capability for purposes of the periodic financial vetting as mentioned in Clause 52.7 of Part IV. Where the Contractor is to be financially supported by its holding company, all of the following information requirements shall also apply to the holding company as well. For a joint venture or partnership, the following information requirements shall also apply to each member of the joint venture or partnership:

- (a) The audited financial statements of the Contractor for the last three financial years immediately prior to the date of Request are required for the financial assessment. In addition, management accounts for a period not earlier than three months before the Request are also required (if that period or any part thereof has not already been covered by the latest audited financial statements).

The following requirements shall apply in relation to the financial statements and management accounts to be submitted, where applicable:

- (i) original or certified true copy of the audited financial statements (to be certified by the Contractor’s auditors) shall be submitted;
- (ii) the financial statements shall have been prepared on the same basis for each year in accordance with accounting principles generally accepted in Hong Kong and the disclosure requirements of the Companies Ordinance, Chapter 622 of the Laws of Hong Kong and the subsidiary legislation under Chapter 622 of the Laws of Hong Kong;
- (iii) each of the three sets of audited financial statements must contain the directors’ report, auditors’ report, statement of financial position (also referred to as balance sheet), statement of profit or loss and other comprehensive income (also referred to as income statement), statement of changes in equity, statement of cash flows and notes to the accounts in respect of the financial year to which they relate;
- (iv) consolidated group financial statements shall be submitted if the Contractor is a subsidiary of another company, but the company-only financial statements reflecting the financial position and results of the Contractor itself should also be submitted, covering the same periods mentioned in (a) above;
- (v) all such financial statements must have been audited by certified public accountants (practising) or for a non-Hong Kong company, by auditors recognised by the local law of the place of the

- company's establishment;
- (vi) unaudited financial statements are acceptable only where the Contractor is a sole proprietor or partnership or unincorporated joint venture;
 - (vii) for management accounts or unaudited financial statements, they must be certified by the sole proprietor in the case of a sole proprietorship, each joint venture party in the case of a joint venture, each partner in the case of a partnership, or a director or chief executive in the case of a company or a certified public accountant or other accountant acceptable to the Government; and
 - (viii) where the original documents are in a language other than English or Chinese, translations in English or Chinese, certified as accurate by the respective consulate or a notary public registered in Hong Kong, must be provided.
- (b) The Contractor shall also provide documentary evidence showing any available financial resources or backing to fulfil the obligations under the Contract. Such documents may include:
- (i) the names and addresses of banks which are prepared to provide references;
 - (ii) the latest three to six months' bank statements (originals or certified true copies) confirming balances of its major bank accounts;
 - (iii) original letters from banks, where applicable, confirming the line of credit facilities available to the Contractor and the current unutilised balances within six months before the Request, also stipulating the expiry date of the facilities;
 - (iv) agreements confirming long-term loans obtained, or to be obtained from the holding company, directors or shareholders;
 - (v) copies (certified as true in the same manner mentioned in (a)(vi) above) of letters of undertaking, minutes of board meetings or returns of allotment of shares to support injection of capital, where applicable; and
 - (vi) originals or certified true copies of past tax records such as profit tax assessments for the three financial years immediately prior to the Request.
- (c) Projected statements of profit or loss and other comprehensive income and statements of cash flows for the remainder period of the Contract counting from the Request, showing the projected revenue, operating

expenses, capital expenditure and the sources of finance such as upfront investment and/or debt financing.

(Notes:

- (i) the projected statements must be certified by the sole proprietor in the case of a sole proprietorship, each joint venture party in the case of a joint venture, each partner in the case of a partnership, or a director or chief executive in the case of a company;
 - (ii) the assumptions used in preparing the projections must be reasonable and must be clearly stated. All the supporting schedules and detailed calculations shall also be submitted; and
 - (iii) the projections must include at least the projected revenue, details of operating expenses, capital expenditure, sources of finance, and other particulars showing how the Contractor will deal with the Contract.)
- (d) Details and values of other contracts on hand and being tendered for up to the Request or intended to be tendered for any time after the Request by the Contractor are required.
- (e) Such other information as the Government considers appropriate.

ANNEX D

FORM OF SUB-CONTRACTOR UNDERTAKING

THIS UNDERTAKING is made on the day of 20 ...

BY

whose registered office is at [address]

("Sub-contractor")

IN FAVOUR OF

The Government of the Hong Kong Special Administrative Region of the People's Republic of China ("Government")

WHEREAS

- (A) By an invitation to tender (Tender Reference: LCT 5012/19(S)), the Government invited tenders for a contract to supply hardware and software, and to provide implementation, maintenance and other services in relation to the Provision of the Ticketing System and Operation Services to the Leisure and Cultural Services Department ("Contract") upon the terms and conditions of the Contract ("Invitation to Tender").
- (B) [Name of the Contractor] ("Contractor") has submitted a tender in response to this Invitation to Tender and has been issued with a notification of conditional acceptance of tender from the Government for the award of the Contract subject to fulfilment of certain conditions as specified therein.
- (C) The Contractor proposes to appoint the Sub-contractor to perform the work as more particularly specified in Schedule 17 - Sub-contracts of Part V submitted by the Contractor as part of its tender.
- (D) One of the conditions specified in the notification of conditional acceptance of tender to be fulfilled is the Contractor shall procure the Sub-contractor to execute this Undertaking.

NOW THIS UNDERTAKING witnesses as follows:

1. All words and expressions, and rules of interpretation defined or used in the Contract to be entered into between the Government and the Contractor following from the Invitation to Tender shall, unless specifically defined or redefined herein or the

context otherwise requires, have the same meaning or otherwise shall have equal force when used in or interpreting this Undertaking.

2. The Sub-contractor warrants and undertakes to the Government that it will perform all obligations of the Contractor under the Contract to the extent that they have been sub-contracted to the Sub-contractor under Schedule 17 - Sub-contracts of Part V and discharge all liabilities of the Contractor in relation to or in connection with or arising from such obligations (collectively, "Sub-contracted Obligations") as if references to the Contractor in all provisions in the Contract in relation to such Sub-contracted Obligations shall mean the Sub-Contractor with effect from the date of this Undertaking until all such Sub-contracted Obligations have been duly fulfilled and duly discharged.
3. (a) Subject to Clause (3)(b) below, the ownership of all Intellectual Property Rights which exist in the Project Documentation which are produced or provided by Sub-contractor shall as from creation become, and at all times thereafter remain vested in the Government.

(b) Without prejudice to the generality of Clause 2 above, the Sub-contractor hereby grants for the benefits of each of the Government, its authorised users, assigns and successors-in-title a licence to use the Contractor Retained Property on the terms set out in Clause 25.1.1 of the Conditions of Contract, mutatis mutandis, to the extent the Sub-contractor is the owner of the Intellectual Property Rights in such Contractor Retained Property.
4. The Sub-contractor shall not be discharged or released from this Undertaking by any arrangement made between the Government and the Contractor or by any change in obligations of the Contractor under the Contract or by any forbearance granted by the Government to the Contractor as to payment, time, performance or otherwise whether or not such arrangement, change or forbearance may have been or is made or granted with or without knowledge or assent of the Sub-contractor.
5. Without prejudice to Clause 4 above, the obligations of the Sub-contractor under this Undertaking shall remain in full force and effect and shall not be affected or discharged in any way by, and the Sub-contractor hereby waives notice of:
 - (a) any suspension of, variation or amendment or supplement to the Contract (including without limitation extension of time for performance) or any concession or waiver by the Government, in whole or in part, in respect of the Contractor's obligations under the Contract;
 - (b) any provision of the Contract being or becoming illegal, invalid, void, voidable or unenforceable;
 - (c) the termination of the Contract for any reason;
 - (d) any forbearance or waiver of any right of action or remedy that the Government may have against the Contractor and/or the negligence, failure, omission, indulgence or delay by the Government in enforcing any right, power, privilege

- to or remedy available to the Government in relation to the obligations of the Contractor set out in the Contract;
- (e) the voluntary or involuntary liquidation, bankruptcy, dissolution, sale of assets, receivership, general assignment for benefit of creditors, insolvency, reorganisation arrangement, composition, or other proceedings of or affecting the Contractor or its assets, or any change in the constitution or membership or shareholding or director or management of the Contractor (as the case may be) or that the Sub-contractor is no longer a subsidiary of the Contractor;
 - (f) any assignment or sub-contracting by the Contractor of any or all of its obligations set out in the Contract, whether or not such assignment or sub-contracting has been consented to; and
 - (g) without prejudice to the generality of the foregoing, any fact or event (whether similar to any of the foregoing or not) which in the absence of this provision would or might constitute or afford a legal or equitable discharge or release of or defence to the Sub-contractor, other than an express release of its obligations by the Government.
6. This Undertaking shall extend to all Sub-contracted Obligations under the Contract as the same may from time to time be amended or supplemented and the Sub-contractor hereby prospectively consents to whatever amendment, variation or supplement which may be made to the Contract.
 7. This Undertaking shall have immediate effect upon execution. This Undertaking shall cover all of the Sub-contracted Obligations and shall remain in full force and effect and irrevocable until all such Sub-contracted Obligations mentioned in Clause 2 above have been performed and discharged.
 8. This Undertaking is in addition to and shall not merge with or otherwise prejudice or affect any contractual or other right or remedy or any guarantee, undertaking, indemnity, lien, pledge, bill, note, charge or any other security which the Government may at any time hold (collectively "Security") and this Undertaking may be enforced by the Government without first having recourse to any of the Security or taking any steps or proceedings against the Contractor, and notwithstanding any release, waiver or invalidity of the Security.
 9. Any demand, notification or certificate given by the Government specifying amounts due and payable under or in connection with any of the provisions of this Undertaking shall be conclusive and binding on the Sub-contractor.
 10. The obligations expressed to be undertaken by the Sub-contractor under this Undertaking are those of primary obligor and not as a surety.
 11. This Undertaking shall be governed by and construed according to the laws for the time being in force in the Hong Kong Special Administrative Region of the People's Republic of China ("Hong Kong") and the Sub-contractor agrees to submit to the exclusive jurisdiction of the courts of Hong Kong.
 12. All documents arising out of or in connection with this Undertaking shall be served:-

- (a) upon the Government, at _____, marked for the attention of _____, facsimile number _____;
- (b) upon the Sub-contractor, at _____, marked for the attention of _____, facsimile number _____ and email address: _____.

- 13. Without prejudice to other provisions of this Undertaking including Clause 2, Clauses 30 to 35, Clause 43 to 50, Clauses 53 and 54, and Clauses 58 to Clauses 76 of Part IV - Conditions of Contract shall be deemed incorporated herein, mutatis mutandis, and save in the case of Clause 76, references therein to “Contract” shall mean this Undertaking, and references therein to “Contractor” shall mean the Sub-contractor. Where the Sub-contractor is the CSC, all provisions in Annex E to Part IV shall be deemed incorporated in this Undertaking.
- 14. For the avoidance of doubt, the Sub-contractor acknowledges and agrees that the Government has no obligation to the Sub-contractor, including any obligation of the Government to the Contractor under the Contract (including any payment obligation).
- 15. Nothing in this Undertaking shall be taken as an assignment or transfer of any rights or obligations or liabilities from the Contractor to the Sub-contractor. The Sub-contractor acknowledges and agrees that all the Sub-contracted Obligations shall be borne by the Contractor and Sub-contractor jointly and severally. Notwithstanding this Undertaking, the Contractor shall remain liable and responsible for all acts, omissions and defaults of the Sub-contractor and its employees, agents and sub-sub-contractors of whatever tier as if they were the acts, omissions and defaults of the Contractor.

IN WITNESS whereof this Undertaking was executed as a deed on the date first above written.

THE COMMON SEAL OF THE SUB-CONTRACTOR)
IS HEREUNTO AFFIXED)
in the presence of:)
Name:)
Title: Director)
)
Name:)
Title: Director/Company Secretary)

as witnessed by:

Name:
Title:

Note: Please adopt and modify the execution clause in accordance with the execution requirements of the applicable laws of the place of incorporation of the Sub-contractor. For example, if the Sub-contractor does not and is not required to keep a common seal or seal, it is not required that the Sub-contractor affixes a common seal or seal in the

execution of this document but the execution of this document as a deed must be in accordance with the laws of the place of its incorporation.

Annex E - e-Payment Services

The Contractor shall appoint at most six (6) CSC either in the actual capacity as, or with proper authority from, (a) the SVF Licensee in the case the Electronic Payment Means is an SVF, and (b) the Payment Card Scheme Operator in the case that the Electronic Payment Means is a credit card operated under the Payment Card Scheme or in the case of the UnionPay Card. One of the CSC must also be the actual Real-time Participant of the FPS. The appointed CSC shall perform all obligations stated in this Annex (“e-Payment Services”) in relation to the Electronic Payment Means operated by it. The agreement between the Contractor as principal (but not on behalf of the Government) and CSC (“agreement between CSC and the Contractor) in relation to the appointment of the CSC for the provision of the e-Payment Services shall incorporate all provisions set out in this Annex. Where there is more than one CSC, references to CSC below shall mean each such CSC and references to the Electronic Payment Means shall mean those Electronic Payment Means in relation to which CSC will provide the e-Payment Services as further specified below. Whilst the Contractor shall enter into these agreement(s) with CSC as principal, each agreement shall provide that the Government may enforce its rights under such agreement as a third party under the Contracts (Rights of Third Parties) Ordinance (Cap. 623 of the Laws of Hong Kong).

1. Authorisation of Transactions

- 1.1 CSC shall provide authorisation and clearing services as further specified in this Clause 1 for all payment of the tickets using any of the Electronic Payment Means within the Operation Period. All payments shall be effected in the lawful currency of Hong Kong.
- 1.2 Where the payment is effected by the Electronic Payment Means deploying a contactless credit card
 - 1.2.1 As soon as the payee of the ticket price waves the contactless credit card in the proximity of a reader installed in an outlet for effecting a Transaction, an authorisation request shall be sent to CSC System in relation to the Transaction. As soon as an authorisation request is sent to CSC System for the relevant Electronic Payment Means in relation to the Transaction, that CSC System shall provide instant response to the System and for onward successful payment confirmation on the reader installed at the outlet as to whether the Transaction is approved whether after seeking the authorisation from the Payment Card Scheme Operator and/or the issuing bank of the contactless credit card or otherwise, so that the whole process for purchasing the ticket including blacklist checking and online authorisation shall be accomplished in less than fifteen (15) seconds. If the contactless credit card supports offline transaction within certain offline credit limit, the whole payment process shall be completed within seven (7) seconds.
- 1.3 Where the payment is effected by the Electronic Payment Means deploying a contactless Stored Value Facility

- 1.3.1 As soon as the payee of the ticket price waves the contactless Stored Value Facility in the proximity of a reader installed in an outlet for effecting a Transaction, an authorisation request shall be sent to CSC System in relation to the Transaction. As soon as an authorisation request is sent to CSC System of the relevant Stored Value Facility in relation to the Transaction, that CSC System shall provide instant response to the reader for onward successful payment confirmation on the reader as to whether the Transaction is approved, so that the whole process for purchasing the ticket including blacklist checking and online authorisation shall be accomplished in less than fifteen (15) seconds. If the Stored Value Facility supports offline transaction within certain offline limit, the whole payment process shall be completed within seven (7) seconds.
- 1.4 Where the payment is effected by the Electronic Payment Means deploying a mobile wallet whether charged to a credit card or Stored Value Facility
 - 1.4.1 The authorisation shall be done in the same manner as mentioned in Clause 1.2 or 1.3 above depending on whether it is charged to a credit card or a Store Value Facility.
- 1.5 Where the payment is effected via physical swiping of the credit card with a reader at an outlet, or through the supply of the relevant credit card information using the Online Ticketing Service or the Telephone Ticketing Service or the Mobile Ticketing Service or Self-service Kiosk service
 - 1.5.1 The whole process for purchasing the ticket including blacklist checking and authorisation shall be accomplished in less than thirty (30) seconds.
- 1.6 Where the payment is effected via a Store Value Facility via an outlet, the Online Ticketing Service, the Telephone Ticketing Service or the Mobile Ticketing Service or Self-service Kiosk service
 - 1.6.1 The whole process for purchasing the ticket including blacklist checking and authorisation shall be accomplished in less than thirty (30) seconds.
- 1.7 Where the payment is effected by the Electronic Payment Means recognising merchant - presented QR code displayed on the mobile app for the Mobile Ticketing Service or on the System Website for the Online Ticketing Service, which is a Stored Value Facility
 - 1.7.1 The online authorisation shall be done in the same manner as mentioned in Clause 1.3 above, but authorisation request will be sent to CSC via mobile application or via the Internet.
- 1.8 Where the payment is effected by the Electronic Payment Means which is FPS at an outlet or using mobile app for the Mobile Ticketing Service or on the System Website for the Online Ticketing Service

- 1.8.1 As soon as a person pays the ticket price through the use of his FPS account with his bank as the payer Participant of the FPS, provided that such Transaction is cleared and settled by the FPS, CSC shall ensure that it as the payee Participant of the FPS will instantly receive the proceeds of such ticket price in its payee Participant account with the FPS (“FPS Account”).
 - 1.8.2 As soon as the ticket price proceeds is received in its payee Participant account with the FPS, CSC shall ensure that a Settlement Confirmation is transmitted to the System via the transmission facility to be implemented by CSC as further described in Clause 1.8.3 during the Implementation Period.
 - 1.8.3 For each Transaction successfully settled through the FPS, the Contractor shall ensure an instant signal containing the settlement confirmation (“Settlement Confirmation”) shall be sent to the System within thirty (30) seconds upon completion of the settlement. The format of Settlement Confirmation shall be compatible with the System. CSC shall further liaise with the Contractor to obtain the necessary information in order to design and implement the transmission facility for the transmission of the Settlement Confirmation to the System including the necessary network services between CSC System and the System to enable such transmission (“transmission facility”).
2. Preparation of Settlement Report
 - 2.1 In respect of each Electronic Payment Means, transaction data containing the raw information from which the information specified in Clause 3.2(a) to (d) of this Annex can be deduced will be generated by the System for on-ward transmission to CSC System in respect of each Transaction as and when a Transaction is effected via any Electronic Payment Means (“Transaction Data”).
 - 2.2 CSC shall generate a settlement report based on the Transaction Data generated in the manner specified in Clause 2.1 above (“Settlement Report”). One (1) Settlement Report covering all Electronic Payment Means shall be sent to the Contractor in the manner specified in Clause 2.5 below on a daily basis in relation to the Transactions within each Transaction Period.
 - 2.3 Each successive Transaction Period falling within the Operation Period is 12:00 midnight on a day to the time immediately before the next 12:00 midnight. Each of the commencement time and end time is a Cut-off Time.
 - 2.4 The Settlement Report shall be encrypted before transmission to the Contractor. CSC shall provide an electronic and secure means for the Contractor to retrieve the Settlement Reports by minimising the human intervention. The following are the permissible methods for transmission of the Settlement Report or such other method as proposed by CSC and agreed

by the Government and the Contractor during the Implementation Period: (a) CSC shall allow the Contractor to use a batch program to login to CSC system to download the Settlement Reports; or (b) CSC shall send the Settlement Reports to a designated computer system of the Contractor through encrypted channel.

- 2.5 CSC shall also take necessary measures to ensure timely availability of the Settlement Reports as well as the accuracy of the file contents. If appropriate, CSC shall in reasonable time provide upgrade and enhancement of the transaction file or settlement report retrieval mechanism without incurring additional cost to the Contractor or the Government or any other person.
- 2.6 CSC shall ensure no duplicate uploading of the Transaction Data to CSC System. Neither CSC nor the Contractor shall take into account any Transactions, which have already been taken into account in a previous Settlement Report.
- 2.7 CSC shall establish, keep and maintain records of all Transaction Data recording Transactions and retain such records for not less than twelve (12) months after such Transaction Data have been uploaded to CSC System or otherwise transmitted to CSC System.
- 2.8 In the event of any breakdown of CSC System or other intermediary system due to any reason beyond the control of CSC which affects the normal operation, CSC, with the Contractor's approval, may vary the Cut-off Time of a day to another time on the same day or on the next day at the latest but CSC shall formally inform the Contractor and the Government within two (2) hours of such variation via hotlines to be specified by the Contractor and the Government, as well as an email to the Government's designated email accounts.

3. Verification of Settlement Reports

- 3.1 The Contractor shall verify and reconcile information contained in Settlement Reports with Transaction Data kept in the System and in the event of any discrepancy, issue Dispute Notices in accordance with Clause 4 of this Annex.
- 3.2 At or before 10:00 hours every day or any other time on a daily basis to be pre-scheduled and agreed between the Contractor and CSC ("Settlement Report Submission Time"), in relation to Transactions processed by each Electronic Payment Means, CSC shall issue to the Contractor by facsimile or email a daily Settlement Report with supporting transaction files generated by its own system based upon the Transaction Data uploaded to CSC System to substantiate CSC's payment into the bank account designated by the Government / Contractor ("Designated Bank Account") the Gross Entitlement Amount specified in that Settlement Report. The Gross Entitlement Amount

as specified in a daily Settlement Report is calculated based on the Transaction Data received by CSC during a Transaction Period at most two (2) days preceding the issue date of the Settlement Report, namely that there shall be at most two clear days between that Transaction Period and the issuance date of that Settlement Report relating to that Transaction Period. The Contractor shall be deemed to have received each Settlement Report with supporting transaction files no later than one (1) hour after the Settlement Report Submission Time on the day when they are issued by CSC. If the Contractor does not receive the Settlement Report within one hour (1) after the Settlement Report Submission Time on any day, the Contractor shall notify CSC in writing no later than two (2) hours after the Settlement Report Submission Time on the same day and the Contractor shall ensure that CSC will make available the report upon receiving the Contractor's notification. The Contractor shall ensure the receipt of the complete sets of Settlement Report plus supporting transaction files from CSC and coordinate with CSC for their collection if not received properly within the specified time. A Settlement Report issued by CSC in relation to each payment means operated by that CSC shall contain, in relation to the Transaction Period to which that report relates:

- (a) the total number of Successful Transactions processed by CSC with reference to each Electronic Payment Means;
- (b) the Total Transaction Value for all Successful Transactions transacted via all Electronic Payment Means ("Gross Entitlement Amount");
- (c) the Total Transaction Value for all Successful Transactions transacted via each Electronic Payment Means; and
- (d) the fees payable to CSC under the prevailing agreement between the Contractor and CSC ("Transaction Fee due to CSC")

based on the Transaction Data uploaded to CSC System or otherwise transmitted to CSC during the Transaction Period which commences from the Cut-off Time at 12:00 mid-night on the date, and ends at the Cut-off Time on that same date just before 12:00 mid-night provided further the Settlement Report shall be issued on the same day as the date of the Settlement Report.

- 3.3 In the event of any unusual item set out in a Settlement Report, the Contractor shall forthwith request CSC to provide evidence in relation to, and provide a detailed breakdown of and written explanation for, any Settlement Report including the unusual items.

Verification of Reconciliation Report

- 3.4 If any circumstance (including, without limitation, a "system breakdown") (an "Intervening Circumstance") arises whereby it is not possible for CSC to

generate a Settlement Report two (2) hours after the Settlement Report Submission Time on any day, CSC shall immediately notify the Contractor and the Government of that Intervening Circumstance. The amounts payable by CSC in respect of the Transaction Data received or obtained by CSC during the relevant Transaction Period shall be settled provisionally on the basis of the amounts specified to be payable in the last properly generated Settlement Report issued by CSC in respect of the Transaction Data received or obtained by CSC during a Transaction Period of a similar nature (namely similarities based on whether or not the Transaction Period takes place on a Business Day or a general holiday) (“Provisional Payment”). Within two (2) Business Days of an Intervening Circumstance having been rectified, CSC shall:

- (a) prepare a Settlement Report in respect of the Transaction Data received or obtained by CSC during each Transaction Period (or any part thereof) whilst such Intervening Circumstance subsists;
- (b) calculate the actual amounts as referred to in Clause 3.2(a) to (d) payable in respect of each Transaction Period during the Intervening Circumstance; and
- (c) send a reconciliation statement (“Reconciliation Statement”) to the Contractor showing the amounts actually paid (“Provisional Payments”) and the amounts which should have been paid had there been no Intervening Circumstance (“Actual Payable Amounts”) and specifying a sum (“Breakdown Reconciliation Amount”) that should be refunded by or paid to CSC (as the case may be).

If CSC fails to do any of the above, the Contractor shall immediately follow up with CSC and also notify the Government of such failure. If the Breakdown Reconciliation Amount is payable by CSC, such Breakdown Reconciliation Amount shall be paid by CSC directly to the Government’s designated bank account / Contractor’s designated bank account (viz., the “Designated Bank Account”), on or before the close of business on the Business Day immediately following the date of issue of the reconciliation statement. If the Breakdown Reconciliation Amount is payable by the Government, such Breakdown Reconciliation Amount shall be off-set against the amount owing by CSC to the Government on or before the close of business on the Business Day immediately following the date of issue of the reconciliation statement or, if applicable and as soon as practicable, on or before the close of business on the subsequent Business Days immediately following the date of issue of the reconciliation statement. The Contractor shall check the correctness of the Breakdown Reconciliation Amount and issue a Dispute Notice in accordance with Clause 4 if any discrepancy is found. The Contractor shall inform the Government of the Breakdown Reconciliation Amount after having verified the relevant Reconciliation Statement and Settlement Report.

4. Issue of Dispute Notices

- 4.1 The Contractor shall examine each Settlement Report and Reconciliation Statement carefully and compare the Transaction Data records and information contained therein with the respective Transaction Data records and information kept in the System and shall give notice to CSC in writing (a “Dispute Notice”) within five (5) Business Days from the date of Contractor’s actual receipt of such Settlement Report or Reconciliation Statement (as the case may be) of any discrepancy in the figures, data or other information contained therein or if the Contractor disputes such figures, data or information. The Dispute Notice must contain the particulars of:
- (a) the reason for issuing the Dispute Notice, together with an estimate of the amount in dispute;
 - (b) the disputed Settlement Report or Reconciliation Statement (as the case may be); and
 - (c) the relevant dates of the Transaction Period and where applicable identification numbers of the Readers involved.
- 4.2 The Contractor shall forward to CSC the Dispute Notice supported with documentary evidence, including the bases for the Contractor’s calculations, and copies or printouts of the Contractor’s records including but not limited to the records maintained in the System. The Contractor shall furnish CSC with the bases for its own calculations and one (1) copy each of its own records including supporting documentary evidence, as soon as practicable but in any event not later than five (5) Business Days after serving the Dispute Notice on CSC or such other extended deadline as the Government and CSC may agree.
- 4.3 If the Contractor disputes the figures, data or other information in more than one (1) Settlement Report or Reconciliation Statement, it shall issue a separate Dispute Notice for each such Settlement Report or Reconciliation Statement. No Dispute Notice shall be issued in respect of more than one (1) Settlement Report or Reconciliation Statement.
- 4.4 The Contractor shall copy each Dispute Notice and supporting documentary evidence to the Government immediately upon the issue of the Dispute Notice to CSC.
- 4.5 All claims and challenges in respect of a Dispute Notice will be individually evaluated and assessed by CSC within one (1) month after CSC has received the last piece of documentary evidence furnished by the Contractor in accordance with Clause 4.2. CSC will notify the Contractor of its assessment (“CSC’s Decision”) on or before the expiry of the said one (1)-month period. If any discrepancy is found, CSC will amend the relevant Settlement Report or Reconciliation Statement (as the case may be) and pay the agreed amount to the Government on the next Business Day after CSC’s Decision based on the

amended Settlement Report or Reconciliation Statement (as the case may be). The Contractor shall follow up with CSC and notify the Government if CSC's Decision is not provided by CSC within the time specified. Upon the receipt of CSC's Decision, the Contractor shall notify the Government CSC's Decision and copy the same together with the amended Settlement Report or Reconciliation Statement (as the case may be) to the Government immediately.

- 4.6 If the Government does not agree to CSC's Decision, the Contractor shall at the direction of the Government write to CSC, specifying reasons for disputing that CSC's Decision, together with an estimate of the amount in dispute and an attachment of supporting evidence. If the Contractor and CSC are unable to resolve their differences by negotiation, the Contractor, shall at the direction of the Government, give a written notice to CSC of his intention to submit his claim or challenge to an expert for determination within two (2) months of receipt of CSC's Decision. The Contractor shall, at the direction of the Government, initiate the process and subsequent determination by an expert, and/or legal action before the court of Hong Kong (which shall have exclusive jurisdiction over any dispute arising from the agreement between CSC and the Contractor) including the Dispute as mentioned in this Clause 4. Alternatively, the Government, as a third party under the Contracts (Rights of Third Parties) Ordinance, may itself initiate the process (whether it be by a determination by an expert or a legal action before the courts of Hong Kong) and the Contractor shall provide all necessary assistance and information to the Government in such process.
- 4.7 If the Contractor has issued a Dispute Notice, it shall retain all relevant records and supporting documents until the relevant dispute has been resolved or until such time as directed by the Government, whichever occurs later.
- 4.8 Without prejudice to the time requirements specified in Clauses 4.1 and 4.2, if the Contractor fails to issue a Dispute Notice to CSC or furnish CSC with the bases for its own calculations and one (1) copy each of its own records including supporting documentary evidence within such time period as from time to time agreed between the Contractor and CSC and thereby entitles CSC to charge one-off administrative fee(s) for processing delayed Dispute Notice and/or delayed supporting documents and information, the Contractor shall bear all such administrative fee(s) by paying direct to CSC. Further in light of any failure to submit a Dispute Notice on time or failure to submit altogether, if CSC becomes entitled whether pursuant to any agreement entered into between the Contractor and CSC or otherwise at law to treat the relevant Settlement Report or Reconciliation Statement as having been accepted by the Contractor as correct and conclusive evidence of all figures, data and information contained therein for all purposes, but that there are indeed any discrepancies between a Settlement Report or a Reconciliation Statement, and the Transaction Data maintained by the System, the Contractor shall pay to the Government by way of compensation an amount equal to the

discrepancy plus interest at the rate specified in Clause 38.15 of Part IV – Conditions of Contract to accrue from the date of the relevant Settlement Report or Reconciliation Statement to which the discrepancy relates until actual payment in full by the Contractor (both before and after judgment). Without prejudice to other rights and claims of the Government, the Government is entitled to deduct the amount of any discrepancy plus interest from the Service Fee payable to the Contractor in respect of whichever month during the Operation Period or otherwise by recovering the same from the Contractor as a debt. The Contractor acknowledges that CSC is entitled to reject a Dispute Notice, or any claim or challenge in respect of a Settlement Report or Reconciliation Statement (as the case may be) issued by the Contractor which does not comply with any of the requirements set out in this Annex, and that the Contractor is liable to indemnify the Government on the terms set out in Clause 33 of Part IV – Conditions of Contract including an indemnity from and against all losses, damage or liabilities suffered by the Government as a consequence of the Contractor’s failure to submit a conforming Dispute Notice or otherwise failure to comply with any other obligations specified in this Clause 4.

5. Payment into the Designated Bank Account

5.1 The Contractor shall ensure CSC’s proper and prompt settlement into the Designated Bank Account of the Gross Entitlement Amount in respect of each Transaction Period as shown in the Settlement Report for that Transaction Period and the amount claimed under each Dispute Notice issued. The Contractor shall verify that the Gross Entitlement Amount as shown in each Settlement Report is deposited or transferred by CSC into Designated Bank Account from time to time in immediately available funds at or before 16:00 hours on the day when the Settlement Report is issued and ready for collection by the Contractor if it is a Business Day, or if that day is not a Business Day, on the immediately following Business Day, regardless of whether or not, the Contractor disputes CSC’s calculations. In the event of any discrepancy in respect of the amount paid into the Designated Bank Account even based on the Gross Entitlement Amount as shown in the Settlement Reports issued by CSC and even ignoring any amounts specified in any Dispute Notice, the Contractor shall notify CSC and the Government in writing immediately. The Contractor shall follow up with CSC for its immediate settlement of the outstanding amount. For this discrepancy, the Contractor shall ensure that if CSC fails to pay any amount to the Government on the due date, CSC shall pay interest which will be accrued on the overdue amount from the due date for payment until actual payment in full (whether before or after judgment) at the rate as specified in Clause 38.15 of Part IV – Conditions of Contract. The Contractor shall ensure that interest on unpaid sums is paid upon demand by CSC into the Designated Bank Account.

6. Claims for Lost Transaction Data

- 6.1 If the System fails to transmit Transaction Data to CSC in accordance with the requirements of this Annex as a result of the malfunction, damage or loss of any part of the System or due to any other causes regardless of whether they are beyond or within the Contractor's control, the Contractor shall issue a written statement ("Omitted Transaction Data Claim") to CSC with a copy to the Government within fifteen (15) Business Days after occurrence of such malfunction, damage, loss or causes setting out its own record of the Transactions which have been conducted during the period of such malfunction, damage, loss or cause occurs. Clauses 4 shall apply to the Omitted Transaction Data Claim in the same way as if they apply to a Dispute Notice mutatis mutandis.
- 6.2 The Contractor shall at its own cost bear any one (1)-off administrative fee chargeable by CSC in handling each Omitted Transaction Data Claim received by CSC after the expiration of the aforesaid thirty (30) Business Days. The aforesaid administrative fee, if payable, shall be settled directly by the Contractor to CSC without recourse to the Government or the Gross Entitlement Amount or any other amount. Further in light of any such failure, if CSC becomes entitled whether pursuant to any agreement entered into between the Contractor and CSC or otherwise at law to reject or disregard any Omitted Transaction Data Claim due to lapse of time, the Contractor shall pay to the Government by way of compensation an amount equal to the Omitted Transaction Data Claim plus interest at the rate specified in Clause 38.15 of Part IV – Conditions of Contract to accrue from the date of the Omitted Transaction Data Claim first accrues until actual payment in full by the Contractor(both before and after judgment). Without prejudice to other rights and claims of the Government, the Government is entitled to deduct the amount of any Omitted Transaction Data Claim plus interest from the Service Fee payable to the Contractor in respect of whichever month during the Operation Period or otherwise by recovering the same from the Contractor as a debt.

7. Payment of Transaction Fees due to the CSC

- 7.1 After receipt of an invoice showing the Transaction Fees due to CSC for all Successful Transactions of the previous month submitted by CSC in relation to all payment means, subject to checking based on the information of all duly verified Settlement Reports and supporting information for the same month, the Contractor shall, at its sole cost and expense, and without any deduction from the Gross Entitlement Amount, pay CSC the invoiced amount of the Transaction Fees due to CSC within thirty (30) days regardless of whether the Transactions are for tickets of events organised by the LCSD Programme Section or other department of the Government or on behalf of a third party organiser. The Government may from time to time issue instruction to the

Contractor to refrain from paying any Transaction Fees due to CSC on ground the services provided by CSC are not in accordance with the terms and conditions of CSC agreement between the Contractor and that CSC (in so far as those terms required to be incorporated as stated in this Annex). Neither the Government nor any third party organiser of any event has any obligation whatsoever to pay the Transaction Fee due to CSC. The Government will only pay the e-Payment Transaction Fees to the Contractor in accordance with Clause 38 of Part IV – Conditions of Contract which amount shall cover and shall be deemed to cover the Transaction Fee due to CSC. No payment of the e-Payment Transaction Fee will be made to the Contractor unless all records and information have been provided by the Contractor to the satisfaction of the Government for verification.

8. Blacklist

- 8.1 The Government acknowledges that CSC will not take in account any Transaction which has taken place via the use of a Blacklisted Reader or a Blacklisted Card or Device or Blacklisted Account whose identification number appears on an effective Blacklist issued by CSC.
- 8.2 In this regard, CSC shall make available for download by the Contractor the latest Blacklist from the CSC System of each Electronic Payment Means. The Contractor should in turn upload the Blacklist to the readers installed at the outlets at a frequency of at least once every day to avoid any Transaction to be rejected by CSC for the reason mentioned in Clause 8.1 above.
- 8.3 Should CSC fail to update the Blacklist on a daily basis (or other time intervals as agreed between the Government and the Contractor) or fail to make available the Blacklist for downloading on a daily basis (or other time intervals as agreed between the CSC and the Contractor (with the prior written consent of the Government)), CSC may not refuse to accept any Transactions on the alleged ground specified in Clause 8.1 above and any Gross Entitlement Amount shall include the Transaction Value of such Transactions.
- 8.4 CSC shall work with the Contractor on the manner to download a Blacklist from the CSC System for each Electronic Payment Means to the System at 22:00 hours every day or other time specified by the Government and further transmit such Blacklist from the System to the readers at the outlets via the dedicated data links or data network services.
- 8.5 The Contractor shall have a grace period of twenty-four (24) hours of uploading the latest Blacklist to readers at the outlets which it has downloaded from the CSC System which grace period shall start to count after that Blacklist has been downloaded from the CSC to the System. Such uploading to all the readers at the outlets shall be done at a frequency of at least once every day. CSC may not refuse to accept any Transactions on the alleged ground specified in Clause 8.1 above if such Transaction occurs within the aforesaid 24-hour grace period,

and any Gross Entitlement Amount shall include the Transaction Value of such Transactions.

- 8.6 For the purposes of this Contract, a Blacklist shall be effective from the expiry of 24 hours after the download of the same from the CSC System until the time of expiry of the 24 hours after the download of the next Blacklist provided that the download of the Blacklist shall be done in accordance with this Contract including this Clause 8.
- 8.7 The Contractor shall be responsible to pay to CSC on the first written demand of CSC an amount to compensate CSC for any direct loss, damage or liability suffered by CSC as a consequence of the Contractor's failure to download or upload the Blacklist in accordance with this Clause 8. CSC may not make any claim against the Government.

9. Maintenance Cards and Devices

- 9.1 Where the Electronic Payment Means is Card or Device, CSC shall supply to the Contractor sufficient quantities of such Cards and Devices (and in the case of stored value card, with loaded value) for the purpose of maintaining and testing the Electronic Payment Means for each mode of sale (viz., including those as mentioned in Clause 1 of this Annex). The Transactions conducted with a Maintenance Card or Device will be handled in the same way as the Transactions conducted with normal Cards or Devices.

10. Fraudulent or unauthorised Transactions

- 10.1 CSC shall implement sufficient and adequate fraud prevention measures to protect against fraudulent or unauthorised use of the Electronic Payment Means. CSC is responsible for any damage and loss caused to the Government in relation to all fraudulent or unauthorised uses of any Electronic Payment Means, regardless of the mode of sale.
- 10.2 CSC shall implement the security arrangements to safeguard against tampering, fraud and theft of any Transaction Data in the process of transmission via the data connection between the CSC System and the System, retrieval, handling, uploading and storage of such Transaction Data from one (1) component unit to another within the CSC System. CSC shall indemnify the Government on the terms set out in Clause 33 of Part IV – Conditions of Contract (on the basis that it shall be incorporated into the agreement between the CSC and the Contractor with the Government as a third party being able to enforce the agreement under the Cap. 623 of the Laws of Hong Kong) including an indemnity from and against all losses, damages or liabilities incurred or sustained by the Government arising from the loss or corruption of Transaction Data for any

reasons whatsoever, whether due to any default, act or omission of CSC or otherwise.

10.3 To ensure continual effectiveness and appropriateness of the Transaction Procedures of each Electronic Payment Means, CSC shall review the Transaction Procedures from time to time. Any proposed amendment to any such Transaction Procedures shall be submitted to the Government and the Contractor for approval. The Government shall in writing approve or reject any such amendment in his discretion.

11. Refund Handling

11.1 No refund of ticket price to a person who uses an Electronic Payment Means to pay the ticket shall be made by CSC except for the following and with the prior written consent of the Government:

11.1.1 that person was over-charged for the ticket(s) he has bought;

11.1.2 duplicated processing the same Transaction (i.e. same Transaction processed more than once (1) and the person was charged more than once (1) the ticket for the same Transaction); or

11.1.3 the performance of the event has been cancelled or postponed or due to whatever reasons deemed justified by the Government including but not limited to change of major cast and/or programme of the performance or any error made by the System or the ticketing staff during the time of ticket purchase.

11.2 Upon receipt of a request to refund an amount paid by a person using an Electronic Payment Means operated by CSC, CSC shall promptly conduct investigations to verify if such request for refund is valid. If both the Contractor and CSC are satisfied that such person has paid more than he/she ought to pay, CSC, after seeking Government's approval, shall arrange to settle the refund and notify the Contractor and the Government upon the completion of refund.

11.3 The Contractor and CSC shall propose to the Government for its consideration the proposed refund handling procedures during the Implementation Period.

11.4 CSC shall provide at its own costs refund service free of charge to the payee in accordance with the refund handling procedure as proposed by CSC and the Contractor and approved by the Government.

12. Performance and Reliability Requirements

- 12.1 CSC shall ensure that each Electronic Payment Means shall be available twenty-four (24) hours a day and seven (7) days a week round the clock for accepting payment of ticket regardless of the sale mode including those as specified in Clause 1 (except that for outlets which are not self-service ticketing kiosks, they shall be available throughout the opening hours of the outlets). The CSC System shall have sufficient capacity to handle not less than 100,000 Transactions per hour (regardless of the applicable Electronic Payment Means). The CSC System availability shall be at least ninety-nine point ninety-five percent (99.95%) for each calendar month of the Operation Period (taking into account all scheduled and unscheduled unavailability of the CSC System when calculating the availability level). If CSC opts to supply its own contactless reader, its reader shall support the CSC System to meet the above requirements and the reader shall support the System to achieve the Reliability Levels' requirements specified in this Contract.
- 12.2 If CSC opts to supply its own contactless reader (viz., CSC Supplied Readers), CSC shall serve a written notice about the details of a scheduled maintenance of CSC Supplied Readers to the Contractor at least five (5) Business Days before the scheduled maintenance, if any.
- 12.3 If any Electronic Payment Means operated by CSC is unavailable for any reason, CSC shall notify the Contractor and Government in fifteen (15) minutes via e-mail and short message service ("SMS") after the discovery of unavailability.
- 12.4 The Contractor and the CSC shall provide a monthly report in a form to be proposed by them during the Implementation Period and accepted by the Government on the availability of each Electronic Payment Means which shall include a summary of the special events or incidents and provide the actual number of hours for scheduled maintenance, if any, and the CSC System breakdowns due to unavailability of any of the Electronic Payment Means or defaults of its own contactless reader (if any).
13. Management and Operation and Maintenance of the e-Payment System
- 13.1 CSC shall be responsible for proper and efficient management and operation of the CSC System responsible for handling Transactions of each Electronic Payment Means and the efficient retrieval, handling, storage, transmission, downloading, and uploading of all Transaction Data as and when it is exchanged between the CSC System and the System.
- 13.2 CSC shall maintain the CSC System and its connection with the System.
- 13.3 CSC shall be responsible for all maintenance cost of the CSC System and its connection with the System and all CSC Supplied Hardware and Software including any CSC Supplied Readers. It shall also provide any future updates

to any of these items free of charge to the Contractor and at no additional costs to the Government or any other person.

14. Service Support

- 14.1 CSC shall provide service support in terms of training, enquiry services, technical support and so on to the Contractor. The training shall cover the use of CSC Supplied Hardware and Software, and the CSC System provided by CSC. Upon request by the Contractor, CSC shall also support any investigation and provide the details of individual payment transactions.
- 14.2 If the Contractor is required to install any CSC Supplied Software to be provided by CSC in the System, CSC shall provide maintenance service for CSC Supplied Software and any update (as defined in Part IV – Conditions of Contract) free of charge throughout the Operation Period.
- 14.3 CSC shall provide manned enquiry services during office hours to the Contractor and their contractor personnel for the handling of all enquiries, complaints and reports of irregularities concerning the CSC System. CSC shall inform the Contractor the estimated time for resolving the problems which are disclosed in enquiries, complaints and reports of irregularities concerning the e-Payment Services, within forty-eight (48) hours after the problems are reported.
- 14.4 CSC shall provide hotline technical support twenty-four (24) hours a day and seven (7) days a week round the clock to the Contractor and their contractor personnel. Such calls from the Contractor and their contractor personnel shall be answered immediately or in the earliest time possible. Preliminary response on incidents reported shall be provided within fifteen (15) minutes of the first call.
- 14.5 CSC shall provide proper Documentation to the Contractor with a copy to the Government on the use of its CSC Supplied Software and CSC System, including but not limited to error/exception handling and retry mechanism, procedure for retrieving Settlement Report and transaction files, user manual for administration tools, refund handling procedure, and so on.
- 14.6 CSC shall produce and submit monthly operations, maintenance and financial reports for each of the Electronic Payment Means in the forms to be proposed by CSC and approved and accepted by the Government. The Government may from time to time request CSC to provide other additional reports and information, which he deems necessary.
- 14.7 CSC shall provide necessary assistance to the Contractor and the Government upon request by any of them on promoting the use of each of the Electronic Payment Means.

15. Security Risk Assessment and Audit

- 15.1 CSC shall conduct security risk assessment on each Electronic Payment Means and the CSC System at least once (1) a year or prior to the launch of major enhancements and changes associated with any of the same.
- 15.2 CSC shall engage an independent and trusted auditor to audit the Transactions processed by each Electronic Payment Means and the CSC System at least once (1) a year.
- 15.3 CSC shall provide information regarding the most recent security risk assessment and audit exercise to the Government and the Contractor.

16. Reporting

- 16.1 The Contractor shall maintain a comprehensive log of all Transactions effected by each of the Electronic Payment Means, the Transaction amounts, the Transaction number, customers' names and payment details. The log shall be made available for LCSD's inspection upon request. The Government shall be entitled to inspect the Contractor's relevant records, documents and records in relation to the Transactions effected by all or any of the Electronic Payment Means, all records generated through the provision of the e-payment service including the Settlement Reports and any Dispute Notices and evidence of payment of the Transaction Fee due to CSC. All such information and data and document shall belong to the Government as part of the System Data.

17. Interpretation

- 17.1 In addition to those defined in Clause 1 of Part IV – Conditions of Contract, terms appearing in this Annex as well as in other Parts of the Contract shall have the meanings given below or in the body of the text of this Annex:

“Blacklist” means in relation to an Electronic Payment Means, an electronic file to be published by CSC for that Electronic Payment Means consisting of a list and/or range of card or device identification numbers, as updated by CSC from time to time; references to “effective Blacklist” means a Blacklist which is effective in the manner specified in Clause 8 of this Annex;

“Blacklisted Card or means in relation to a card or device or reader of

Device or Reader”	an Electronic Payment Means: (a) whose identification number appears on an effective Blacklist; or (b) whose identification number is within one (1) of the ranges of identification numbers specified on an effective Blacklist; or (c) with the identification number of a Blacklisted reader recorded thereon (indicating that it has been processed by a Blacklisted reader);
“CSC”	means a clearing service sub-contractor to be appointed by the Contractor to provide the e-Payment Services as more particularly described in this Annex; where the Contractor is the CSC for any of the Electronic Payment Means, then the obligations of the CSC as stated herein shall still be performed by the Contractor in the capacity as the CSC;
“CSC Supplied Hardware”	means in relation to each of the Electronic Payment Means, any hardware to be supplied by the CSC for installation into the System and/or mobile devices of the payee of the ticket and/or CSC System to be connected to the System in order to provide the E-Payment Services including CSC Supplied Readers (if any);
“CSC Supplied Software”	means in relation to each of the Electronic Payment Means, any software and custom programs to be supplied by the CSC for the installation into the System and/or mobile devices of the payee and/or for the CSC System to be connected to the System in order to provide the E-Payment Services;
“CSC Supplied Readers”	means readers or processes to be supplied by the Contractor for installation at the outlets for accepting payment of the ticket via any of the Electronic Payment Means;
“CSC System”	means in relation to each Electronic Payment Means, one or more systems for the provision of the e-Payment Services through the deployment of such Electronic Payment Means and whether it is the intermediary and centralised system interfacing with the e-payment system of the Electronic Payment Means or the actual e-payment system for the relevant Electronic Payment Means;

“contactless”	as the term is used preceding a SVF or a credit card or mobile wallet, means that the SVF or credit card or mobile wallet does not require physical contact with a reader or processor to transact payment. It could be a physical device which requires only proximity to a reader to communicate or a non-physical device used for remote communication with the CSC System;
“credit card”	means a payment card issued to a cardholder to enable him/her to pay a merchant for goods and services based on his/her promise to the card issuer to pay them for the amounts so paid plus the other agreed charges;
“Designated Bank Account”	means an account in the name of the Contractor/ Government to be notified to CSC from time to time for the purposes of receiving payment from CSC;
“Electronic Payment Means”	means the electronic payment means in relation to which at most six CSC shall provide the e-Payment Services altogether covering Octopus card, credit cards and contactless credit cards (Visa, Mastercard and AMEX), UnionPay card, online payment and mobile wallets (covering Quickpass, Apple Pay, Google Pay, Wechat Pay and Alipay) and Faster Payment System (FPS) subject to the finalisation of this list as set out in the Articles of Agreement;
“e-Payment Services” or “e-Payment Service” (in upper or lower case)	means the services specified in this Annex and in Section 4.5.13.14 of Part VII – Project Specifications to be performed by both the Contractor and the CSC as and where stated;
“FPS”	means the Faster Payment System operated by HKICL and includes the terminal operated by the CSC for accessing such System;
“FPS Account”	has the meaning given to the term in Clause 1.8.1 of this Annex;
“FPS Participant” or “Real-time Participant” or “payee Participant”	means any institution whose name is listed in the list of Participants from time to time published by HKICL on its website and are identified as

real-time participants with the power to provide real time payment receipt services via the FPS.

For the purposes of evaluation of tenders, the List of Participants shall be in the version published by HKICL as at the Original Tender Closing Date. For the purposes of the Contract, the List of Participants shall be in the version as from time to time published by HKICL;

“Gross Entitlement Amount”	means in relation to one (1) or more Transaction Periods, the Total Transaction Value of all Transactions within the Transaction Period(s);
“HKICL”	means the Hong Kong Interbank Clearing Limited;
“Hong Kong Monetary Authority” or “HKMA”	means the monetary authority appointed by The Financial Secretary under Section 5A of Exchange Fund Ordinance (Cap. 66 of the Laws of Hong Kong);
“Licensed Bank”	means a bank which holds a valid banking licence granted under the Banking Ordinance (Cap. 155 of the Laws of Hong Kong);
“Merchant Acquirer”	means a company appointed by a Payment Card Scheme Operator to clear and settle payment to merchants for credit card payment transactions within a payment card scheme operated by that Payment Card Scheme Operator;
“mobile wallet”	means a mobile application which stores payment card information on a smartphone operating on iOS or Android and supports the function of making payment using the Near Field Communication (“NFC”);
“offline payment”	means the payment method for customers to checkout without doing it online. It provides a simple pass-thru checkout process that enables the customer to make payments offline, such as over the telephone;
“mobile app”	means an application be developed by the Contractor for the Mobile Ticketing Service and Mobile Enquiry Service via a mobile device installed with the application;

“Payment Card Scheme Operator”	means a payment card scheme operator mentioned in the Code of Practice for Payment Card Scheme Operator issued by the HKMA;
“Quick Response Code” or “QR Code”	means the trademark for a type of matrix barcode uses four (4) standardised encoding modes (numeric, alphanumeric, byte/binary, and kanji) to efficiently store data. It consists of black squares arranged in a square grid on a white background, which can be read by an imaging device such as a smartphone, and processed until the image can be appropriately interpreted. The required data is then extracted from patterns that are present in both horizontal and vertical components of the image;
“reader” (in upper or lower case)	means a reader or processor to be installed at each of the outlet for payment of ticket via any of the applicable Electronic Payment Means;
“Register of Stored Value Facility Licensees”	means a list of current Stored Value Facility licensees which are granted a licence to issue or facilitate the issue of Stored Value Facility as defined under the Payment Systems and Stored Value Facilities Ordinance;
“Successful Transaction”	means in relation to each Electronic Payment Means, a transaction for which the payment of a ticket having been accepted through the use of such Electronic Payment Means and indicated to the customer and further that the Contractor having confirmed with CSC that the payment amount is correct;
“SVF Ordinance”	means the Payment Systems and Stored Value Facilities Ordinance (Cap. 584 of the Laws of Hong Kong);
“SVF” or “Stored Value Facility”	has the meaning as described in Section 2A of the SVF Ordinance;
“SVF Licensee”	means any licensee whose name appearing on the Register of Stored Value Facility which contains the names of SVF licensees which are granted a licence to issue or facilitate the issue of SVF as defined under the SVF Ordinance (“SVF licence”). The Register shall be the register as from time to

	time published by HKMA;
“Total Transaction Value”	in relation to all or any of the Transaction Periods, means the total value of Successful Transactions in those or that Transaction Period(s) based on the Transaction Data of those or that Transaction Period(s);
“Transaction”	means a transaction of payment for a ticket for whatever event and regardless of the applicable sale mode via an Electronic Payment Means;
“Transaction Fees due to CSC”	means in relation to each CSC, the aggregate amount payable to that CSC for the e-Payment Services performed through all Electronic Payment Means operated by it over a billing period; and in each case of the aforesaid Electronic Payment Means, being an amount equal to the applicable Transaction Fee Percentage for such Electronic Payment Means multiplied by the aggregate value of all Successful Transactions processed by such Electronic Payment Means over that billing period;
“Transaction Fee Percentage”	means for each Electronic Payment Means, a rate expressed as a percentage on the value of a Successful Transaction chargeable for the e-Payment Services provided through such Electronic Payment Means for each such Successful Transaction; this Transaction Fee Percentage, may be less than, but shall not exceed the maximum cap as quoted by the Contractor in Item (E) of Table 23.1 of Schedule 23 of Part V – Contract Schedules and the applicable rate as specified in the Articles of Agreement for such Electronic Payment Means (if any);
“Transaction Period”	means any period from the Cut-off Time (12:00 midnight) on a day during the Operation Period to the Cut-off Time which is the time just immediately before the next 12:00 midnight on the same day;
“Transaction Procedures”	means in relation to each Electronic Payment Means, the transaction flow for effecting a Transaction via such Electronic Payment Means;
“transaction time”	means where an Electronic Payment Means deploys a contactless device, the time interval

between the moment the contactless device is tapped on and successfully detected by the reader and the moment the information stored in the device is successfully read for off-line payment; and verified/accepted by CSC for on-line payment.

Annex F to the Conditions of Contract

Pro forma Assurance Report

INDEPENDENT AUDITOR'S ASSURANCE REPORT

To : Director of Leisure and Cultural Services and
The Directors of _____ (“Company”) which is appointed by the
Government of the Hong Kong Special Administrative Region of the People’s Republic of
China to perform the e-Payment Service for the Ticketing System

We refer to the Contract dated _____ between the Government of the HKSAR and the Company in relation to the Ticketing System (“Contract”). We also refer to the separate sub-contract between the Company and _____ (“sub-contractor”) under which the Contractor has appointed the sub-contractor as the Clearing Service Contractor for the provision e-Payment Service as more particularly described in Annex E to Part IV - Conditions of Contract of the Contract (“Sub-contract”).

Capitalised terms appearing herein have the meanings given to them in the Contract.

Following from an audit and reasonable assurance exercise on the attached Statement of Revenue and Income Collected for the year ended _____ (“Operation Year”), we hereby issue this Assurance Report pursuant to Clause 39 of Part IV – Conditions of Contract of the Contract.

Directors’ Responsibility for the Statement of Revenue and Income Collected

The Directors of the Company are responsible for preparing the Statement of Revenue and Income Collected in accordance with the provisions set out in the Contract and the Sub-contract and as extracted from the books and records of the Company. This includes designing, implementing and maintaining internal controls relevant to the preparation and presentation of the Statement of Revenue and Income Collected that are free from misstatement.

Auditor’s Responsibility

It is our responsibility to form an independent opinion on this Statement of Revenue and Income Collected based on our work performed and to report our opinion to you.

We conduct our reasonable assurance engagement in accordance with Hong Kong Standard on Assurance Engagements 3000 (Revised) “Assurance Engagements Other Than Audits or Reviews of Historical Financial Information” issued by the Hong Kong Institute of Certified Public Accountants. This standard requires that we comply with ethical requirements and plan and perform the assurance engagement to obtain reasonable assurance whether this Statement of Revenue and Income Collected has been prepared in accordance with the provisions set out in the Contract and as extracted from the books and records of the Company. Our engagement involves performing procedures agreeing items in the Statement of Revenue and Income Collected to the books and records of the Company and those of the Sub-contractor which have been maintained in accordance with the Contract and the Sub-contract, and performing such other procedures as we considered necessary in the circumstances.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Opinion

In our opinion, the Statement of Revenue and Income Collected has been prepared in accordance with the provisions set out in the Contract and the Sub-contract and as extracted from their books and records. Each of the figures and amounts as shown in the third column below for the year ended _____ (“Operation Year”) matches with the figure or amount as shown in the second column below.

(Name of audit firm/auditor)
Certified Public Accountants (Practising)
Date

[Note: Auditor should also include, among others, the statement(s) in relation to independence and quality control as required by Hong Kong Standard on Assurance Engagements 3000 (Revised) “Assurance Engagements Other Than Audits or Reviews of Historical Financial Information” as appropriate.]

Information to be shown in the Statement of Revenue and Income Collected

Items	The amounts as determined from the books and records (A)	The amounts actually paid into the Designated Bank Account by the CSC for the Operation Year (B)
The total Gross Entitlement Amounts for all Successful Transactions using all and any of the Electronic Payment Means within the Operation Year:		
The Amounts covered in Dispute Notices issued by the Contractor in relation to Transaction Periods covered within the Operation Period:		

Items	The amounts as determined from the reasonable assurance exercise from the books and records (A)	The amounts of Service Fees and Rebates as shown in the relevant invoices issued for the Operation Year or the figures based on which such invoiced amounts were calculated (B)
<p>The total number of Item A Tickets issued for events organised by the Government (LCSD Programme Section) in the Operation Year:</p> <p>(Item A Ticket for events organised by the Government: all tickets issued for events organised by the Government (regardless of the sale mode) including those sold to the public, consignment and complimentary tickets issued to the Government as the event organiser (excluding management tickets and tickets issued due to System and operation error and for testing and maintenance purposes)</p>		
<p>The total number of Item A Tickets issued for events organised by third party organisers in the Operation Year: (Item A Ticket for events organised by third party organisers: all tickets issued for events organised by third party organisers (regardless of the sale mode) including those sold to the public, consignment and complimentary tickets issued to the third party organisers as the event organiser (excluding management tickets and tickets issued due to System and operation error and for testing</p>		

and maintenance purposes)		
Ticketing System Service Fee payable by the Government for events organised by it in respect of the number of Item A Tickets issued for such events during the Operation Year:		
Ticketing System Service Fee payable by the Government for events organised by third parties on behalf of such third parties (on and subject to the disclaimers as mentioned in Part IV – Conditions of Contract) in respect of the number of Item A Tickets issued for such events during the Operation Year:		
Rebate payable to the Government for every Item A Ticket whether for event organised by the Government or by a third party issued over the 5 million threshold during the Operation Year:		
The total number of Item C Tickets sold for events organised by the Government (LCSD Programme Section) or a third party in the Operation Year: (Item C Tickets are tickets sold to members of the public) via the internet or mobile ticketing service)		
Rebate payable to the Government based on the number of multiple of 250,000 Item C Tickets sold over the 1 million threshold whether for event organised by the Government or by a third party:		

The e-Payment Transaction Fee payable to the Contractor for all Successful Transactions using all and any of the Electronic Payment Means during the Operation Year:		
The Top-up Service Fee for all Innovative Suggestions payable to the Contractor:		
The Top-up Service Fee for all Excess Proposals payable to the Contractor:		

– End –

PART V

CONTRACT SCHEDULES

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SCHEDULE 1 - HARDWARE

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

1.1 General

1.1.1 Tenderers shall provide in this Schedule the hardware items proposed for the System.

1.1.2 Tenderers shall refer to, without limitation, the following Sections of Part VII – Project Specifications for details of the requirements and/or relevant information:

- (a) Section 4 – Functional Specifications;
- (b) Section 5 – Workload Specifications;
- (c) Section 6 – System Performance Specifications; and
- (d) Section 10 – Hardware Specifications.

1.2 Hardware Items/Cloud Services

1.2.1 Tenderers shall propose in Table 1.1 the following items:

1.2.1.1 in Part (i) of Table 1.1 the Cloud Services proposed to be provided by a pre-existing Contractor Supplied Public Cloud located at two different Data Centres (one for the production environment, and another for the DR environment and a non-production environment) and which Public Cloud may or may not be owned by the Contractor; the Cloud Services shall not fall below the minimum levels specified in Part I of Annex E to Part VII – Project Specifications;

1.2.1.2 in Part (ii) of Table 1.1, the hardware items proposed to be supplied by the Contractor to be used in conjunction with the Contractor Supplied Public Cloud Services which shall not fall below the minimum levels specified in Part I of Annex E to Part VII – Project Specifications;

1.2.1.3 in Part (iii) of Table 1.1, the physical hardware items proposed to be supplied by the Contractor for implementing a new Contractor Supplied Private Cloud at two Data Centres (one for the production environment, and another for the DR environment and a non-production environment); the quantities of the physical hardware items shall not fall below the minimum quantities specified in Part II of Annex E to Part VII – Project Specifications;

1.2.1.4 in Part (iv) of Table 1.1, the equipment proposed to be supplied by the Contractor to be installed at or used in the venues or outlets or LCSD Offices.

collectively, all of the above items proposed are “Contractor Supplied Hardware”. These are the items to ensure that the System will comply with all essential requirements as stated in Part VII – Project Specifications.

1.2.2 Excess Hardware

- 1.2.2.1 Unless they are offered at the cost and expense of the Tenderer, where the Tenderer submits any proposed Execution Plan or proposed Technical Solution or Innovative Suggestions which contains any proposals which are in excess of the original requirements set out in the Tender Documents for gaining marks under the Marking Scheme (viz., “Excess Proposals”), and which require the supply and implementation of any additional hardware or hardware of a higher specification than originally required, such hardware shall be proposed as Contractor Supplied Hardware under the heading “Excess Hardware” in Table 1.1 below (“excess hardware”).
- 1.2.2.2 Whilst the Contractor shall be bound to supply if accepted by the Government, on the other hand, the Government reserves the power not to accept any such excess hardware any time before or during the System Analysis and Design Stage of the System. Where notwithstanding any Excess Proposals (and regardless of whether they have earned marks for the Tenderer under the Marking Scheme), but the Tenderer does not propose the excess hardware in Table 1.1 below for implementing such Excess Proposals, the Tenderer shall be deemed to have offered the excess hardware at its own cost and expenses.
- 1.2.2.3 Unless and save to the extent it is already specified by default that certain Excess Proposal covering one or more excess hardware shall only be evaluated under the specified Grouping of the Marking Scheme, the Tenderer shall identify whether the Excess Proposal covering one or more excess hardware and public cloud service are for implementing the proposed Technical Solution for assessment under any of the applicable sub-grouping of Grouping A(II) of the Marking Scheme or for implementing an Innovative Suggestion for assessment under any of the applicable sub-grouping of Grouping A(III) of the Marking Scheme.
- 1.2.2.4 The Tenderer may only choose one (1) such Grouping but not multiple Groupings so that the Excess Proposal will only be evaluated under the singular chosen Grouping (but without ruling out the possibility that the Excess Proposal may be evaluated under more than one (1) sub-grouping under that singular chosen Grouping, if applicable).
- 1.2.2.5 Unless and save to the extent it is already specified by default that certain Excess Proposal covering one or more excess hardware shall only be evaluated under the specified Grouping of the Marking Scheme, where the Tenderer has failed to identify any Grouping for an Excess Proposal covering one or more excess hardware, provided that Grouping A(III) is applicable, the Government will have the discretion to choose Grouping A(III) to assess the Excess Proposal. However, in the event that the full marks allocated to Grouping A(III) have already been earned by the Tenderer in relation to other Innovative Suggestions proposed by the Tenderer which are different from the Excess Proposal, or otherwise that Grouping A(III) is not applicable, the Government will have the discretion to choose the earliest number of the applicable Groupings to assess the Excess Proposal.

Table 1.1 Contractor Supplied Hardware Items Proposed for the System

Environment ^(a) :			
Item No.	Make / Model / Cloud Service	Description	Quantity
(i) Items of Cloud Services to be provided by the Contractor Supplied Public Cloud			
For the production environment			

For the DR environment			
For the non-production environment			
(ii) Items of physical hardware to be used in conjunction with the Contractor Supplied Public Cloud Services			
For the production environment			
For the DR environment			
For the non-production environment			
(iii) Items of physical hardware for implementing a new Contractor Supplied Private Cloud			
For the production environment			
For the DR environment			
For the non-production environment			
(iv) Items of equipment to be installed at or supplied to Outlets / LCSD Offices / Venues			
(v) Excess Hardware (whether it be excess Cloud Services or physical item of hardware or equipment)			
The applicable Grouping to be specified by the Tenderer ^(b)			
		Excess hardware proposed by the Tenderer shall be identified by the Tenderer for implementing an Excess Proposal in the following *: in the proposed Technical Solution / Innovative Suggestions <i>*The Tenderer should delete the inapplicable types of Proposals by retaining one type only. For Excess Proposal in the Proposed Technical Solution, please also specify clearly the desirable item to be achieved.</i>	

Notes:

- (a) Non-production environment shall be used for purposes including development, testing, training and load test.
- (b) As mentioned in paragraph 1.2.2.3 of this Schedule, in relation to any excess hardware to be proposed above for implementing any Excess Proposal, the Tenderer shall select one (1) applicable Grouping under Section A of the Marking Scheme for assessment of such Excess Proposal. Only one (1) applicable Grouping should be selected, viz., the proposed Technical Proposal (Grouping A(II) is applicable), or the Innovative Suggestions (Grouping A(III) is applicable). Further details about how the proposed excess hardware is relevant to the Excess Proposal should also be specified.

SCHEDULE 2 - SOFTWARE

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

2.1 General

2.1.1 Tenderers shall provide in this Schedule the software items proposed for the System.

2.1.2 Tenderers shall refer to, without limitation, the following Sections of Part VII – Project Specifications for details of the requirements and/or relevant information.

- (a) Section 4 – Functional Specifications;
- (b) Section 5 – Workload Specifications;
- (c) Section 6 – System Performance Specifications; and
- (d) Section 11 – Software Specifications.

2.2 Software Items

2.2.1 Tenderers shall propose in Table 2.1 the following items:

2.2.1.1 in Part (i) of Table 2.1 the off-the-shelf application software proposed to be provided for implementing the functions of the System as specified in Section 4.5 of Part VII – Project Specifications;

2.2.1.2 in Part (ii) of Table 2.1, the software items or Cloud Services proposed to be supplied by the Contractor to be used in conjunction with or to be provided by the Contractor Supplied Public Cloud Services which shall not fall below the minimum level specified in Part I of Annex E to Part VII – Project Specifications;

2.2.1.3 in Part (iii) of Table 2.1, the software items proposed to be supplied by the Contractor for implementing a new Contractor Supplied Private Cloud; the quantities of the software items shall not fall below the minimum quantities specified in Part II of Annex E to Part VII – Project Specifications;

2.2.1.4 in Part (iv) of Table 2.1, the software for the equipment proposed to be supplied by the Contractor to be installed at or used in the venues or outlets or LCSD Offices.

collectively, all of the above items proposed are “Contractor Supplied Software”. These are the items to ensure that the System will comply with all essential requirements as stated in Part VII – Project Specifications.

2.2.2 Excess Software

2.2.2.1 Unless they are offered at the cost and expense of the Tenderer, where the Tenderer submits any proposed Execution Plan or proposed Technical Solution or Innovative Suggestions which contains any proposals which are in excess of the original requirements set out in the Tender Documents for gaining marks under the Marking Scheme (viz., “Excess Proposals”), and which require the supply and implementation of any additional software or software of a higher specification than originally required, such software shall be proposed as Contractor Supplied Software under the heading “Excess Software” in Table 2.1 below (“excess software”).

- 2.2.2.2 Whilst the Contractor shall be bound to supply if accepted by the Government, on the other hand, the Government reserves the power not to accept any such excess software any time before or during the System Analysis and Design Stage of the System. Where notwithstanding any Excess Proposals (and regardless of whether they have earned marks for the Tenderer under the Marking Scheme), but the Tenderer does not propose the excess software in Table 2.1 below for implementing such Excess Proposals, the Tenderer shall be deemed to have offered the excess software at its own cost and expenses.
- 2.2.2.3 Unless and save to the extent it is already specified by default that certain Excess Proposal covering one or more excess software shall only be evaluated under the specified Grouping of the Marking Scheme, the Tenderer shall identify whether the Excess Proposal covering one or more excess software is for implementing the proposed Technical Solution for assessment under any of the applicable sub-grouping of Grouping A(II) of the Marking Scheme, or for implementing an Innovative Suggestion for assessment under any of the applicable sub-grouping of Grouping A(III) of the Marking Scheme.
- 2.2.2.4 The Tenderer may only choose one (1) such Grouping but not multiple Groupings so that the Excess Proposal will only be evaluated under the singular chosen Grouping (but without ruling out the possibility that the Excess Proposal may be evaluated under more than one (1) sub-grouping under that singular chosen Grouping, if applicable).
- 2.2.2.5 Unless and save to the extent it is already specified by default that certain Excess Proposal covering one or more excess software shall only be evaluated under the specified Grouping of the Marking Scheme, where the Tenderer has failed to identify any Grouping for an Excess Proposal covering one or more excess software, provided that Grouping A(III) is applicable, the Government will have the discretion to choose Grouping A(III) to assess the Excess Proposal. However, in the event that the full marks allocated to Grouping A(III) have already been earned by the Tenderer in relation to other Innovative Suggestions proposed by the Tenderer which are different from the Excess Proposal or otherwise that Grouping A(III) is not applicable, the Government will have the discretion to choose the earliest number of the applicable Groupings to assess the Excess Proposal.

Table 2.1 Contractor Supplied Software Items Proposed for the System

Environment ^(a):			
Item No.	Product / Version No.	Description	Quantity
(i) Items of application software for implementing the functions of the System including those as specified in Section 4.5 of Part VII – Project Specifications			
(ii) Items of software to be used in conjunction with the Contractor Supplied Public Cloud Services or Cloud Services in replacement of such software to be provided by the Contractor Supplied Public Cloud			
For the production environment			

For the DR environment			
For the non-production environment			
(iii) Items of software for implementing a new Contractor Supplied Private Cloud			
For the production environment			
For the DR environment			
For the non-production environment			
(iv) Items of software for any equipment at Outlets / LCSD Offices / Venues			
(v) Excess Software			
The applicable Grouping to be specified by the Tenderer ^(b)			
		Excess software proposed by the Tenderer shall be identified by the Tenderer for implementing Excess Proposal in the following*: in the proposed Execution Plan / proposed Technical Solution / Innovative Suggestions <i>* The Tenderer should delete the inapplicable types of Proposals by retaining one type only. For Excess Proposal in the Proposed Technical Solution, please also specify clearly the desirable item to be achieved.</i>	

Notes:

- (a) Non-production environment shall be used for purposes including development, testing, training and load test.
- (b) As mentioned in paragraph 2.2.2.3 of this Schedule, in relation to any excess software to be proposed above for implementing any Excess Proposal, the Tenderer shall select one (1) applicable Grouping under Section A of the Marking Scheme for assessment of such Excess Proposal. Only one (1) applicable Grouping should be selected, viz., the proposed Technical Proposal (Grouping A(II) is applicable), or the Innovative Suggestions (Grouping A(III) is applicable). Further details about how the proposed excess software is relevant to the Excess Proposal should also be specified.

SCHEDULE 3 – SPECIFICATIONS

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

3.1 General

3.1.1 Tenderers shall provide in this Schedule the technical details of the hardware, software items and Cloud services proposed for the System as specified in Part VII – Project Specifications.

3.1.2 Tenderers shall refer to, without limitation, the following Sections of Part VII – Project Specifications for details of the requirements and/or relevant information.

- (a) Section 1 – Introduction;
- (b) Section 7 – Location and Site Specifications;
- (c) Section 10 – Hardware Specifications;
- (d) Section 11 – Software Specifications;
- (e) Section 12 – Security Requirements; and
- (f) Section 17 – Implementation Services.

3.2 Hardware Features

3.2.1 Tenderers shall provide in Table 3.1 the technical details of each of the physical hardware items proposed in Schedule 1 - Hardware for the System.

Table 3.1 Hardware Features for the System

Aspects	Detailed Descriptions
Item No. ^(a)	
Name of Product	
Place of Origin / Place of Substantial Manufacturing	
Name of Manufacturer	
Address of Manufacturer	
Brand Name	
Model	
Features	
Duration of the availability of the current version or the previous version in the market	

Notes:

- (a) “Item No.” shall correspond to “Item No.” given in Schedule 1 - Hardware.

3.2.2 Tenderers shall provide in Table 3.2 the technical details of each of the Cloud Service items proposed in Schedule 1 - Hardware and where applicable for Schedule 2 for the System.

Table 3.2 Public Cloud Service Features for the System

Aspects	Detailed Descriptions
Item No. ^(a)	
Name of Public Cloud Operator	
Address of the data centre	
Hosting Plan	
Specifications of the Public Cloud Services - VM as servers: the number of CPU core and memory in GB per VM	
Specifications of the Public Cloud Services providing storage or backup or replication service: Number of GB per unit of the proposed Item of Cloud Service	
Hosting Plan:	
Functions to be fulfilled by the proposed Item (please identify the applicable description as specified in the second column of Part I of Annex E to Part VII – Project Specifications)	

Notes:

(a) “Item No.” shall correspond to “Item No.” given in Schedule 1 - Hardware.

3.3 Software Features

3.3.1 Tenderers shall provide in Table 3.3 the technical details of each of the software items proposed in Schedule 2 – Software for the System.

Table 3.3 Software Features for the System

Aspects	Detailed Descriptions
Item No. ^(a)	
Name of Product	
Place of Origin / Place of Substantial Manufacturing	
Name of Manufacturer	
Address of Manufacturer	
Brand Name	
Model/Version Number	
Features	
Duration of the availability in the market for the current	

version or the previous version as at the Tender Closing Date	
Current version number	
Previous version number	
Salient Functions	
Installation and Operational Pre-requisites ^(b)	
In addition to the above details, for the application software proposed in Part (i) of Table 2.1 of Schedule 2 – additional information required to show compliance with the essential requirement specified in Section 4.5.2 of Part VII – Project Specifications:	
The name of the user which has commissioned the implement an online ticketing system with such application software installed	
Business area and the nature of services which the ticketing system provides	
Location of the ticketing system	

Notes:

- (a) “Item No.” shall correspond to “Item No.” given in Schedule 2 - Software of Part V.
- (b) The installation and operational pre-requisites refer to any specific hardware, software, software patch or service pack that is required and must be provided for the successful installation and operation of the product.

3.4 Software Customisation Features

- 3.4.1 Tenderers shall provide in Table 3.4 the software customisation features for the off-the-shelf application software proposed in Part (i) of Table 2.1 of Schedule 2 to meet the essential requirements as specified in Part VII – Project Specifications.

Table 3.4 Software Customisation Features for the System

Item No.	Software / Software Module Name	Software / Software Module Description	Requirement Reference ^(a)	Requirement Description ^(b)	Customisation Features ^(c)

Notes:

- (a) “Requirement Reference” shall correspond to the relevant section/annex number of Part VII – Project Specifications.
- (b) Information shall be given on the essential requirements specified in Part VII – Project Specifications to be supported by customisation of the software/software module.
- (c) Information shall be given on how the software/software module will be customised for compliance with the relevant essential requirement as mentioned in note (a) and note (b) above.

3.5 Network Bandwidth Requirement Specifications

- 3.5.1 Tenderers shall provide in Table 3.5 the estimated network bandwidth requirements for the network in all data centres and outlets as to cope with the workload requirements mentioned in Section 5 of Part VII – Project Specifications. All network services shall be provided by the Contractor as part of the network service:

Table 3.5 Network Bandwidth Requirement as per the Connections specified in Section 10.7.13 of Part VII – Project Specifications

Location of Office ^(a)	Bandwidth Speed (Mbps)	Quantity of Communication Lines

Note:

- (a) Location of Office refers to data centres (both production and DR), Ticketing Office, IT Office and outlets.

3.6 Quality Management

- 3.6.1 Tenderers shall provide in Table 3.6 details of the quality control and assurance procedures for the implementation and system support and maintenance of the System.

Table 3.6 Quality control and assurance procedures

Items	Description
Quality control and assurance procedures	

3.7 Cloud Services

- 3.7.1 The Tenderer shall provide detailed description of the Cloud Services including proposed procedures and guidelines, methodologies and control mechanism with detailed explanation on the following areas:

- (a) Service Management; and
 (b) Quality control/assurance procedures.

SCHEDULE 4 - TECHNICAL PROPOSAL AND SYSTEM CONFIGURATION

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

4.1 General

4.1.1 Tenderers shall submit in paragraph 4.1 of this Schedule details of the proposed technical solution in relation to the overall system architecture of the System to fully meet all of the requirements of the Tender Documents including the Project Specifications, Performance Criteria and Reliability Levels which are the minimum requirements which must be fulfilled (“Overall Technical Solution”).

4.1.2 Additionally, Tenderers may wish to provide further details of the Overall Technical Solution to show how any of the desirable features as stated in paragraphs 4.2 to 4.13 of this Schedule will be achieved by the proposed Overall Technical Solution. For each desirable feature specified below, such part of the Overall Technical Solution which purports to fulfil such desirable feature is “proposed Technical Solution”.

4.1.3 Tenderers shall refer to, without limitation, the following Sections of Part VII – Project Specifications for details of the requirements and/or relevant information.

- (a) Section 4 – Functional Specifications;
- (b) Section 5 – Workload Specifications;
- (c) Section 6 – System Performance Specifications;
- (d) Section 10 – Hardware Specifications;
- (e) Section 11 – Software Specifications;
- (f) Section 12 – Security Requirements;
- (g) Section 14 – System Resilience and Disaster Recovery Requirements;
- (h) Annex C – Disaster Recovery Requirements to Part VII – Project Specifications; and
- (i) Annex F – Sample Sizing Report to Part VII – Project Specifications.

4.2 System Architecture

4.2.1 Tenderers shall provide details of the proposed design and technical dimension of the overall system architecture of the System to satisfy all of the requirements specified in the Project Specifications.

4.2.2 Tenderers shall clearly specify the configuration information for the constellation of network, Hardware, Software and Custom Programs required for constructing the proposed system architecture of the System. Information, charts, diagrams and other presentations shall be provided.

4.2.3 Tenderers shall clearly specify how the System can handle the workload requirements as specified in Section 5 – Workload Specifications and Section 6 – System

Performance Specifications of Part VII – Project Specifications. Details of the approach and design shall be given.

4.2.4 Tenderers shall provide details on how the requirements specified in Section 11 – Software Specifications of Part VII – Project Specifications will be complied with.

4.2.5 Tenderers shall provide the information on the overall system architecture including but not limited to the following:

- ♦ Solution overview with feature highlights;
- ♦ System logical and physical components and inventory;
- ♦ Logical and physical network design with diagrams;
- ♦ System resilience considerations and designs;
- ♦ Design for data conversion and migration; and
- ♦ Other information.

4.2.6 Disaster Recovery Design

4.2.6.1 Tenderers shall propose the approaches to be taken, and the solutions to be developed in securing the characteristic of the overall disaster recovery of the system architecture for the System.

4.2.6.2 Tenderers shall give information on how to put disaster recovery processes or procedures in place into the System in order to assure business continuity under unusual internal and external circumstances.

4.2.6.3 Based on such information, Tenderers shall also specifically describe the disaster recovery in terms of, but not limited to, the following provisions:

- (i) The network infrastructure design for linking up the Data Centres housing the production environment of the System, outlets, LCSD offices and the Data Centre housing the DR environment of the System; and
- (ii) The disaster recovery design incorporated with configurations, switchover scenarios and time for the most demanding situations, which shall trigger the executions of disaster recovery plan.

4.2.7 Sizing Report

4.2.7.1 Tenderers shall provide a sizing report in Section 21.1(h) of Schedule 21 – Other Information to support the proposed configuration in Schedules 1 and 2 of this Part. The sizing report shall illustrate how the proposed configuration can meet the functional, workload and system performance requirements specified in Section 4 – Functional Specifications, Section 5 – Workload Specifications and Section 6 – System Performance Specifications of Part VII – Project Specifications.

4.2.7.2 The sizing report shall be supported by descriptions of the methodology, basic assumptions, parameters and input data used.

4.2.7.3 The sizing report shall include the threshold limits recommended by Tenderers, the projected utilisation and usable spare capacity of CPU, memory, disk storage, network and other major system components.

4.3 Expandability (or flexibility)

4.3.1 Flexibility means the ability of the proposed Technical Solution to adapt its architecture and/or design to changes.

4.3.2 For each desirable flexibility feature listed in Part A of Table 4.1 below in excess of the original requirements as stated in Part VII – the Project Specifications (“desirable flexibility feature”), the Tenderer may wish to provide further details of the proposed Technical Solution to achieve the feature in the same Part A of the same Table.

4.4 Resilience

4.4.1 Resilience means the ability of the proposed System to keep operating even with one or more of its components malfunctioning and the System’s ability to recover from failure.

4.4.2 For each desirable resilience feature listed in Part B of Table 4.1 below in excess of the original requirements as stated in Part VII – the Project Specifications (“desirable resilience feature”), the Tenderer may wish to provide further details of the proposed Technical Solution to achieve the feature in the same Part B of the same Table.

4.5 Security

4.5.1 Security means the technology as well as the technological and managerial procedures applied to the proposed Technical Solution to ensure better availability, integrity and confidentiality of data.

4.5.2 For each desirable security feature listed in Part C of Table 4.1 below in excess of the original requirements as stated in Part VII – the Project Specifications (“desirable security feature”), the Tenderer may wish to provide further details of the proposed Technical Solution to achieve the feature in the same Part C of the same Table.

4.6 Usability

4.6.1 Usability means the convenience and practicality of the proposed Technical Solution.

4.6.2 For each desirable usability feature listed in Part D of Table 4.1 below in excess of the original requirements as stated in Part VII – the Project Specifications (“desirable usability feature”), the Tenderer may wish to provide further details of the proposed Technical Solution to achieve the feature in the same Part D of the same Table.

4.7 System Reliability

4.7.1 System Reliability refers to the Reliability Levels as specified in Schedule 13 – Reliability Specifications of this Part. Tenderer may wish to propose higher levels of Reliability Levels in Schedule 13 of this Part.

Table 4.1 Proposed Technical Solution for assessment under Grouping A(II) of the Marking Scheme

Schedule Table		4.1
Schedule Content		Proposed Technical Solution for assessment under Grouping A(II) of the Marking Scheme
No.	Reference in the Marking Scheme	Descriptions (In order that Tenderers can earn marks under Grouping A(II) of Section A regardless of whether a Passing Mark has been set for this Grouping (i.e. Grouping A(II)) under the Marking Scheme, Tenderers are requested to submit details of the proposed Technical Solution for assessment as requested in the Items No 1 to 5) below, together with supporting documentary proof where applicable or where requested.)
Part A: Desirable flexibility features		
1	Sub-grouping A(II)(1) relating to a desirable flexibility feature as specified opposite:	Set out in Item 1.1 below is desirable flexibility feature: Information Required: The Tenderer should provide further details of the proposed Technical Solution as well as to prove that any of the desirable flexibility features will be met.
1.1	First sub-criterion under sub-grouping A(II)(1)	The System will have the capacity to perform 150 000 or more concurrent sessions, viz., at least 50 000 more concurrent sessions in excess of the original requirement specified in Section 5.4.3.3 of Part VII – Project Specifications.
Part B: Desirable resilience features		
2	Sub-grouping A(II)(2) relating to a desirable resilience feature as specified opposite:	Set out in Items 2.1 to 2.2 below are desirable resilience features: Information Required: The Tenderer should provide further details of the proposed Technical Solution as well as to prove that any of the desirable resilience features will be met.
2.1	First sub-criterion under sub-grouping A(II)(2)	Any one faulty hardware or software can resume service in 15 minutes or less after a failover process by switching to another component upon such hardware or software failure to avoid any one single point of failure.
2.2	Second sub-criterion under sub-grouping A(II)(2)	The proposed System will implement an active-active mode for the database servers in the production environment of the Private Cloud to allow load sharing and better utilisation.
Part C: Desirable security features		
3	Sub-grouping A(II)(3) relating to a desirable security feature as specified opposite:	Set out in Items 3.1 to 3.4 below are desirable security features: Information Required: The Tenderer should provide further details of the proposed Technical Solution as well as to prove that any of the desirable security features will be met.
3.1	First sub-criterion under sub-grouping A(II)(3)	The proposed System uses blockchain technology for management and tracking transfer of e-tickets to improve fraud protection and minimise the possibility of counterfeit tickets.

3.2	Second sub-criterion under sub-grouping A(II)(3)	Provision of 5 or more security features that can effectively safeguard against counterfeiting of admission tickets in paper form, viz., at least 2 more in excess of the minimum quantity as specified in Sections 4.5.13.10.10 and 12.13.1 of Part VII – Project Specifications.
3.3	Third sub-criterion under sub-grouping A(II)(3)	The proposed System uses a security log management tool to facilitate the log review exercise which can send out alerts by email or text message when suspected activities are detected from the system logs and generate statistical reports after log review.
3.4	Fourth sub-criterion under sub-grouping A(II)(3)	The Tenderer proposes a schedule for the installation of security updates and patches at least four times a year, except for the workstations at the outlets and offices, viz., at least 2 more times a year in excess of the original requirement as specified in Section 11.5.5.1 of Part VII – Project Specifications.
Part D: Desirable usability features		
4	Sub-grouping A(II)(4) relating to a desirable usability feature as specified opposite:	Set out in Items 4.1 to 4.4 below are desirable usability features: Information Required: The Tenderer should provide further details of the proposed Technical Solution as well as to prove that any of the desirable usability features will be met.
4.1	First sub-criterion under sub-grouping A(II)(4)	Provision of a VM or physical workstation for remote control of workstations at outlets to handle remote patch management.
4.2	Second sub-criterion under sub-grouping A(II)(4)	In addition to the Operation Team to be staffed for performing the telephone ticketing and enquiry services, the proposed System will provide Chatbot function to facilitate convenient communication with patrons for these enquiry services.
4.3	Third sub-criterion under sub-grouping A(II)(4)	The proposed System will be able to provide automated rules and pricing logics to help establish patterns (e.g. number of tickets sold) and set variable price points for the same event as well as manual adjustments of pricing on the fly. Authorised persons are allowed to set rules to limit the maximum and minimum price for change of any seats in a given event.
4.4	Fourth sub-criterion under sub-grouping A(II)(4)	The proposed System will be able to: <ul style="list-style-type: none"> allow priority sale of tickets under subscription sale to selected groups of privileged patrons authorised by event presenters before official public sale of tickets (“priority patrons”). Event presenters are allowed to set up events in the System and design associated webpage for secure access and payment by such priority patrons through the same modes of payment available in public sale; capture the same seat bought by the same patron for the same venue facility in a season in ticket history as

		<p>“renewal seat” for the next season and give the option to the patron to buy the same seat in the next season under another subscription sale for that next season. Ticket history of the renewal seat of patrons will be updated whenever there is any modification to ensure the accuracy of renewals in subscription sale of tickets of the next season;</p> <ul style="list-style-type: none"> • give the option to the patron to choose the same seat(s) for all performances at the same venue facility in the same season or all events of the same series or of the same festival during one single purchase transaction. If any seats requested by patrons have been sold, the System can choose the best available seats and alert patrons with on-screen message; and • The System shall give the option to the event presenter to pre-define areas of the seat plan for the sale of box seats, table seats, or any other fixed seats within such predefined areas with group package discount. The System will have the function to allow the presenter to restrict tickets of individual box to be sold one by one. The System will also have the function to only allow exchange of package tickets within the whole of the pre-defined area and restrict any exchange of just some but not all tickets within such pre-defined area.
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4.8 System Management

4.8.1 Tenderers shall specify the approaches to be taken and the solutions to be adopted to implement the system management functions of the System.

4.8.2 Tenderers shall give information concerning the functions to be provided within the System to conduct effective system management including but not limited to user account management, application software management (including new features rollout/patches), performance management and system resource management in an integrated management environment.

4.9 System Operation Management

4.9.1 Tenderers shall specify the approaches to be taken and solutions to be adopted to implement the system operation management functions of the System.

4.10 System Backup and Recovery

4.10.1 Tenderers shall specify the approaches to be taken and the solutions to be adopted to implement the system backup and recovery functions of the System.

4.10.2 Tenderers shall give information on how the system backup and recovery plan will be executed in terms of the backup and recovery to be performed, the committed backup time, recovery time, the duration and frequency dependent upon the criticality and

volatility of various system components of the System. Testing on the system backup and recovery plan to ensure the backup and recovery processes are adequate shall also be proposed. Additionally, Tenderers shall provide a list of resources, expertise and tools for the processes.

4.11 Data Backup and Recovery

4.11.1 Tenderers shall specify the approaches to be taken and the solutions to be adopted to implement the data backup and recovery functions of the System.

4.11.2 Tenderers shall give information on the committed backup time and the committed recovery time for different types of data backup.

4.12 System Maintenance

4.12.1 Tenderers shall provide the details on the approaches to be taken, and the solutions to be developed in performing maintenance of the System.

4.12.2 Tenderers shall give information on how to perform the effective system maintenance in terms of establishing preventive maintenance procedures, undertaking emergency maintenance assignments, and maintaining accurate documentation in order to provide the best overall maintenance support to the System. Additionally, list of resources, expertise and tools that enable system maintenance shall be provided.

4.13 Ticket Security Features

4.13.1 Tenderers shall provide the details on the features, measures and mechanisms to be taken in ensuring the security on the printed tickets.

SCHEDULE 5 - PRELIMINARY DESIGN FOR THE CUSTOM PROGRAMS

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

5.1 General

5.1.1 Tenderers shall propose in this Schedule the preliminary design of various Custom Programs for the System as specified in Part VII – Project Specifications.

5.1.2 Tenderers shall refer to, without limitation, the following Sections of Part VII – Project Specifications for details of the requirements and/or relevant information.

- (a) Section 4 – Functional Specifications;
- (b) Section 12 – Security Requirements;
- (c) Section 17 – Implementation Services; and
- (d) Section 18 – System Support and Maintenance Services.

5.2 Custom Programs Specifications

5.2.1 Tenderers shall propose in Table 5.1 the overall preliminary design of the System.

Table 5.1 Preliminary Design of the System

Design elements	Description
Preliminary level design specifications ^(a)	
Programming language or platform	
Development and testing tools	
Access Control	

Notes:

- (a) Preliminary level design specifications shall outline the overall design in terms of descriptions of system functions and features with functional partitioning, application and software architecture, various supporting diagrams, design constraints, user interfaces, and logical data model that are pertinent to meeting the requirements of the System.

5.2.2 Tenderers shall propose in Table 5.2 the preliminary design of the Custom Programs in meeting each of those functional requirements of the System which is to be implemented through the deployment of Custom Programs.

Table 5.2 Custom Programs Specifications for the System

The following information shall be provided for each Custom Program	
Item No.	
Name	
Purpose ^(a)	
Requirement Reference ^(b)	
Preliminary Design ^(c)	

Programming Languages or Platform ^(d)	
Development and Testing Tools	
Access Control	
Interface Design and Strategy (if any) ^(e)	
Estimated Effort in man-day	

Notes:

- (a) Information shall be given on the purpose and functionality of the Custom Programs.
- (b) “Requirement Reference” shall correspond to relevant Section(s) of Part VII – Project Specifications and/or relevant Section of the relevant annex to Part VII – Project Specifications which the Custom Program is proposed to fulfil.
- (c) Information shall be given regarding the preliminary design of the Custom Programs. Dependencies of other Custom Programs may be mentioned in the proposal if applicable.
- (d) Information shall be given to show that at least the persons filling the role of Analyst Programmer in the Implementation Team each has expertise in the programming languages and/or platforms proposed for developing the Custom Programs.
- (e) Diagram and information shall be given regarding the participating system components, data involved, frequency, and how the data shall be exchanged.

5.3 Excluded Custom Materials

The Intellectual Property Rights (IPR) of all Custom Programs and their Source Code to be created by the Contractor during the Contractor’s performance of its obligations under this Contract shall be vested in the Contractor.

SCHEDULE 6 - DOCUMENTATION

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

6.1 General

- 6.1.1 Tenderers shall propose in this Schedule the set of Off-the-Shelf Documentation to be supplied in respect of each item of Contractor Supplied Hardware and Contractor Supplied Software, where available.
- 6.1.2 Tenderers shall propose in this Schedule the set of Project Documentation to be supplied and updated as part of the Implementation Services, and to be supplied and updated as part of the System Support Services.
- 6.1.3 Tenderers shall refer to Section 17.3.16 of Part VII - Project Specifications for the items of the Project Documentation to be supplied and updated as mentioned in paragraph 6.1.2 of this Schedule.

6.2 Hardware Documentation

- 6.2.1 Tenderers shall provide in Table 6.1 a complete list of Off-the-Shelf Documentation to be supplied and updated for each of the proposed Contractor Supplied Hardware items.
- 6.2.2 At least four (4) free hardcopies and one (1) free softcopy in format readable by Microsoft Word 2010 or above, or Adobe Reader 10 or compatible of the Off-the-Shelf Documentation for each of the proposed Contractor Supplied Hardware items shall be provided by the Contractor.

Table 6.1 Contractor Supplied Hardware Off-the-Shelf Documentation

Item No. ^(a)	Description	Medium ^(b)	No. of Free Copies

Notes:

- (a) "Item No." shall correspond to "Item No." given in Schedule 1 – Hardware of Part V.
- (b) Medium of the proposed documentation shall be specified as printout, CD-ROM or other appropriate media.

6.3 Software Documentation

- 6.3.1 Tenderers shall provide in Table 6.2 a complete list of Off-the-Shelf Documentation to be supplied and updated for each of the proposed Contractor Supplied Software items.
- 6.3.2 At least four (4) free hardcopies and one (1) free softcopy in format readable by Microsoft Word 2010 or above, or Adobe Reader 10 or compatible of the Off-the-Shelf Documentation for each of the proposed Contractor Supplied Software items shall be provided by the Contractor.

Table 6.2 Contractor Supplied Software Off-the-Shelf Documentation

Item No.^(a)	Description	Medium^(b)	No. of Free Copies

Notes:

(a) "Item No." shall correspond to "Item No." given in Schedule 2 - Software of Part V.

(b) Medium of the proposed documentation shall be specified as printout, CD-ROM or other appropriate media.

6.4 Project Documentation

6.4.1 Tenderers shall propose in Table 6.3 a complete list of Project Documentation to be supplied and/or updated as part of the Implementation Services.

6.4.2 Tenderers shall propose in Table 6.4 a complete list of Documentation to be supplied and/or updated as part of the System Support Services.

6.4.3 At least four (4) free hardcopies and one (1) free softcopy in format readable by Microsoft Word 2010 or above, or Adobe Reader 10 or compatible for each item of the Project Documentation shall be provided.

6.4.4 The Project Documentation supplied for the Custom Programs shall include all relevant materials and specifications for the development and modifications of the Custom Programs including Source Code for such Custom Programs.

Table 6.3 Project Documentation Supplied and/or Updated as part of the Implementation Services

Item No.	Description	Medium^(a)	No. of Free Copies

Notes:

(a) Medium of the proposed documentation shall be specified as printout, CD-ROM or other appropriate media.

Table 6.4 Project Documentation to be Supplied and/or Updated as part of the System Support Services

Item No.	Description	Medium^(a)	No. of Free Copies

Notes:

(a) Medium of the proposed documentation shall be specified as printout, CD-ROM or other appropriate media.

SCHEDULE 7 - CONTRACTOR PERSONNEL AND THEIR DUTIES

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

7.1 General Requirements

7.1.1 Tenderers shall provide in this Schedule the Implementation Team structure, and details of the nominees proposed for the Key Roles in the Implementation Team (alternatively referred as “key project staff”). The number of nominee(s) proposed by the Tenderer for each Key Role shall be sufficient to prove that the essential requirement concerning the minimum number for that Key Role will be complied with. Each nominee fulfilling the minimum number for a Key Role shall also comply with the essential requirements concerning qualification and experience applicable to that Key Role. All these essential requirements are set out in Section 17 – Implementation Services of Part VII – Project Specifications. A Tenderer who fails to comply with any of the aforementioned essential requirements will result in its tender **not** being considered further. It is not necessary to propose the nominees and their details for a non-Key Role in this Schedule as details of the nominees for each non-Key Role shall be made available upon the commencement of the Implementation Period. The number, qualification and experience of these nominees shall comply with the essential requirements set out in Section 17 – Implementation Services of Part VII – Project Specifications which the Tenderer shall confirm compliance in Schedule 19 of this Part.

7.1.2 Tenderers shall provide in this Schedule the Maintenance Team structure. It is not necessary to propose the nominees and their details in this Schedule for any role in the Maintenance Team as details of the nominees for each role shall be made available prior to the commencement of the Maintenance Period. The number, qualification and experience of these nominees shall comply with the essential requirements set out in Section 18 – System Support and Maintenance Services of Part VII – Project Specifications which the Tenderer shall confirm compliance in Schedule 19 of this Part.

7.1.3 Throughout the Tender Documents and the Contract, reference to “minimum number” shall mean in relation to a role for the Implementation Team as specified in Section 17 – Implementation Services of Part VII – Project Specifications, the minimum number of persons as stated therein to be required to fill such role and repeated in the first column of Table 7.3 of this Schedule; and in relation to a role for the Maintenance Team as specified in Section 18 – System Support and Maintenance Services of Part VII – Project Specifications, the minimum number of persons as stated therein to be required to fill such role and repeated in the first column of Table 7.5 of this Schedule. For the avoidance of doubt, the minimum number does not apply to other role which may be proposed by the Tenderer and the Tenderer may not fulfil the minimum number or minimum man-months to be performed by such minimum number for any such other role.

7.2 The Implementation Team Structure

7.2.1 Tenderers shall provide in Table 7.1 a clear organisation chart of the Implementation Team proposed for the provision of the Implementation Services.

Table 7.1 The Implementation Team Structure Proposed for the Implementation Services

- | |
|--|
| (a) The organisation chart ^(a) |
| (b) The Implementation Team structure ^(b) |
| (c) Escalation procedures ^(c) |

Notes:

- (a) Diagram of the organisation chart shall be given.
- (b) Based on the organisation chart referred to in Note (a) above, information shall be given on how to form a balanced and effective Implementation Team in terms of types of manpower resources allocated to achieve the committed man-months for system implementation, what roles and responsibilities they are going to play, and how knowledge sharing as well as transfer will be promoted among the Implementation Team members in order to ensure the successful delivery of the Implementation Services.
- (c) Information shall be given on the reporting procedures.

7.3 Previous Experience of the nominees for the Key Project Staff in the Implementation Team

7.3.1 Tenderers shall provide in Table 7.2 details of previous qualifications and experience of the proposed nominees for the key project staff (i.e., persons filling the Key Roles of the Implementation Team) involved in the delivery of the Implementation Services. The information provided shall show that the nominees fulfilling the minimum number comply with the essential requirements concerning qualification and experience for the respective Key Roles in the Implementation Team they fill as specified in Section 17.4 of Part VII – Project Specifications.

7.3.2 Tenderers shall attach to this Schedule the curriculum vitae of each of the nominees for each Key Role in the Implementation Team. Tenderers shall also provide documentary proof of the qualifications of each nominee. Tenderers shall also provide copy of project management certification(s) attained by the nominated Project Manager as at the Original Tender Closing Date. Where applicable, Tenderers shall also provide copy of certificates issued by recognised IT institutes or bodies on the relevant skills of the nominees. The certification or certificates shall be valid as at the Original Tender Closing Date and thereafter throughout the Tender Validity Period. If the Contract is awarded to the Tenderer, these certifications or certificates shall continue to be valid throughout the Implementation Period.

7.3.3 During the project initiation stage of the implementation of the System, the Contractor shall provide details of previous experience of all the other members of the Implementation Team specified in Table 7.3 involved in the delivery of the Implementation Services of the System for the Government’s consideration.

Table 7.2 Previous Experiences of the Nominees for the Key Project Staff in the Implementation Team

The following information shall be provided for each nominee fulfilling the minimum number for each Key Role	
Role	<p>Project Manager</p> <p>(Minimum Requirement:</p> <p>(a) a degree or above in computer science, electrical and electronic engineering, or other IT related discipline, or equivalent;</p> <p>(b) at least 11 years of IT experience including at least 6 years of experience in managing one or more project(s) which involves the provision of IT system implementation services;</p> <p>(c) at least 2 years of IT experience in managing one or more IT system(s) which involves in real-time ticketing services in last 10 years immediately before the Original Tender Closing Date and the experience shall be gained from managing a IT system which provided real-time ticketing services and had issued a minimum of 1,000,000 tickets for events held at culture, entertainment or sports venues within a continuous period of 12 months prior to the Original Tender Closing Date.</p> <p>)</p>
Name	
Qualifications^(a)	
Years of IT Experience^{(b) (g) (h)}	
Years of IT Experience in the Required Functional/Speciality^(c) (g) (h)	
Skill Profiles^(c)	
Required IT project(s) Experience (c) (g) (h)	
Professional Qualification/Certificate^{(d) (e)}	
Other Relevant Experience^(f) (please specify)	

Role	<p>System Architect</p> <p>(Minimum Requirement:</p> <p>(a) a degree or above in computer science or equivalent;</p> <p>(b) at least 8 years of IT experience including at least 4 years of system architecture design experience for implementing at least one or more IT system on public Cloud infrastructure with auto-provisioning capability; and</p>
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	<p>(c) at least 4 years IT experience that covers one or more of the following areas (viz., functional and specialty experience):</p> <ul style="list-style-type: none"> • Designing and implementing system architecture for a large scale of IT system with high-availability design features • Defining system components and define the standards for the components to interact with one another to form a large IT system • Producing a design for an IT system and high level system requirements in consultation with the user • Resolving any problems arising during system design or implementation. • Generating a set of acceptance test requirements, together with the designers, test engineers, and the user, which determine that all of the high level requirements have been met. <p>)</p>
Name	
Qualifications^(a)	
Years of IT Experience^{(b) (g) (h)}	
Years of IT Experience in the Required Functional/Speciality^(c) (g) (h)	
Skill Profiles^(c)	
Required IT project(s) Experience (c) (g) (h)	
Professional Qualification/Certificate ^{(d) (e)}	
Other Relevant Experience ^(f) (please specify)	

Role	<p>Lead Systems Analyst</p> <p>(Minimum Requirement:</p> <p>(a) a degree or above in computer science or equivalent;</p> <p>(b) at least 9 years IT experience;</p> <p>(c) at least 5 years IT experience in implementing one or more IT system(s) for the provision real-time ticketing services; and</p> <p>(d) at least 5 years IT experience that covers one or more of the following areas (viz., functional and specialty experience) which period of experience may overlap with the period as required in (c) above:</p> <ul style="list-style-type: none"> • conducting analysis, design and implementation of
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	application systems; <ul style="list-style-type: none"> • producing system specifications; • ensuring conformance of software packages with user requirements; • conducting system testing; and • conducting system installation and server maintenance.)
Name	
Qualifications^(a)	
Years of IT Experience^{(b) (g) (h)}	
Years of IT Experience in the Required Functional/Speciality^(c) (g) (h)	
Skill Profiles^(c)	
Required IT project(s) Experience (c) (g) (h)	
Professional Qualification/Certificate^{(d) (e)}	
Other Relevant Experience^(f) (please specify)	

Notes:

- (a) The qualifications as at the Original Tender Closing Date shall be given. The nominee fulfilling the minimum number shall possess as at the Original Tender Closing Date the qualifications as required under Section 17.4 of Part VII – Project Specifications for the Key Role in the Implementation Team he/she purports to fill.
- (b) Years of IT experience as at the Original Tender Closing Date shall be given. The nominee fulfilling the minimum number shall possess as at the Original Tender Closing Date the IT experience required under Section 17.4 of Part VII – Project Specifications for the Key Role in the Implementation Team he/she purports to fill. IT experience refers to the full-time involvement in IT job positions irrespective of the nominee’s functional/speciality experience. The information shall include:
- (i) Company name(s);
 - (ii) Position held and nature of work;
 - (iii) Service period and duration of the position held; and
 - (iv) Total service duration in calendar days with the said company(ies).
- (c) Information shall be given to show that the nominee fulfilling the minimum number possesses as at the Original Tender Closing Date the IT experience in the functional/speciality and/or IT project experience required under Section 17.4 of Part VII – Project Specifications for the Key Role he/she purports to fill. Where applicable, information of the IT project(s) that the nominee has participated as at the Original Tender Closing Date shall be given to support the claimed years of IT experience in the required functional/speciality and/or IT project experience. Information given for each of the IT project(s) shall include:
- (i) Customer Name;
 - (ii) Name of the IT project;

- (iii) Summary/description of the IT project for the implementation of an IT system which deployed on a public Cloud infrastructure with auto-provisioning capability and/or concerning real-time ticketing system and services;
 - (iv) Title, role as well as responsibilities of the nominee in the IT project;
 - (v) Summary of activities of the required functional/speciality that the nominee carried out in the IT project;
 - (vi) Start and end date (in dd.mm.yyyy) of period(s) that the nominee worked in the IT project; and
 - (vii) Total service duration in calendar days that the nominee worked in the IT project.
- (d) Information shall be given on valid professional qualification/certificate(s) that the nominee fulfilling the minimum number possesses as at the Original Tender Closing Date as required under Section 17.4 of Part VII – Project Specifications for the relevant Key Role that he/she purports to fill. Any certification must remain valid throughout the Tender Validity Period and if the Contract is awarded to the Tenderer, throughout the Implementation Period.
- (e) Information may also be given on valid project management certifications attained by the nominated Project Manager as at the Original Tender Closing Date. Any certification must remain valid throughout the Tender Validity Period and if the Contract is awarded to the Tenderer, throughout the Implementation Period.
- (f) Information shall be given on other relevant skills and years of experience as at the Original Tender Closing Date.
- (g) The period of IT experience generally as referred to in Note (b) and the period of IT experience in functional/speciality and/or IT project experience as referred to in Note (c) may overlap and refer to the same experience provided that the IT experience fulfils all the applicable requirements applicable to each such different type of experience.
- (h) All experience up the Original Tender Closing Date is counted in days and all such experience in days shall be added up and then divided by 365 days to arrive at the number of complete years (i.e. each complete year with 365 days) covered by such total period with any remainder period of experience in days which falls short of one complete year of 365 days to be ignored.

7.4 Staff Resources Allocated for the Implementation Services

7.4.1 Tenderers shall provide in Table 7.3 details on staff resources allocated to the Implementation Services.

Part A of Table 7.3 – Staff Resources Allocated to the Implementation Services

Role ^(a) ^(b)	Names of the nominees filling the role	Implementation services to be performed ^(c)	On-site/ Off-site ^(d)	Full Time (F) / Part Time (P) ^(d)	Total no. of man-months ^(e)
Project Manager* <i>(Minimum 1)</i>			Off-site	F	
System Architect* <i>(Minimum 1)</i>			Off-site	F	

Role ^(a) ^(b)	Names of the nominees filling the role	Implementation services to be performed ^(c)	On-site/ Off-site ^(d)	Full Time (F) / Part Time (P) ^(d)	Total no. of man-months ^(e)
Lead Systems Analyst * <i>(Minimum 1)</i>			Off-site	F	
Systems Analyst <i>(Minimum 2)</i>			Off-site	F / P	
			Off-site	F / P	
Analyst Programmer <i>(Minimum 3)</i>			Off-site	F / P	
			Off-site	F / P	
			Off-site	F / P	
System Administrator <i>(Minimum 1)</i>			Off-site	F / P	
Database Administrator <i>(Minimum 1)</i>			Off-site	F / P	
System Engineer <i>(Minimum 1)</i>			Off-site	F / P	
Others (please specify role (“excess roles for the Implementation Services”)) <i>for evaluation under assessment criterion of sub-grouping A(I)(1) of the Marking Scheme</i>					

Part B of Table 7.3 – Total summation of man-months for all roles excluding excess roles for the Implementation Services

Total number of man-months to be performed by the minimum number of all roles specified in Part A above (other than the excess roles for the Implementation Services)	
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Notes:

- (a) Key Roles (or key project staff) are only those roles identified by an “*” in Part A of Table 7.3.
- (b) The minimum number for each role is set out in the first column. No one person assigned for a Key Role may be proposed for another role.
- (c) Different components of the Implementation Services may be identified by referring to their item numbers as given to them in Table 14.1 of Schedule 14 of this Part.
- (d) The on-site or off-site and full-time or part-time arrangement for each of the roles (excluding “Others”) shall comply with the requirements as stipulated above.
- (e) No minimum man-months have been pre-filled for other roles, Tenderers shall propose in the table above the man-months to be performed by these roles. All these man-months to be performed by all roles shall exclude Mandatory and Optional Training, and impact analysis of System Change requests, implementation or operation of Innovative Suggestions.
- (f) The Tenderer may wish to propose excess roles of the Implementation Team (a different role from any of such roles as prescribed in Section 17.4.1 of Part VII – Project Specifications) in excess of the original requirements specified in the Tender Documents. The Tenderer shall also propose the man-months to be performed by these excess roles.

7.5 The Maintenance Team Structure

7.5.1 Tenderers shall provide in Table 7.4 a clear organisation chart of the Maintenance Team for the provision of the System Support and Maintenance Services.

Table 7.4 The Maintenance Team Structure Proposed for the System Support and Maintenance Services

(a) The organisation chart ^(a)
(b) The Maintenance Team structure ^(b)
(c) Escalation procedures ^(c)

Notes:

- (a) Diagram of organisation chart shall be given.
- (b) Based on the organisation chart referred to in Note (a) above, information shall be given on how to form a balanced and effective Maintenance Team in terms of types of manpower resources allocated to achieve the committed man-days per annum, what roles and responsibilities they are going to play, and how knowledge sharing as well as transfer will be promoted among Maintenance Team members in order to ensure the successful delivery of the System Support and Maintenance Services.
- (c) Information shall be given on the reporting procedures.

7.6 Staff Resources Allocated for the System Support Services and Ticketing and Enquiry Services

7.6.1 Tenderers shall provide in Table 7.5 details on staff resources allocated to the System Support Services.

Part A of Table 7.5 – Staff Resources Allocated for the System Support Services

Role ^(a) ^(b)	Names of the nominees filling the role	System Support Services to be performed by the role ^(c)	On-site/ Off-site ^(d)	Full Time (F)/ Part Time (P) ^(d)	Total No. of Man-months per Annum in the Operation Period ^(e)
Maintenance Manager* <i>(Minimum 1)</i>			Off-site	<F/ P>	
Systems Analyst* <i>(Minimum 2)</i>			Off-site	<F/ P>	
			Off-site	<F/ P>	
Analyst Programmer <i>(Minimum 2)</i>			Off-site	<F/ P>	
			Off-site	<F/ P>	
System Support Staff <i>(Minimum 1)</i>			Off-site	<F/ P>	
Security Engineer <i>(Minimum 1)</i>			Off-site	<F/ P>	
Others (please specify the role) (“excess roles for the System Support Services”)					

Part B of Table 7.5 – Total summation of man-months for all roles per annum (other than excess roles for the System Support Services)

Total number of man-months per annum of the System Support Services to be performed by the minimum number of all roles specified in Part A of Table 7.5 above (apart from excess roles for the System Support Services)	
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Notes:

- (a) Key Roles are only those roles identified by an “*” in Part A of Table 7.5.
- (b) No one person assigned for a Key Role may be proposed for another role.
- (c) Different components of the System Support Services are as given to them in Table 15.3 of Schedule 15 of this Part.
- (d) The on-site or off-site and full-time or part-time arrangement for each of the roles (excluding “Others”) shall comply with the requirement as stipulated above.
- (e) No minimum man-months have been pre-filled for any roles in the Maintenance Team. Tenderers shall propose in Part A of the table above the man-months to be performed by these roles. The total man-months to be performed by each role per annum in the last column of the table shall exclude impact analysis of system change request and exclude Innovative Suggestions and include System Changes of such number of man-days to be performed as specified in Section 18.15.3 of Part VII – Project Specifications and include Reserved Stand-by Hours to be performed as specified in Section 18.21.1 of Part VII – Project Specifications.

Part C of Table 7.5 – Staff Resources Allocated for the telephone, online and mobile ticketing and enquiry Services and ticket collection service (viz., Operation Team)

Role	Number of shifts	Hours per shift	Stationing requirement	Number of staff for each shift
Staff operating the Telephone Ticketing Service			To be stationed at the Telephone Centre	
Staff operating the online and mobile enquiry service			To be stationed at the Contractor’s office	
Staff operating the ticket collection service			N/A	

SCHEDULE 8 - IMPLEMENTATION PLAN

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

- 8.1 Tenderers shall propose a detailed Implementation Plan for the implementation of the System. The System shall be Ready for Use no later than 13 months from the Contract Date (viz., the Completion Date as defined in Part IV - Conditions of Contract).
- 8.2 Tenderers shall propose the Implementation Timetable specifying the commencement and end dates for the following major activities to be performed by the Contractor. All of the dates set out in bold below (including the Completion Date) are essential requirements and shall be adhered to by Tenderers when proposing the Implementation Timetable and are not subject to any counter-proposal.
- 8.3 In relation to each Activity, reference to commencement date shall mean the first working day of such number of month from the Contract Date specified in the second last column opposite that Activity. Therefore, **the first working day of “month 1” means the Contract Date.**
- 8.4 In relation to each Activity, reference to end date shall mean the last working day of such number of month from the Contract Date specified in the last column opposite that Activity. **Therefore, the last working day of “month 1” means last working day of the first month from the Contract Date.** Depending on the Contract Date, each month from the Contract Date does not necessarily end on the last day of a calendar month. The end date is the completion date for that Activity and Deliverables specified in the third column. A Deliverable shall not be deemed to have been completed unless the Government Representative accepts the same in writing.

Table 8.1 Implementation Plan

Activity No.	Major Activities	Deliverables to be prepared and completed by the Contractor	Commencement Date	End Date
Contract Date				
1	Project Initiation	- Project Initiation Document	Month 1	Month 1
2	System Analysis and Design <ul style="list-style-type: none"> - Study and analyse requirements - Conduct business impact analysis - Finalise list of business functions to be performed by the System - Design prototype of the system - Review System flow and design - Privacy Impact Assessment (PIA) on System Analysis and Design - High-level Security Risk Assessment (SRA) 	<ul style="list-style-type: none"> - User Requirement Specifications - List of business functions to be performed by the system - System Design Prototype - System Analysis and Design Report - PIA (Stage 1) Report - Security Risk Assessment Report (High-level) 		

Activity No.	Major Activities	Deliverables to be prepared and completed by the Contractor	Commencement Date	End Date
3	System Development - Design of the system and database - Program development - System Acceptance Tests	- Functional Specifications - Test plan and results for each part of the System Acceptance Tests		
4	Installation of Hardware, Software and related Infrastructure at Data Centre - Plan system hierarchy - Site Preparation - Delivery & installation of hardware and software and related infrastructure at Data Centres - Conduct Installation Test - Prepare testing and production environment	- System infrastructure diagram - Contractor Supplied Hardware and Software installed and installation tests at Data Centre completed - Site Preparation Plan - Installation Test Plan and Results - Backup and restore procedures		
5	Installation of Hardware, Software and related Infrastructure at Outlets/ Ticketing Office/ ITO - Plan system hierarchy - Site Preparation - Delivery and installation of hardware and software and related infrastructure at outlets/ offices - Conduct installation test	- Contractor Supplied Hardware and Software installed and installation tests at outlet side completed. - Site Preparation Plan - Installation Test Plan and Results		
6	System Testing - Conduct data conversion/ migration tests - Conduct System Function Tests - Conduct Resilience Tests - Conduct System Integration tests - Conduct User Acceptance Tests - Conduct Load Tests - Conduct Reliability Tests - Conduct Data Conversion and Migration Test - Follow up with problems and fix bugs and errors	- Test plan and results for each type of system tests - Problem / incident logs - System which has incorporated changes recommended by the SRAA contractor - SRA Report - Security Audit (SA) Report - PIA (Stage 2) Report		

Activity No.	Major Activities	Deliverables to be prepared and completed by the Contractor	Commencement Date	End Date
	<ul style="list-style-type: none"> - Security Risk Assessment and Audit (SRAA) - PIA Review and Audit 			
7	Training and DR Drill <ul style="list-style-type: none"> - Train various users and system operators - Disaster Recovery (DR) Drill 	<ul style="list-style-type: none"> - Training Plan - Training Manual - Trained Users - DR Plan - DR Drill & Results - Parallel Run Plan 		End of 12th Month
8	Successful Completion of production rollout for Parallel Run and the System Ready for Use <ul style="list-style-type: none"> - Complete necessary data conversion/migration to the new system - Launch the system into production environment for Parallel Run - The System being Ready for Use 	<ul style="list-style-type: none"> - System Migration Test Plan and Results - Data Migration Plan and Results - System Installation Plan and Results - Application Operation Manual - Application User Manual - Computer Operation Procedures Manual - System Manual - Security Incident Handling Procedure - System Cutover Plan 		End of 13th Month (“Completion Date”) as defined Part IV – Conditions of Contract)
9	Parallel run with the predecessor system for one month	<ul style="list-style-type: none"> - Parallel Run Results 	Beginning of 14th month	End of 14th month
10	System Cutover and Launch <ul style="list-style-type: none"> - All Operation Services shall be cutover to the new System 	<ul style="list-style-type: none"> - System Maintenance Plan 		End of 14th Month

Note:

- (a) Please express the Start Month and End Month as the **number of months** after the Contract Date. Unless otherwise specified, for a Start Month, the first day of that month shall mean the first working day of that month, and for an End Month, the last day of that month shall mean the last working day of that month.

SCHEDULE 9 - LOCATION AND SITE SPECIFICATIONS

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

9.1 General

9.1.1 Tenderers shall provide in this Schedule the site preparation specifications and environment specifications for the Government Locations in which such parts of the System shall be installed or used.

9.1.2 Tenderers shall plan the installation of the proposed hardware and software items at various locations as stated therein, and work out the site preparation specifications as well as environment specifications accordingly.

9.1.3 Tenderers shall refer to, without limitation, the following Sections of Part VII – Project Specifications for details of the requirements and/or relevant information:

- (a) Section 4 – Functional Specifications;
- (b) Section 7 – Location and Site Specifications;
- (c) Section 10 – Hardware Specifications; and
- (d) Section 12 – Security Requirements.

9.2 Site preparation specifications

9.2.1 Information shall be given in Table 9.1 regarding the preliminary site preparation work necessary for the installation of the proposed hardware. The System shall be installed in the locations as specified in Section 7 – Location and Site Specifications of Part VII – Project Specifications.

Table 9.1 Site Preparation Specifications for the Implementation and Maintenance of the System

Site location/ Site name	Site requirements/ Site preparation specifications ⁽¹⁾

Notes:

- (a) Information shall be given regarding the preliminary site preparation, articulating the structural or partitioning modifications to the site, other engineering works made necessary and arising from the installation of the proposed Hardware, and reuse of the existing cabling at the site, if applicable. Additionally, accommodation requirements with respect to working out preventive site configuration and cabling distance limitations shall be specified.

9.3 Environment specifications

9.3.1 Information shall be given in Table 9.2 regarding the environment specifications of each location involved for the System.

Table 9.2 Environment Specifications for the System

Site location/ Site name	Environment specifications
	•Electricity requirements ^(a)
	•Ventilation, cooling and air conditioning requirements ^(b)
	•Accommodation requirements ^(c)
	•Others (please specify) ^(d)
	•Electricity requirements ^(a)
	•Ventilation, cooling and air conditioning requirements ^(b)
	•Accommodation requirements ^(c)
	•Others (please specify) ^(d)
	•Electricity requirements ^(a)
	•Ventilation, cooling and air conditioning requirements ^(b)
	•Accommodation requirements ^(c)
	•Others (please specify) ^(d)

Notes:

- (a) Information shall be given regarding the power consumptions of the proposed equipment, mains supply voltage, grounding path, requirements of stabiliser, voltage conversion, frequency conversion, specifications and number of power points required.
- (b) Information shall be given regarding the filtration requirements of temperature and humidity for the continuing reliable operations, the air circulation and cooling requirements, and the protection against safety hazards for the proper installation of the proposed equipment.
- (c) Information shall be given regarding the weight, floor loading, and spaces in terms of dimensions as well as ceiling height needed for the proper installation of the proposed equipment.
- (d) Information shall be given regarding other environment specifications where applicable.

SCHEDULE 10 - INSTALLATION TEST

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

10.1 General

10.1.1 Tenderers shall provide in this Schedule information related to the Installation Test to be performed.

10.1.2 Tenderers shall refer to the following sections for details of the requirements and/or relevant information:

- (a) Section 7 – Location and Site Specifications of Part VII – Project Specifications;
- (b) Section 15 – Delivery and Installation of Part VII – Project Specifications;
- (c) Section 17 – Implementation Services of Part VII – Project Specifications; and
- (d) Clause 16 – Installation Test of Part IV – Conditions of Contract.

10.2 Installation Test

10.2.1 Tenderers shall provide in Table 10.1 detailed descriptions on the approaches to be taken, the methodologies and tools to be used in the Installation Test.

Table 10.1 Installation Test to be Performed

The following information shall be provided for each location involved:	
Test to be performed	Detailed Descriptions
Location ^(a)	
Hardware deployment ^(b)	
Hardware Installation Test ^(c)	
Software deployment ^(d)	
Software Installation Test ^(e)	

Notes:

- (a) The Locations shall correspond with those in Section 7 – Location and Site Specifications of Part VII - Project Specifications and relevant annexes to it.
- (b) Information shall be given on what to plan, control, oversee, and how to conduct installation of the hardware supplied for the successful implementation of the System, and also, its integration with the existing system infrastructures.
- (c) Information shall be given regarding the installation test plan of the supplied hardware, which includes defining testing scope, creating test schedule, establishing test procedures, tracking and reporting defects.
- (d) Information shall be given on what to plan, control, oversee, and how to conduct installation of the software and custom programs supplied for the successful implementation of the System, and also, its integration with the existing system infrastructures.
- (e) Information shall be given regarding the installation test plan of the supplied software and custom programs, which include defining testing scope, creating test schedule, establishing test procedures, tracking and reporting defects.

SCHEDULE 11 - SYSTEM ACCEPTANCE TESTS

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

11.1 General

11.1.1 Tenderers shall provide in this Schedule information related to the System Acceptance Tests and User Acceptance Tests to be performed.

11.1.2 Tenderers shall refer to, without limitation, the following sections of Part VII – Project Specifications for details of the requirements and/or relevant information.

- (a) Section 4 – Functional Specifications;
- (b) Section 5 – Workload Specifications;
- (c) Section 6 – System Performance Specifications;
- (d) Section 10 – Hardware Specifications;
- (e) Section 11 – Software Specifications;
- (f) Section 12 – Security Requirements;
- (g) Section 13 – Reliability Requirements;
- (h) Section 14 – System Resilience and Disaster Recovery Requirements;
- (i) Section 16 – Acceptance Test; and
- (j) Section 17 – Implementation Services.

11.2 System Acceptance Test

11.2.1 Tenderers shall specify in Table 11.1 the approaches to be taken, the methodologies and tools to be used in the System Acceptance Tests and User Acceptance Tests of the System. A preliminary test plan of each type of tests in Table 11.1 including the test approaches / criteria, test procedures, resources required, test environment set up and types of test reports shall be provided.

Table 11.1 The System Acceptance Tests and the User Acceptance Tests to be Performed

Tests to be performed	Detailed Descriptions
The Functional Test	
The System Integration Test	
The Load Test	
The Stress Test	
The Resilience/Failover Test	
The Reliability Test	
The User Acceptance Test	
The Data Conversion and Migration Test	
The Disaster Recovery Test	
Other Test (please specify)	

Notes:

- (a) Information shall be given for each test in Table 11.1, which contains a preliminary test plan including test approaches, criteria, test procedures, resources required, test environment set up and types of test reports to be provided.

SCHEDULE 12 - PERFORMANCE CRITERIA

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

12.1 Performance Criteria

12.1.1 Tenderers shall state in this Schedule the system performance criteria to be complied with by the System. If the Tenderer does not separately state any performance criteria, it shall be deemed that the minimum performance criteria specified in paragraph 12.1.2 of this Schedule shall be complied with. A Tenderer who commits to a performance criteria less than the minimum performance criteria stated below will be disqualified.

12.1.2 The minimum performance criteria to be complied with by the System shall be as follows:

12.1.3 The System shall perform all of the functions as specified in the Overall Specifications including those in Section 4 – Functional Specifications of Part VII – Project Specifications and the SA&D Report.

12.1.4 The System shall meet the workload requirements as stated or projected in Section 5 – Workload Specifications of Part VII – Project Specifications within the minimum system response time specified in Section 6 – System Performance Specifications of Part VII – Project Specifications, or within the committed system response time as specified in this Schedule, whichever is the better; and

12.1.5 Compliance by all system activities of the System with the applicable system response time (minimum or committed, whichever is better) during each Given Period shall be at least meeting the minimum percentage specified in Section 6 of Part VII – Project Specifications, or the committed percentage specified in this Schedule, whichever is the better; and

12.1.6 The system recovery time (or alternatively known as “switch over time”) for the System to switch to the DR environment to provide the production services in the DR environment under a DR situation shall comply with the minimum time set out in Section 14 of Part VII – Project Specifications or within the committed system recovery time as specified in this Schedule, whichever is the less.

12.2 System Response Time and other Service Levels

12.2.1 To the extent the Tenderer proposes to commit to a system response time better than the minimum requirements set out in Section 6 – System Performance Specifications of Part VII – Project Specifications for all or any of the types of system activities, the Tenderer shall state such better response time in Table 12.1 below. In addition, Tenderers shall state the committed percentage of total number of such type of system activity occurred in each Given Period that shall meet the applicable system response time for the type of system activity.

12.2.2 To the extent the Tenderer proposes to commit to a better system recovery time, the Tenderer shall state the committed system recovery time in Table 12.2.

Table 12.1 Committed System Response Time for the System

Item No.	System Activity	Committed System Response Time ^(a) (in the time unit specified opposite or in second if no time unit is specified)	Committed Percentage ^(b)
1	Printing of the first paper ticket (or the first of more than one ticket being bought) at an outlet from the time of pressing the button signifying confirmation of the purchase	4s or ____ (whichever is the lesser)	95% or ____ (whichever is the higher)
2	Event search and retrieval on the online platform or mobile app platform	6s or ____ (whichever is the lesser)	95% or ____ (whichever is the higher)
3	Best available seat(s) calculation and offer	5s or ____ (whichever is the lesser)	95% or ____ (whichever is the higher)
4	Payment and discount calculation and offer	7s or ____ (whichever is the lesser)	95% or ____ (whichever is the higher)
5	Displaying each subsequent page of online booking or enquiry functions using the online platform or mobile app platform	4s or ____ (whichever is the lesser)	95% or ____ (whichever is the higher)
6	Switching of functions on the menu bar	4s or ____ (whichever is the lesser)	95% or ____ (whichever is the higher)
7	Simple online transaction retrieval or updating that requires access to 1 to 3 tables in database	4s or ____ (whichever is the lesser)	95% or ____ (whichever is the higher)
8	Complex online transaction retrieval or updating that requires access to 4 or more tables in database	20s or ____ (whichever is the lesser)	95% or ____ (whichever is the higher)
9	Simple online report generation (e.g. routine operation report) for terminals at the Ticketing Office and outlets	10s or ____ (whichever is the lesser)	95% or ____ (whichever is the higher)
10	Complex online report generation (e.g. analysis report) for terminals at the Ticketing Office	20s or ____ (whichever is the lesser)	95% or ____ (whichever is the higher)

Notes:

- (a) Please specify the time unit of the committed response time for a type of system activity if the committed system response time for the type of system activity is not specified in terms of second. The time shall count from the pressing of the button requesting such system activity to be performed.
- (b) “Committed Percentage” of a type of system activity means the committed percentage of total volume of the type of system activity that will achieve the committed response time for that type of system activity.

Table 12.2 Committed System Recovery Time (or committed switch over time) to switch to the DR Environment of the System to Provide the Production Services in the DR Environment under DR situations

Item No.	System Activity	Committed System Recovery Time (in hour) for assessment under the applicable assessment criterion of sub-grouping A(II)(2) of the Marking Scheme
	The System switching to the DR environment to Provide the Operation Services (including without limitation all Internet and Mobile Ticketing Services) in the DR Environment under DR situations.	4 hours or _____ (whichever is the lesser)

SCHEDULE 13 - RELIABILITY SPECIFICATIONS

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

13.1 General

- 13.1.1 The Committed Serviceability Level for each month (“Given Period”) shall be at least 99% and shall be measured at the end of the Given Period.
- 13.1.2 The Committed Mean Time Between Failures (MTBF) for the Given Period shall be at least 500 hours and shall be measured at the end of the Given Period.
- 13.1.3 For the purpose of the System Acceptance Tests, the Given Period shall be deemed to be four consecutive weeks.
- 13.1.4 Tenderers shall state in Table 13.1 the serviceability level (which must be a whole number or a number rounded to one decimal place only) and MTBF (which must be a whole number) to be committed for the System, which shall meet at least the minimum requirements set out in paragraphs 13.1.1 and 13.1.2 of this Schedule. If and to the extent the Tenderer commits to a better Serviceability Level and MTBF, the better Serviceability Level and MTBF shall be used for determining the System's compliance with the Reliability Levels. Where the Tenderer does not complete the table below, it shall be assumed that the Tenderer commits to the minimum levels specified in paragraphs 13.1.1 and 13.1.2 of this Schedule.

Table 13.1 Committed Serviceability Level and MTBF

Item	Committed Level
Committed Serviceability Level	_____ % of the Given Period for assessment under the applicable assessment criterion of sub-grouping A(II)(2) in the Marking Scheme only
Committed MTBF	_____ hours of the Given Period

13.2 Definition of Terms

13.2.1 Total (Clock) Time, (A)

The total clock time for the Given Period.

13.2.2 Hardware and Software Maintenance (Scheduled), (B)

The total amount of time scheduled for preventive hardware and/or software maintenance by the Contractor where the System is not available to run the Ticketing Services during the Given Period. “Ticketing Services” as the term appearing in this Schedule shall cover the sale of ticket at all of the outlets, the telephone ticketing service, the online ticketing service, the mobile ticketing service and the self-service kiosk service;

13.2.3 Scheduled Available Time for User Service, (D)

= (A) - (B)

This is the amount of time which shall be available to run the Ticketing Services.

13.2.4 Hardware and Software Maintenance (Excess), (E)

The amount of time, in excess of (B), which is used by the Government or the Contractor for unscheduled hardware and/or software maintenance where the System is not available to run the Ticketing Services during the Given Period.

13.2.5 Actual Available Time for User Service, (G)

$$= (D) - (E)$$

The actual availability of the System (after deducting excess hardware and software maintenance times) for running the Ticketing Services during the Given Period.

13.2.6 Availability Level

$$= (G / D) \times 100\%$$

The ratio of actual available time over scheduled available time, as a percentage.

13.2.7 Closedown, (I)

The amount of time during which the System cannot perform all or any of the Ticketing Services during the Given Period (e.g. due to there being no jobs to be processed) no matter whether the Operation Team or staff at the ticketing outlet are in attendance. This includes time assigned for air-conditioning maintenance/repair, hardware relocation, etc.

13.2.8 Utilised Time for User Service, (K)

$$= (G) - (I)$$

That part of the actual available time for Ticketing Services during the Given Period.

13.2.9 Utilisation

$$= (K / G) \times 100\%$$

The ratio of utilised time over actual available time for the Ticketing Services, as a percentage.

13.2.10 No. of System Breaks, (M)

The total number of breaks of all Ticketing Services during the Given Period due to system failures caused by hardware or software factors. Examples include system crashes and hardware component out of service requiring a system reload, and hardware component out of service with a weighting factor of one as defined in paragraph 13.2.12 of this Schedule.

13.2.11 Total System Breakdown Time, (N)

The total amount of Ticketing Services' time within the prime maintenance period as specified in Schedule 16 – Service Levels of this Part which is lost (i.e. not serviceable) due to the system breaks accounted for in paragraph 13.2.10 of this Schedule. It is

measured from the point of system break to the point when the Ticketing Services can be resumed after such necessary steps including but not limited to the reconfiguration and reloading of the System.

13.2.12 Weighted System Down Time, (O)

The amount of Ticketing Services' time which is lost (i.e. not serviceable) due to there being one or more components out of service and not to the extent of causing a break in the all of the Ticketing Services (i.e., a system break as defined in paragraph 13.2.10 of this Schedule). It is calculated by applying a weighting factor (%) to the total time for which one or more components remains out of service. This weighting factor varies for different function/ component/ Hardware/ Software types and quantities. The "out of service" item may itself be inoperable or may be taken out to enable engineers to fix some other items. The results represent an effective loss of "computer power" of the installation and as such can be viewed as if the System has broken down, albeit for a shorter duration.

The weighting factors are shown in the following table:

A "Level 1 failure" is defined as a failure or malfunction of the Operation Services or the System or any part thereof or any Hardware or Software or data/telephone lines supplied by the Contractor such that as a result, the LCSD is unable to continue its normal use of the System for the Ticketing Services in 50% or more at the outlets; or breakdown of any two of the following: (a) Internet ticketing service (b) mobile ticketing service; (c) telephone booking service; and (d) self-service kiosk service.

A "Level 2 failure" is defined as a failure or malfunction of the Operation Services or the System or any part thereof or any Hardware or Software or data/telephone lines supplied by the Contractor such that as a result, the LCSD is unable to continue its normal use of the System for the provision of the Ticketing Services at any one single outlet; or breakdown of any one of the following: (a) the Internet ticketing service; (b) mobile ticketing service; (c) telephone ticketing service; and (d) self-service kiosk service.

A "Level 3 failure" is defined as a failure or malfunction of the Operation Services or the System or any part thereof or any Hardware or Software or data/telephone lines supplied by the Contractor such that in spite of the failure, the LCSD is able to continue its normal use of the System for all Ticketing Services including the Location of the failed Hardware or Software albeit with reduced capacity (where applicable).

Any failure shall only be counted once in the weighted system down time calculation.

Class of Failure	No. of Failure									
	1	2	3	4	5	6	7	8	9	10 or more
Weight for Level 1 in %	50	100	100	100	100	100	100	100	100	100
Weight for Level 2 in % (Incident at peak hours*)	30	60	90	100	100	100	100	100	100	100

Class of Failure	No. of Failure									
	1	2	3	4	5	6	7	8	9	10 or more
Weight for Level 2 in % (Incident at non-peak hours)	20	40	60	80	100	100	100	100	100	100
Weight for Level 3 in %	10	20	30	40	50	60	70	80	90	100

* Peak hours refer to first two opening hours of Ticketing Services

13.2.13 Net Serviceable Time, (P)

$$= (K) - (N) - (O)$$

That part of utilised time in which the System is having full computing power for the Ticketing Services.

13.2.14 Serviceability Level

$$= (P) / (D - I) \times 100\%$$

The ratio of net serviceable time over the difference of scheduled available time for the Ticketing Services and the closedown time, as a percentage.

13.2.15 Mean Time Between Failures (MTBF)

$$= (K - N) / M$$

The average time which elapses during a user service period before a system breakdown occurs.

(When M is equal to zero, the MTBF for the Given Period is defined as K).

13.3 Fault Investigation Reporting

13.3.1 For the purpose of measuring Serviceability Level and MTBF, the Contractor shall record all fault incidents in a fault investigation report which shall contain at least the following information:

- (a) the date and time the Contractor is notified of the fault;
- (b) the date and time of arrival, name, post and staff identity card number of the Contractor's maintenance personnel at the location;
- (c) the type, serial number and description of each failed component;
- (d) the date and time when repair starts;
- (e) the date and time when repair ends;
- (f) the description of faults and causes, if known; and

- (g) the corrective action taken, including repair, maintenance, fix and replacement of parts.
- 13.3.2 The report shall be submitted to the Government Representative within two (2) weeks after the Given Period to which it relates.
- 13.3.3 The fault investigation reports shall be examined at regular meetings between the Government Representative and the Contractor. The meetings shall identify and agree on the cause of each and every fault incident and the party accountable for each incident, for the purpose of reliability calculations.

SCHEDULE 14 - IMPLEMENTATION SERVICES

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

14.1 General

14.1.1 Tenderers shall refer to Part IV – Conditions of Contract and Section 17 – Implementation Services of Part VII – Project Specifications for details of the requirements for the Implementation Services which contain the original requirements under the Tender Documents.

14.2 Service details applicable to the Implementation Services

14.2.1 Tenderers shall provide in Table 14.1 the service details **applicable to each service component** of the Implementation Services as listed in Section 17.3 of Part VII – Project Specifications unless otherwise expressly specified.

Table 14.1 Service Details of the Implementation Services

<ul style="list-style-type: none">• The Implementation Services^(a)

Notes:

- (a) The following information shall be given:
- (i) the methodologies to be adopted and tools to be provided for performing the Implementation Services;
 - (ii) escalation procedures for problem handling and resolution (including any support from the manufacturer); and
 - (iii) other relevant information.

SCHEDULE 15 - SYSTEM SUPPORT AND MAINTENANCE SERVICES

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

15.1 General

15.1.1 Tenderers shall refer to Part IV – Conditions of Contract and Section 18 – System Support and Maintenance Services of Part VII – Project Specifications for details of the requirements for the System Support and Maintenance Services which are the original requirements under the Tender Documents.

15.2 Maintenance Services for the Hardware and Software

15.2.1 Tenderers shall provide in Tables 15.1 and 15.2 service details of Maintenance Services applicable to each unit of Contractor Supplied Hardware and Contractor Supplied Software unless otherwise expressly specified. The details to be provided in Tables 15.1 and 15.2 are the basic service details necessary for performing the Hardware and Software Maintenance Services under the original requirements as stated in the Tender Documents. For any proposed excess service specifications, please provide them in Tables 16.2 and 16.3 of Schedule 16 of this Part.

Table 15.1 Service Details of the Maintenance Services for the Contractor Supplied Hardware

- | |
|--|
| <ul style="list-style-type: none">• Contractor Supplied Hardware Maintenance Services ^(a) |
|--|

Notes:

- (a) The following information shall be given:
- (i) the methodologies to be adopted and tools to be provided for performing the Maintenance Services and for determining compliance with the Reliability Levels;
 - (ii) escalation procedures for problem handling and resolution (including any support to be provided by the manufacturer); and
 - (iii) other relevant information.

Table 15.2 Service Details of the Maintenance Services for the Contractor Supplied Software

- | |
|--|
| <ul style="list-style-type: none">• Contractor Supplied Software Maintenance Services ^(a) |
|--|

Notes:

- (a) The following information shall be given:
- (i) the methodologies to be adopted and tools to be provided for performing the Maintenance Services;
 - (ii) escalation procedures for problem handling and resolution (including any support from the manufacturer);
 - (iii) details of upgrade and enhancement programmes of the manufacturer to be subscribed by the Contractor on behalf of the Government for each relevant item of Contractor Supplied Software; and
 - (iv) other relevant information.

15.2.2 Tenderers shall provide in Table 15.3 information on each component service of the System Support Services for the System as listed in Section 18.4 of Part VII – Project Specifications unless otherwise expressly specified. The details to be provided are the basic service details necessary for performing the System Support Services under the original requirements as stated in the Tender Documents. For any proposed excess service specifications, please provide them in Table 15.4 of this Schedule.

Table 15.3 Service Details of the System Support Services

<ul style="list-style-type: none">• The System Support Services^(a)

Notes:

- (a) The following information shall be given:
 - (i) the methodologies to be adopted and tools to be provided for performing the System Support Services;
 - (ii) escalation procedures for problem handling and resolution (including any support from the manufacturer); and
 - (iii) other relevant information.

SCHEDULE 16 - SERVICE LEVELS

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

16.1 General

16.1.1 Tenderers shall provide in this Schedule the service levels to be committed in the performance of the System Support and Maintenance Services.

16.1.2 Tenderers shall refer to, without limitation, the following sections for details of the requirements and/or relevant information.

- (a) Section 4 – Functional Specifications of Part VII – Project Specifications;
- (b) Section 5 – Workload Specifications of Part VII – Project Specifications;
- (c) Section 18 – System Support and Maintenance Services of Part VII – Project Specifications;
- (d) paragraph 16.2 – Prime Maintenance Period of this Schedule; and
- (e) paragraph 16.3 – Response Time of this Schedule.

16.2 Prime Maintenance Period

16.2.1 The Contractor shall provide the System Support and Maintenance Services for the System throughout the prime maintenance period as stated in Table 16.1:

Table 16.1 Prime Maintenance Period

Location of Office	The Prime Maintenance Period
All Data Centres	7 x 24 hours throughout the year (public holidays inclusive)
Ticketing Office	7 x 14 hours (e.g. 9am – 11pm) throughout the year (public holidays inclusive)
IT Office	5 x 9 hours (e.g. 9am – 6pm) from Mondays to Fridays (except public holidays)
Telephone Centre	7 x 10 hours (e.g. 10am – 8 pm) throughout the year (public holidays inclusive)
All locations including ticketing outlets and venues.	opening hours of such outlets and venues as specified in the LCSD website (http://www.lcsd.gov.hk/en/ticket/counter.html).

16.3 Response Time

16.3.1 The response time to a request for Hardware or Software Maintenance Services during the prime maintenance period shall be as follows or the better response time as committed in Tables 16.2 and 16.3 below (where applicable):

- (a) response by phone (i.e. contact the caller) within 10 minutes; and
- (b) response in person (i.e. arrive at scene) within 2 hours.

16.3.2 The response time to a request for Hardware or Software Maintenance Services outside the prime maintenance period shall be as follows or the better response time as committed in Tables 16.2 and 16.3 below (where applicable):

- (a) response by phone (i.e. contact the caller) within 60 minutes; and
- (b) response in person (i.e. arrive at scene) within 4 hours.

16.4 Service Levels

16.4.1 Tenderers may wish to provide in Table 16.2 the excess service specifications including better service levels to be committed in the provision of the Maintenance Services for the Contractor Supplied Hardware.

16.4.2 Tenderers may wish to provide in Table 16.3 excess service specifications including better service levels to be committed in the provision of the Maintenance Services for the Contractor Supplied Software.

Table 16.2 Excess Service Specifications for the Maintenance Services for the Contractor Supplied Hardware

<ul style="list-style-type: none"> • Better service level ^(a) • Other excess service specifications ^(b)

Notes:

(a) The following information shall be given regarding the service levels to be committed for the Contractor Supplied Hardware Maintenance:

- (i) Information shall be given regarding the committed response time, in person as well as by phone, during the prime maintenance period for all hardware maintenance;
- (ii) List of consumable parts including backup tapes used in the proposed hardware and annual consumption rates of consumable parts shall be provided in the following table with supporting calculation and other supporting documents to back up the projected annual consumption::

Item No.	Hardware*	Description	Unit#	Projected annual consumption

Notes:

* “Hardware” should correspond to “Item No.” and/or “Description” given in Schedule 1 – Hardware.

Please enter reel, box, piece, etc. as appropriate.

- (iii) Tenderers shall provide information on preventive maintenance of hardware items by completing the following table including the frequency and duration of the preventive maintenance. The proposal shall include considerations accommodating the preferred time for preventive maintenance of the Government. The frequency shall not be less than the requirement specified in Section 18 – System Support and Maintenance Services of Part VII – Project Specifications.

Hardware*	Frequency	Duration

--	--	--

Note:

* “Hardware” should correspond to “Item No.” and/or “Description” given in Schedule 1 – Hardware.

(iv) Other service levels to be achieved.

(b) The following information should be given regarding other excess specifications for Contractor Supplied Hardware Maintenance:

(i) Faulty parts replacement within 24 hours;

(ii) Hardware maintenance services including additional preventive maintenance for major business events, e.g. peak seasons;

(iii) Alternative facilities available in the event of prolonged breakdown, and the conditions for the provision of such facilities; and

(iv) Offered Maintenance Services not already specified or otherwise in excess of the original requirements in Section 18 – System Support and Maintenance Services of Part VII – Project Specifications.

Table 16.3 Excess Service Specifications for the Maintenance Services for the Contractor Supplied Software

<ul style="list-style-type: none"> • Better service level ^(a) • Other excess service specifications ^(b)

Notes:

(a) Information shall be given regarding the committed response time, in person as well as by phone, during the prime maintenance period for Contractor Supplied Software Maintenance.

(b) Information should be given regarding the better services to be offered in the provision of the Maintenance Services for the Contractor Supplied Software not already specified or otherwise in excess of the original requirements in Section 18 – System Support and Maintenance Services of Part VII – Project Specifications.

16.5 Operating Hours

16.5.1 The user service provided by the System in production environment shall be operated 7x24 hours daily. Tenderers shall provide proposals on how to ensure the System provides round-the clock 7 x 24 (i.e. 7 days a week and 24 hours a day including public holidays) services and keep the disruption of services to the minimum when there are changes required for the System, including hardware upgrade, operating system upgrade, software upgrade, new program release and software bug fixing. Tenderers shall state their commitment to provide 7 x 24 services for the System.

SCHEDULE 17 - SUB-CONTRACTS

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

17.1 General Requirements

17.1.1 Tenderers shall provide in this Schedule the information related to the sub-contractors proposed to be appointed for undertaking any part of the Implementation Services.

17.1.2 Tenderers shall provide in this Schedule the information related to the sub-contractors proposed to be appointed for undertaking any part of the System Support and Maintenance Services.

17.1.3 In this regard, Tenderers shall refer to the Project Specifications, and in particular, the following Sections of Part VII – Project Specifications for details of the specifications and other relevant information and requirements:

- (a) Section 14 – System Resilience and Disaster Recovery Requirements;
- (b) Section 17 – Implementation Services; and
- (c) Section 18 – System Support and Maintenance Services.

17.2 Sub-Contracts

17.2.1 Tenderers shall provide in Table 17.1 the detailed descriptions of each proposed sub-contractor and the proposed scope of services to be sub-contracted to such proposed sub-contractor. A separate schedule table shall be prepared for each proposed sub-contractor as far as practicable.

Table 17.1 Proposed Sub-contractor for the Implementation Services and the System Support and Maintenance Services

The following information shall be provided for each sub-contract	
Item No.	
Name, place of incorporation and principal place of business of the proposed Sub-contractor	
The scope of the Services proposed to be sub-contracted to the proposed Sub-contractor and in the case of the proposed Sub-contractor is Clearing Service Contractor (CSC), the Electronic Payment Means in relation to which it will provide the e-payment service: ^(a)	
For the proposed sub-contractor which is the Clearing Service Contractor: evidence to show that the sub-contractor has the necessary licence or authorisation as required in the top paragraph of Annex E to Part IV – Conditions of Contract	

for each of the Electronic Payment Means offered above:	
Previous Experience of the Proposed Sub-contractor in relation to the Services to be sub-contracted (e.g. description of project, scope of work done, implementation period, customer name, etc.)	

Note:

- (a) The proposed sub-contracted services shall be identified according to the categorisation stated in Schedule 14 – Implementation Services and Schedule 15 – System Support and Maintenance Services of this Part respectively or any applicable Operation Services which will not be performed by the System in an automation manner including telephone ticketing and/or enquiry service, the Internet or mobile ticketing and/or enquiry services, the ticketing collection service, the consumable supply service, the operation team service and training. Additionally, any exclusions of work shall be mentioned.

SCHEDULE 18 - TRAINING

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

18.1 General

18.1.1 Tenderers shall provide in this Schedule information on training courses and other relevant training resources and facilities to be offered.

18.1.2 Tenderers shall refer to, without limitation, Section 19 – Training of Part VII – Project Specifications for details of the requirements and/or relevant information.

Table 18.1 Training Courses

The following information shall be provided for each training course	
	Description
Item No.	
Type of Training	
Course Title	
Brief Course Contents	
Duration in Days	
Venue	To be provided by Government
Category of Trainees^(a)	
Number of Classes and Size per Class	
Training Media^(b)	
Language	
Manual provided or not	
Training Media	
Mandatory / Optional^(c)	

Notes:

- (a) Categories of trainees include:
- (i) End users;
 - (ii) System Administrators;
 - (iii) Computer operators;
 - (iv) IT Personnel; and
 - (v) Others (please specify)
- (b) Training media include briefing and demonstration, classroom and hands-on, e-learning self-study packages and others (please specify).
- (c) Mandatory Training refers to the training courses as required in Section 19 – Training of Part VII – Project Specifications. Optional training refers to the training courses proposed by the Tenderer on top of the mandatory training.

SCHEDULE 19 - STATEMENT OF COMPLIANCE

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

19.1 Tenderers shall provide below the statement of compliance pursuant to Clause 10 – Statement of Compliance of Part II – Conditions of Tender.

- * We confirm that we will comply fully with all the essential requirements stipulated in Part VII – Project Specifications including all its Annexes.
- * We confirm that we will **not** comply with the essential requirements stipulated in Part VII – Project Specifications (including all its Annexes) in the following aspect:

	Essential requirement	Details of non-compliance
(1)		
(2)		
(3)		
(4)		

Notes:

- (i) Please delete whichever is not applicable. The Government reserves the power, but not the obligation, to seek clarification where a Tenderer omits to make any deletion.

19.2 If a Tenderer expresses non-compliance with any of the essential requirements stipulated in Part VII – Project Specifications (including all its Annexes), and provides the details in both columns of the table above in relation to such essential requirements, its Tender will **not** be considered further.

19.3 In addition, Tenderer shall provide the following information:

- (a) letters from the manufacturers to certify the compatibility of the proposed consumable parts to be used with the relevant Contractor Supplied Hardware specified in Schedule 1;
- (b) letters from the manufacturer of each Contractor Supplied Software proposed in Schedule 2 confirming its software's compatibility with all other Contractor Supplied Software proposed in Schedule 2 and all Contractor Supplied Hardware proposed in Schedule 1 including the compatibility of the programming language or platform (where applicable) with all other proposed Contractor Supplied Hardware and Software; and
- (c) a compliance table corresponding to each and every single essential requirement specified in Part VII – Project Specifications.

Table: 19.1 Individual Compliance Statement (Essential Requirements)

Item No. in Project Specifications (items marked with E)	Tenderer's Response (Y or N)	Corresponding section in Proposal	Remarks
Example: E1/1			
E2/1			
E2/2			
...			

Item No. in Project Specifications (items marked with E)	Tenderer's Response (Y or N)	Corresponding section in Proposal	Remarks
E4/1			
E4/2			
...			
etc.			
<p>Signature of an authorised signatory: _____</p> <p>Name of the authorised signatory: (in Block Letters) _____</p> <p>Name of Tenderer in English: (with Company Chop) _____</p> <p>Name of Tenderer in Chinese: _____</p> <p>Telephone Number: _____</p> <p>Facsimile: _____</p> <p>Date: _____</p> <p>The Government reserves the power to ask for signature if found missing when the Tender is submitted by the Tender Closing Date.</p>			

SCHEDULE 20 - TENDERER'S BACKGROUND AND EXPERIENCE

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

20.1 General

20.1.1 Tenderers shall provide in this Schedule the information related to the Tenderer's background and experience pursuant to Clause 11 – Tenderer's Background and Experience and Clause 12 – Company / Business Organisation Status of Part II – Conditions of Tender.

20.2 Company's Experience

20.2.1 Tenderers may wish to provide in Table 20.1 a summary of their experience.

20.2.2 Tenderers may wish to provide in Table 20.2 detailed information on Reference IT Projects they have undertaken for assessment under the applicable assessment criterion of sub-grouping B(I)(1) of the Marking Scheme. Tenderers should pay attention to the number of Reference IT Projects required for gaining the different level of marks under such assessment criterion and submit such number of Reference IT Projects accordingly.

20.2.3 Where a Tenderer has obtained experience through participation in a joint venture (incorporated or unincorporated), the Tenderer may wish to provide in Table 20.3 information on its voting power in that joint venture (in the case of incorporated joint venture) or its financial contribution (in the case of an unincorporated joint venture). For further details, please refer to Clause 11 of Part II – Conditions of Tender.

20.2.4 Separate from the situation mentioned in paragraph 20.2.3 above, where a Tenderer is itself a joint venture (incorporated or unincorporated), for the purpose of calculating the relevant experience of the joint venture, the relevant experience of each joint venture party to that joint venture may be attributed to that joint venture after weighing the joint venture party's percentage of voting power in the Tenderer (in the case of an incorporated joint venture) or financial contribution to the Tenderer (in the case of an unincorporated joint venture). Both the number of Reference IT Projects and the one-time value of the Reference IT Projects to which the joint venture party was a contractor will be given a weighting based on its voting power percentage (in the case of incorporated joint venture) or financial contribution percentage (in the case of unincorporated joint venture) to determine whether the relevant experience as specified below is attained provided further any Reference IT Project implemented by a joint venture party in order to be counted must itself achieve the minimum one-off contract value as further specified in Table 20.1 below. For example, the unincorporated joint venture Tenderer has Party A and Party B as joint venture parties with financial contribution of 51% to Party A and 49% to Party B. Party A has implemented one Reference IT Project with one-off contract value of HK\$50 million and Party B has implemented two Reference IT Projects one with one-off contract value of HK\$40 million and another with HK\$1 million. The second IT project implemented by Party B would not count because it alone does not achieve the minimum one-time contract value per Reference IT Project as specified in Table 20.1 below. The joint venture Tenderer will be regarded to have performed one Reference IT Project (i.e. 1 x 51% from Party A plus 1 x 49% from Party B) with total one-off

contract value of HK\$45.1 million (i.e. HK\$50 million x 51% from Party A (25.5 million) plus HK\$40 million x 49% (19.6 million)). To the extent the Tenderer wishes to rely on the experience of a joint venture party, the Tenderer may wish to provide in Table 20.4 information of the voting power of that joint venture party in the Tenderer or the financial contribution which should be made by the joint venture party in the Tenderer.

Table 20.1 Summary of Tenderer's Experience

Company Name	
Description	Number of Reference IT Project(s)
Number of Reference IT Project(s) each of which the Tenderer has completed one IT system implementation (including both implementation service and supply of hardware and software) in the last ten (10) years prior to the Original Tender Closing Date where (a) that IT system implemented in that IT Project provided real-time ticketing service and had issued a minimum of 1,000,000 tickets over a consecutive 12 months' period prior to the Original Tender Closing Date and (b) that IT Project had a total contract value of not less than HK\$20M. ^{(a) (b)}	

Notes:

- (a) Please refer to Clause 11 of Part II – Conditions of Tender and paragraph 20.2.4 of this Schedule for methodology of counting the Tenderer's experience in the case the Tenderer was a joint venture when obtaining the experience, or the Tenderer is itself a joint venture and wishes to rely on the experience of its joint venture parties in Reference IT Projects.
- (b) Details of this type of Reference IT Project are recommended to earn marks under the Marking Scheme.

Table 20.2 Tenderer's Experience - Information on Reference IT Projects Successfully Completed

Project Details	Detailed Descriptions
Item No.	
Customer Name and Location	
Customer's Business Nature	
Customer's Contact Details	Name: Address: Telephone number: Fax number: Email address:
Project Name	
Business area and the nature of services which the IT system implemented in the Reference IT Project provided	
The technology deployed in the implementation of the IT system under the Reference IT Project	

Scope of work done including the hardware and software which were supplied	
Did the Tenderer gain the Relevant Experience as a party to a joint venture?	Yes / No If yes, please specify in Table 20.3 details of the joint venture.
Where the Tenderer is an incorporated joint venture or unincorporated joint venture, did the Tenderer gain the Relevant Experience by having the experience of one of its JV parties imputed to it in the manner mentioned in paragraph 20.2.4 above?	Yes / No If yes, please specify in Table 20.4 details of the Tenderer being the joint venture.
Sub-contracting was involved?	Yes / No For each sub-contractor, if any, please provide the following details: Name: Address: Telephone number: Fax number: Email address:
End User Population	
Location of Installation	
Summary of IT system	
Implementation Start Date	
Implementation End Date	
Date of System Acceptance	
Total Contract Value	
One-off contract value attributable to the implementation of the relevant IT system (including both implementation service and supply of hardware and software)	
Annual Maintenance Contract Value	
Performance such as availability and serviceability, of the IT system concerned in such Reference IT Project for the last twelve (12) months immediately prior to the Tender Closing Date	
Other Information	

Notes:

- (a) Please provide information on each Reference IT Project mentioned in Table 20.1 by a separate table in the above format.

Table 20.3 Experience obtained by the Tenderer through participation of a joint venture

Item No. ^(a)	
Name of the Joint Venture Party which performed the Reference IT Project	The Tenderer's voting power or financial contribution to the joint venture which performed the Reference IT Project ^(b)
Total :	100%

Notes:

- (a) "Item No." shall correspond to "Item No." given in Table 20.2 of this Part.
 (b) Please refer to paragraph 20.2.3 of this Schedule for details.

20.3 Company / Business Organisation Status

- 20.3.1 Tenderers shall provide in Table 20.4 information as requested in Clause 12 of Part II – Conditions of Tender.

Table 20.4 Company / Business Organisation Status

(a)	Name of the Tenderer	
(b)	Principal place of business of the Tenderer (in address form)	
(c)	Type of business entity of the Tenderer	company/ sole proprietorship/ partnership/ incorporated joint venture/ unincorporated joint venture/ other* (*Please delete whichever is not applicable.)
(d)	Shareholders/partners/proprietor/parties of the Tenderer and their percentage of ownership/ voting power/financial contribution	
(e)	Length of business operation	
(f)	Names of the following officers of the Tenderer: <i>(i) managing director/partners/JV party;</i> <i>(ii) other directors; and</i> <i>(iii) sole proprietor</i>	
(g)	Place and date of incorporation or formation	
(h)	Business profile information of the Tenderer including the number and location of full time/contract employees, core business strategies and strength, and industry expertise	
(i)	Names and addresses of banks which are prepared to provide references or other relevant financial data which indicate the financial viability of the Tenderer	
(j)	A copy of a valid Business Registration Certificate issued under the Business Registration Ordinance (Chapter 310 of the	Please attach if applicable.

	Laws of Hong Kong) or if the Tenderer does not carry on business in Hong Kong, the equivalent documents issued by the place of business of the Tenderer	
(k)	(whether the Tenderer is a company or body corporate) a copy of the Memorandum (if any) and Articles of Association, Certificate of Incorporation, Certificate of Change of Name (if any) or equivalent documents issued by the authority of the place of incorporation of the Tenderer	Please attach if applicable.
(l)	(if the Tenderer is a company incorporated in Hong Kong or is registered as a non-Hong Kong company under the Companies Ordinance, Chapter 622 of the Laws of Hong Kong) a copy of the latest annual return filed with the Companies Registry and all subsequent filings since the latest annual return; or (if not) the equivalent documents issued by the authority of the place of incorporation of the Tenderer	Please attach if applicable.
(m)	if the Tenderer is a subsidiary, the name(s) and place(s) and date(s) of incorporation of its immediate and ultimate holding companies;	
(n)	A copy of the relevant document proving that the authorised person(s) who sign(s) the Offer to be Bound has/have the authority to sign it for and on behalf of the Tenderer	Please attach if applicable.
(o)	Accreditations Attained by the Tenderer for evaluation under the applicable assessment criterion of sub-grouping B(I)(2) of the Marking Scheme only	Please attach if applicable.

SCHEDULE 21 - OTHER INFORMATION

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

21.1 Tenderers shall provide in this Schedule the following information and declarations. Where the requested information has been provided in other Schedules of this Part, reference shall be made to the related information in these other Schedules.

- (a) Executive summary of the tender;
- (b) Offers for technology substitution;
- (c) The Tenderer's strategies for multi-contractor cooperative implementation and maintenance;
- (d) A statement of how the Tenderer will guarantee an adequate supply and retention of skilled personnel over the life of the System;
- (e) Contingency measures to be taken and a detailed contingency plan for catching up any possible project slippages
- (f) Detailed descriptions on the tolerance and limitation on implementation, if any, to cater for the changing business needs during implementation without additional costs;
- (g) Elaboration of the work plan of the data conversion and migration exercise and the method/measures to assure accuracy of converted data;
- (h) A Sizing Report to illustrate how the proposed design of the system meet the requirements set out in the Specifications, the Performance Criteria and Reliability Specifications in this Part. The Tenderers shall refer to Section 20 – Sizing of Part VII – Project Specifications for details of the requirements and/or relevant information.
- (i) As required in Clause 24.5/24.6 (Tenderer's Financial Capability) of Part II – Conditions of Tender and Clause 52.1.1 (Guarantees) of Part IV – Conditions of Contracts, please indicate the method for the payment of Contract Deposit in Table 21.1.

Table 21.1 Method of Providing a Contract Deposit

I am / We are prepared to pay the Contract Deposit to the Government **in the form of a bank guarantee.**

Notes:

- (a) Please delete whichever is not applicable.
- (b) If a Tenderer does not cross out the inapplicable part above, it shall be deemed that the Tenderer has undertaken to pay the Contract Deposit in cash.

- (j) The attention of Tenderers is drawn to the contents of the Clause 38 of Part IV – Conditions of Contract, which stipulates that unless otherwise specified and agreed, payment will be made to the Contractor's bank account. Tenderers are requested to provide in Table 21.2 the information for payment.

Table 21.2 Details of Bank Account for Payment

Name of Tenderer:	
Banker's Name	
Banker's Address	
Account Holder's Name	
Bank Account No.	
Signature of Person Authorised to sign Tender:	
Name in Block Letters	
Telephone Number:	
Facsimile:	
Date:	

- (k) Tenderers are requested to provide in Table 21.3 the information as required in Clause 27.4 (Government Discretion) of Part II – Conditions of Tender; and

Table 21.3 Government Discretion

<p>* I / We confirm that none of the events as mentioned in Clauses 27.4(a) to 27.4(e) of Part II – Conditions of Tender has ever occurred within the applicable period.</p> <p>* I / We confirm that the following event(s) as mentioned in Clauses 27.4(a) to 27.4(e) of Part II – Conditions of Tender has occurred within the applicable period:</p>	
Date	Details of the Event

Notes:

- (a) Please delete whichever is not applicable.
 (b) Other information which the Tenderer considers relevant.

- (l) Contact details of the Tenderer

In the event of any queries or other notices or communications to be issued to the Tenderer, please contact:

Corresponding address:	
Telephone number:	
Facsimile number:	
Email address:	
Attention:	

- (m) Other information which the Tenderer considers relevant.

SCHEDULE 22 - DESIRABLE GREEN FEATURES

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

22.1 Tenderers should provide in this Schedule the following information for the Government's reference. The information will not form part of the tender evaluation but will facilitate the Government's consideration of future tender requirements.

Table 22.1 Desirable Green Features

Product	Desirable Green Feature	Test / Verification Methods	Compliance with the Desirable Green Feature ^(a)
			Yes / No
			Yes / No*
			Yes / No*

Notes:

- (a) Please delete whichever is not applicable.
- (b) The issue date of the submitted documentary evidence shall be within 24 months immediately before the Tender Closing Date.

SCHEDULE 23 - PRICE SCHEDULE

23.1 General Requirements

- 23.1.1 Tenderers shall submit in this Schedule all price quotations as requested in this Schedule, but not otherwise. Any price quotation for item or service not requested in this Schedule will either be ignored or may at the discretion of the Government lead to the disqualification of the Tenderer.
- 23.1.2 This Schedule shall be consistent with the foregoing Schedules of this Part. In case of any discrepancy, unless the Government wishes to seek clarification, this Schedule shall prevail. In the event of any conflict between the hard copy and soft copy, unless the Government wishes to seek clarification, the original hard copy shall prevail.
- 23.1.3 Tenderers shall:
- (a) enter 'N/C' (i.e. no charge) and 'N/A' (i.e. not applicable) as appropriate; and
 - (b) round all unit charge figures to two decimal places.
- 23.1.4 Tenderers shall note that in the event no price information is stated in relation to any item, it may be assumed that no money will be payable for such item; and that no request for clarification by the Government will be made.
- 23.1.5 Tenderers shall submit their offers in Hong Kong dollars. Tenders submitted in **any other currencies will not be considered further**.
- 23.1.6 Where the Government accepts a Tenderer's offer, all prices quoted below are the only prices payable by the Government to the Contractor under the Contract. Save in the case of System Changes not covered by the scope of the Implementation Services or System Support Services and agreed between the Government and the Contractor in a written change agreement signed by both parties, under no circumstances whatsoever will the Government be obliged to pay any other money to the Contractor or any other person whether or not purportedly within or outside the scope of the items or services to be procured under this Contract. The Contractor shall be required to provide all items and perform all Services at its own cost, and it will only be compensated for by the prices quoted below, but no other money whatsoever.
- 23.1.7 All notes underneath each table apply to the entire content of the table where applicable and no annotation will be attached to any particular text to apply that note to that test. Any absence of such annotation shall not prejudice the foregoing principle.
- 23.1.8 All service fees and prices quoted by the Tenderer shall be valid throughout the Contract Period. Under no circumstances shall the Government be obliged to accept any request for adjustment of the service fees and prices quoted by the Tenderer on whatever grounds throughout the entire Contract Period.

23.2 Ticketing System Service Fee

- 23.2.1 Tenderers shall provide in Table 23.1 – Item (A) a Service Fee ("Ticketing System Service Fee") payable by event presenters (including LCSD) to the Contractor for

each ticket of an event sold at an outlet or through self-service kiosk or online ticketing service or mobile ticketing service or telephone ticketing service to a member of the public, or issued to the event presenters as a complimentary or consignment ticket (collectively, “Item A tickets”). Unless otherwise allowed elsewhere in this Schedule 23, Item (A) shall be and shall be deemed to be all-inclusive all charges which the Tenderer wishes to impose on the event presenter including the LCSD, and including without limitation all costs and expenditure (capital or recurrent) incurred by the Contractor **in performing the whole of the Contract** including without limitation the making available of the System, the Contractor Supplied Hardware and Software (including the Cloud Services), the Documentation, the Custom Programs, the Licences, all other Deliverables (regardless of whether they are Contractor Retained Property or Government Acquired Property, and whether a third party licence is required under Clause 24.2 or Clause 25.1.2 of Part IV – Conditions of Contract), and provision of all of the Implementation Services and the Operation Services.

- 23.2.2 To cater for the future growth of ticket volume, Tenderers shall provide in Table 23.1 – Item (B), the amount of rebate payable by the Contractor to the Government (regardless of whether or not the Government was the event presenter) for every Item A ticket sold or issued which exceeds the 5 million Item A Tickets’ threshold in every 12-month period counting from the commencement date of the Operation Period (“Operation Year”) and which exceeds the pro rata threshold (as defined in Table 23.1 – Item (B)) over the remainder period after the last complete 12-month period during the Operation Period (“Excess Item A ticket”).
- 23.2.3 To cater for the future growth of ticket volume sold through the provision of Internet and Mobile Ticketing Services, Tenderers shall provide in Table 23.1 – Item (C) the amount of rebate to be payable by the Contractor to the Government (regardless of whether or not the Government was the event presenter) per ticket which was sold to a member of the public through the provision of Internet ticketing service or mobile ticketing service in every Operation Year and the remainder period of the Operation Period after the last complete Operation Year (“Item C ticket”). The total number of Item C tickets sold in that Operation Year after deduction of the first 1 million shall be split into groups of 250,000 tickets. These Groups from 1st to nth shall accrue **progressively at a lower rate** of rebate amount to be specified in Table 23.1 – Item (C). The rebate amount for each group of 250,000 tickets shall be added up to determine the total rebate amount payable. For the remainder period of the Operation Year which is less than one year, the aforesaid one (1) million and 250,000 shall each be divided by 365 and multiplied by the number of days in the remainder period to determine the applicable rebate rate payable and the resulting rebate amount.
- 23.2.4 In respect of each Operation Year or the remainder period of the Operation Period, the Contractor shall reimburse to the Government a rebate amount for every excess Item A ticket sold in that Operation Year (or remainder period of the Operation Period) and a rebate amount for Item C tickets to be determined in the manner mentioned in paragraph 23.2.3 above.
- 23.2.5 The calculation of the Ticketing System Service Fee as well as for calculation of the rebate as mentioned in paragraphs 23.2.2 and 23.2.3 above shall not take into account any number of tickets issued under any other circumstances, such as for System or Operation Services’ testing purpose, events designated for the parallel run, for management seats to be allocated in an event (i.e. seats reserved by the venue management for internal use regardless of whether the event is organised by the Government or another organiser, and the Government shall have the absolute

discretion to determine the number of such seats), or those tickets issued and returned due to the System or ticketing operator errors as defined by the Government.

23.3 Ad Hoc Customer Service Fee

23.3.1 Tenderers shall provide in Table 23.1 – Item (D) the service fee (“Ad Hoc Customer Service Fee”) payable directly by the Event Presenters (including LCSD) to the Contractor for announcement to patrons using such announcement method as selected by the event organiser about late change of event information such as change of cast and/or programme, special arrangement of events such as replacement and refund arrangement for event cancellation or other information which the Event Presenters may consider necessary to inform the ticket buyers (viz., ad hoc customer service).

23.4 e-Payment Transaction Fee

23.4.1 Tenderers shall provide in Table 23.1 – Item (E) a uniform maximum cap on the transaction fee (“e-Payment Transaction Fee”) payable by the Event Presenters (including LCSD) to the Contractor for using different Electronic Payment Means to accept payment for tickets for all types of Ticketing Services. The e-Payment Transaction Fee shall be expressed as a percentage of the value of the ticket transaction transacted using the relevant Electronic Payment Means (“Transaction Fee Percentage”). Full details of the e-Payment Services are set out in Annex E to Part IV – Conditions of Contract and in Section 4.5.13.14 of Part VII – Project Specifications. Any charges payable to the Clearing Service Contractor (CSC) to be appointed by the Contractor for providing those e-Payment Services to be performed by the CSC as stated in the aforesaid Annex shall be included and deemed to have been included in the e-Payment Transaction Fee within the maximum cap to be quoted in Table 23.1 – Item E. No other amount shall be payable by the event presenter or Government or any patron for accepting or using any Electronic Payment Means to settle the ticket price. The Contractor is permitted to charge a different Transaction Fee Percentage for different Electronic Payment Means provided none of such Transaction Fee Percentage may exceed the uniform maximum cap specified in Item (E) of Table 23.1 and provided further each such different Transaction Fee Percentage shall be specified in the Articles of Agreement upon signing of the Contract which percentage shall remain fixed throughout the Operation Period.

23.5 Internet/Mobile Ticketing Service Fee

23.5.1 Tenderers shall provide in Table 23.2 a service fee per ticket sold through the Internet ticketing service or mobile ticketing service (“Internet/Mobile Ticketing Service Fee”) payable directly by a customer using such service for buying the ticket(s).

23.6 Telephone Ticketing Service Fee

23.6.1 Tenderers shall provide in Table 23.3 a service fee per ticket sold through the telephone ticketing service (“Telephone Ticketing Service Fee”) payable directly by a customer using telephone ticketing service for buying the ticket(s).

23.7 Email Direct Marketing Service Fee

23.7.1 Tenderers shall provide in Table 23.4 the service fee for Email Direct Marketing Service (“Email Direct Marketing Service Fee”) payable directly by the event presenter to the Contractor for the Email Direct Marketing Service provided to the event presenter as per its request only as more particularly specified in Section 4.5.23.2 of Part VII – Project Specifications.

23.8 Charges for System Change during Implementation Period or Maintenance Period

23.8.1 Tenderers shall provide in Table 23.5, the unit charges of each role for system changes during the Implementation Period and the Operation Period which will only be applicable to the extent the manpower as required in Section 17.3.20.3 of Part VII – Project Specifications for System Changes during the Implementation Period and as required in Section 18.15.3 of Part VII – Project Specifications for System Changes during the Operation Period have been used up.

23.9 Top-up Service Fee for Innovative Suggestions

23.9.1 Tenderers shall provide in Table 23.6, the **additional** service fee (“Top-up Service Fee for Innovative Suggestions”) at a fixed annual rate for each of the Innovative Suggestions. Innovative Suggestions proposed by the Tenderer will be evaluated under the Marking Scheme in Annex C to Part II – Conditions of Tender and may earn the Tenderer a technical score to count towards the total technical score which will be given a weight of 70% over the combined score of the weighted technical score and the weighted price score. The Tenderer with the highest combined score will normally be awarded with the Contract. Details of the Innovative Suggestions which can earn mark can be found in Annex C to Part II – Conditions of Tender (see Grouping A(III)) in Part B and shall be proposed by the Tenderer in Schedule 26 of this Part. The charge for each of the Innovative Suggestions (if accepted) shall be payable by the Government (regardless of whether it is the event organiser) but the Government fully reserves the power not to accept the Innovative Suggestions at the time of award or any time after the Contract award from any Tenderer even if the Tenderer is winning bidder. Furthermore, what should be treated as “multiple” or “one” Innovative Suggestions with each Innovative Suggestion earning a top-up fee which have been put forward shall be as approved by the Government but not necessarily as per the proposal of the Tenderer.

23.10 Top-up Service Fee for other types of Excess Proposals (apart from Innovative Suggestion)

23.10.1 Tenderers shall provide in Table 23.7, the **additional** service fee (“Top-up Service Fee for other Excess Proposal”) at a fixed annual rate for each of the four types of Excess Proposals (excluding the Innovative Suggestions and the Excess Proposal for sub-Grouping A(III)(1) and Grouping B). These different types of Excess Proposals are elaborated in sub-Groupings A(II)(1) to A(II)(4) in Part B of the Marking Scheme in Annex C to Part II – Conditions of Tender. The Tenderer may propose a Top-up Service Fee for each such type. As in the case of Innovative Suggestions, Excess

Proposals if submitted by the Tenderer will be evaluated to determine the total technical score. Column 5 of Part B of the Marking Scheme specifies the applicable Schedule for submitting these proposals on Excess Proposals. The charge for each type of the Excess Proposals shall be payable by the Government (regardless of whether it is the event organiser) but the Government fully reserves the power not to accept the Excess Proposals at the time of award or any time after the Contract award from any Tenderer even if the Tenderer is winning bidder.

- 23.11 Other than the payments specified under **Clauses 23.2 – 23.10 of this Schedule**, the Contractor shall NOT be paid for any money or monetary' worth for performing the Contract whether by the Government or an event organiser or a patron or ticketing agent operating an outlet.

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Table 23.1 Ticketing Service Fee

Item	Description	Service Fee per Item A Ticket (HK\$)
(A)	<p>Service Fee per Item A ticket to be payable by an event presenter (including LCSD)</p> <p>Item A Ticket is a ticket for an event sold to a member of the public at an outlet or through self-service kiosk service or Internet ticketing service or mobile ticketing service or telephone ticketing service, or issued to the event presenter as a complimentary or consignment ticket (collectively, “Item A tickets”).</p>	
		Rebate amount per excess Item A ticket (HK\$)
(B)	<p>Rebate payable by the Contractor to the Government per excess Item A ticket (i.e. an Item A ticket which exceeds the 5 million threshold in the relevant Operating Year (or exceeding the pro rata threshold over the remainder of the Operation Period after the last of such complete Operation Year)</p> <p>“pro rata threshold” shall mean the threshold of 5 million divided by 365 and multiplied by the number of days in the aforesaid remainder of the Operation Period.</p>	(This figure must not be zero or a negative figure, otherwise the Tenderer will be disqualified.)
(C)	<p>Rebate to be payable by the Contractor per Item C ticket</p> <p>Item C ticket is a ticket which was sold to a member of the public through the provision of Internet ticketing service or mobile ticketing service every Operation Year and the remainder period of the Operation Period after the last complete Operation Year.</p> <p>The total number of Item C tickets sold in an Operation Year after deduction of the first 1 million shall be split into groups of 250,000. These Groups from 1st to nth shall accrue progressively at a lower rate of rebate amount to be specified below. The rebate amount for each group of 250,000 tickets shall be added up to determine the total rebate amount payable for that Operation Year.</p> <p>For the remainder period of the Operation Year which is less than one year, the aforesaid one (1) million and 250,000 shall each be divided by 365 and multiplied by the number of days in the remainder period to determine the applicable rebate rate payable and the resulting rebate amount.</p>	(The figures to be quoted below must not be zero or a negative figure, otherwise the Tenderer will be disqualified. Furthermore, the amounts to be quoted below shall be progressively lower.)
	Groups of 250,000 Item C tickets after the first 1 million Item C tickets	Rebate amount per Item C ticket based

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Item	Description	Service Fee per Item A Ticket (HK\$)
		on the applicable Group specified in the column opposite (HK\$)
(1)	First 250,000	
(2)	Second 250,000	
(3)	Third 250,000	
(4)	Fourth 250,000	
(5)	Fifth 250,000	
(6)	Sixth 250,000	
(7)	Seventh 250,000	
(8)	Eighth 250,000	
(9)	Ninth 250,000	
(10)	Tenth 250,000	
(11)	Eleventh 250,000	
(12)	Twelfth 250,000	
(13)	Thirteenth 250,000 or more	

Notes:

- (a) It is anticipated that there will be an annual growth of about 0.2 million of tickets above the estimated ticket volume of 5 million during the Operation Period. However, under no circumstances should this anticipated growth be regarded as an indication of commitment in the volume of future Item A ticket sales.
- (b) For the remainder period of the Operation Period, instead of Groups of 250,000, Item C tickets shall be divided into groups of N, for determining the applicable rate of rebate per Item C ticket based on the scale above.

where $N = 250,000$ divided by 365 and multiplied by the number of days comprised in the remainder period of the Operation Period

(D)	Service Fee Payable Directly by Event Presenters to the Contractor for using the ad hoc customer service via the following means:	
(a)	Telephone Call	charge per call (HK\$):
(b)	Short Message Service (SMS)	charge per SMS (HK\$):
(c)	Instant Message (e.g. Whatsapp)	charge per message (HK\$):
(d)	Others (Please specify)	unit charge (HK\$):

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(E)	A uniform maximum cap on the service fee payable directly by Event Presenters to the Contractor for tickets purchased through the e-Payment Service regardless of the Electronic Payment Means applicable and regardless of the sale mode (viz., whether at the outlet or via the Internet ticketing service or mobile ticketing service or telephone ticketing service or self-service kiosk service) (“e-Payment Transaction Fee”):	
	Maximum cap	% on the price of the ticket

Notes:

- (a) It shall not be permitted that the Contractor or the Clearing Service Contractor (CSC) deducts this e-Payment Transaction Fee from the proceeds of the ticket. The e-Payment Transaction Fee shall be settled by the Government in accordance with Clause 38.3 of Part IV – Conditions of Contract. It shall be the sole responsibility of the Contractor to settle the Transaction Fee due to CSC directly to the CSC in accordance with Clause 7 of Annex E to Part IV – Conditions of Contract. Neither the Government nor any other event presenter nor the patron shall have any responsibility to pay such amount.
- (b) Regardless of whether the event is organised by the LCSD programme section or a third party event organiser, the gross proceeds of the ticket sold must first be paid by the CSC into the Designated Bank Account without any deduction whatsoever.
- (c) Apart from this e-Payment Transaction Fee, no other amount shall be payable whether by the Event Organisers or by the Government or any patron for the e-payment service.

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Table 23.2 – Internet/Mobile Ticketing Service Fee

Item	Description	Service Fee (HK\$)
A. Internet Ticketing/Mobile Ticketing Service Fee Payable Directly by customers purchasing tickets via the Internet ticketing service or mobile ticketing service		
(a)	Service fee per ticket sold	
(b)	Subject to a maximum of service fee per transaction order (if applicable)	
(c)	Plus service fee per order for registered mail delivery (if applicable) *	
(d)	Plus service fee per order for delivery by courier (if applicable) *	
(e)	Other charges (please specify)	

* If different rates of delivery fees for different locations are provided, the Tenderer shall provide a list of where and when they will apply.

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Table 23.3 – Telephone Ticketing Service Fee

Item	Description	Service Fee (HK\$)
A. Telephone Ticketing Service Fee Payable Directly by Telephone Ticketing Customers to purchasing ticket via the telephone ticketing service		
(a)	Service fee per ticket sold	
(b)	Subject to a maximum of service fee per transaction order (if applicable)	
(c)	Plus service fee per order for registered mail delivery (if applicable) *	
(d)	Plus service fee per order for delivery by courier (if applicable) *	
(e)	Other charges (please specify)	

* If different rates of delivery fees for different locations are provided, the Tenderer shall provide a list of where and when they will apply.

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Table 23.4 – Email Direct Marketing Service Fee

Item	Description	Service Fee (HK\$)
Service Fee Payable Directly by the Event Presenters to the Contractor for using the “Email Direct Marketing Service”		
(a)	Service fee per email sent	
(b)	Discounted rate service fee per email sent for order of large volume of emails (if applicable, please specify the discount rate and the volume earning such rate)*	

* For example, if the service fee per email sent in Item (a) above is HK\$0.5 and a discount of HK0.3 is offered for order of large volume of emails, the service fee per email sent in Item (b) will be HK\$0.2 (i.e. HK\$0.5 – HK\$0.3). This example is for illustration only and should by no means be regarded as an indication for the offer.

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System Changes**Table 23.5 Charges for System Changes during the Implementation Period or Maintenance Period**

Role	Unit Charge per man-month for the role (HK\$)*
Roles of the Implementation Team which will be deployed for the performing System Changes as part of the Implementation Services	
Project Manager	
System Architect	
Lead Systems Analyst	
Systems Analyst	
Analyst Programmer	
Roles of the Maintenance Team which will be deployed for the performing System Changes as part of the System Support Services	
Maintenance Manager	
System Analyst	
Analyst Programmer	

Notes:

- (a) The qualification and experience of the Contractor Personnel assigned to a role shall comply with the minimum qualification and experience requirements for the same role in the Maintenance Team (in the case of System Changes during the Maintenance Period), as specified in Part VII – Project Specifications.
- (b) The charging rates per man-month shall remain unchanged throughout the Operation Period. Man-day's rate for a role refers to an amount to be arrived at by dividing the unit charge per man-month charge by 22.5 for that role.
- (c) Those man-power resources required to perform the System Changes as part of the Implementation Services as stated in Section 17.3.20.3 and part of the System Support Services as stated in Section 18.15.3 of Part VII – Project Specifications shall not be separately chargeable whether based on the above quoted rates or otherwise. It is only if these man-power resources have been used up that separate charges shall be payable based on the rates quoted above.

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Innovative Suggestions**Table 23.6 Top-up Service Fee for Innovative Suggestions**

Innovative Suggestion Item No.	Description	Top-up Service Fee per annum (HK\$)
Top-up Service Fee for Innovative Suggestion payable on a monthly basis during the Operation Period		

Notes:

- (a) Information provided in this Table 23.6 shall correspond to the information given in Table 26.1 and 26.2 of Schedule 26 of this Part.
- (b) The Item No. of the Innovative Suggestion to be inputted in the first column shall correspond to the Item No. assigned to it in Table 26.1 of Schedule 26 of this Part.
- (c) The performance of the Innovative Suggestion shall be documented by time sheets and other documentary evidence acceptable to the Government in compliance with the requirements set out in the Contract.

< To be inserted into Price Envelope >

Excess Proposals**Table 23.7 Top-up Service Fee for other Excess Proposals**

Excess Proposal Item No.	Description	Top-up Service Fee per annum (HK\$)
Top-up Service Fee for other Excess Proposal payable on a monthly basis during the Operation Period		

Notes:

- (a) The Item No. of the Excess Proposal to be inputted in the first column shall correspond to the Item No. assigned to it in Table 4.1 of Schedule 4 of this Part.

SCHEDULE 24 – NOT USED

SCHEDULE 25 - NON-COLLUSIVE TENDERING CERTIFICATE

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

To: the Government

Dear Sir/ Madam,

Non-collusive Tendering Certificate

1. I/We, (name of the Tenderer) _____ of (address(es) of the Tenderer(s))
_____ refer to the Government's invitation to tender for the Contract
("Invitation to Tender") and my/our Tender in response to the Invitation to Tender.

Non-collusion

2. I/We represent and warrant that in relation to the Invitation to Tender:
- (a) My/Our Tender was prepared genuinely, independently and made with the intention to accept the Contract if awarded;
 - (b) My/Our Tender was not prepared with any agreement, arrangement, communication, understanding, promise or undertaking with any person (including any other Tenderer or competitor) regarding:
 - i) prices;
 - ii) methods, factors or formulas used to calculate prices;
 - iii) an intention or decision to submit, or not submit, any Tender;
 - iv) an intention or decision to withdraw any Tender;
 - v) the submission of any Tender that does not conform with the requirements of the Invitation to Tender;
 - vi) the quality, quantity, specifications or delivery particulars of the products or services to which the Invitation to Tender relates; and
 - vii) the terms of my/our Tender,

and I/we undertake that I/we will not, whether before or after the award of the Contract, enter into or engage in any of the foregoing.

3. Paragraph 2(b) of this certificate shall not apply to agreements, arrangements, communications, understandings, promises or undertakings with:
- (a) the Government;
 - (b) a joint venture partner with which I/we have submitted my/our Tender, and such joint venture arrangement has already been notified to the Government in my/our Tender;
 - (c) my/our consultants or sub-contractors, provided that the communications are held in strict confidence and limited to the information required to facilitate that particular consultancy arrangement or sub-contract;
 - (d) my/our professional advisers, provided that the communications are held in strict confidence and limited to the information required for the adviser to render their professional advice in relation to my/our Tender;

- (e) insurers or brokers for the purpose of obtaining an insurance quote, provided that the communications are held in strict confidence and limited to the information required to facilitate that particular insurance arrangement;
- (f) banks for the purpose of obtaining financing for the Contract, provided that the communications are held in strict confidence and limited to the information required to facilitate that financing; and
- (g) any person other than the Government, provided that the Government has given prior written consent.

Disclosure of subcontracting

- 4. Without prejudice to other requirements set out in the Tender Documents concerning sub-contracting arrangement, in particular, the requirement to seek the Government's prior written approval before sub-contracting, I/We understand that I/we are required to disclose all proposed sub-contracting arrangements for the Contract to the Government in my/our Tender, including those which will be entered into after the Contract is awarded. I/We warrant that I/we have duly disclosed and will continue to disclose such arrangements to the Government.

Consequences of breach or non-compliance

- 5. I/We understand that in the event of any breach or non-compliance with any representations, warranties and/or undertakings in this certificate or in Clause 37.1 of the Conditions of Tender, the Government may exercise any of the rights under Clauses 37.3 to 37.5 of the Conditions of Tender in addition to and without prejudice to any other rights or remedies available to it against me/us.
- 6. Under the Competition Ordinance (Chapter 619 of the Laws of Hong Kong), bid-rigging is serious anti-competitive conduct. I/We understand that the Government may, at its discretion, report all suspected instances of bid-rigging to the Competition Commission (the "Commission") and provide the Commission with any relevant information, including but not limited to information on my/our Tender and my/our personal information.
- 7. Where I/we submit our Tender using Electronic Tendering, I/we shall be deemed to have signed this Non-collusive Tendering Certificate through the use of the digital certificate for such submission.

[applicable only in the case of Paper-Tendering:]

Signed by the Tenderer / Signed by an authorised signatory for and on behalf of the Tenderer : _____

Name of the authorised signatory (where applicable) : _____

Title of the authorised signatory (where applicable) : _____

Date : _____

SCHEDULE 26 – INNOVATIVE SUGGESTIONS

NO PRICE INFORMATION SHALL BE PROVIDED IN THIS SCHEDULE.

26.1 General

26.1.1 Tenderers are encouraged to provide in this Schedule the innovative, practicable, feasible, reliable and sustainable suggestions of which benefits derived are directly relevant to the procurement of this Invitation to Tender (“Innovative Suggestion Type I”).

26.1.2 Tenderers shall refer to, without limitation, Grouping A(III) of the Marking Scheme for details of the relevant information on Innovative Suggestions in order to gain marks for an Innovative Suggestion Type I under Grouping A(III) of the Marking Scheme.

26.2 Innovative Suggestions

26.2.1 Tenderers shall provide in Table 26.1 the details of each Innovative Suggestion. A separate schedule table shall be prepared for each Innovative Suggestion.

Table 26.1 Innovative suggestions proposed by the Tenderer

Item No.	
Details of the Innovative Suggestions	
Timetable for the implementation of the Innovative Suggestion	Please provide the detailed timetable by inserting the relevant milestones in the Implementation Time in Schedule 8 of this Part.
Activities to be conducted for the implementation of the Innovative Suggestion	
Whether any implementing role (as defined in Table 26.2 below) will be deployed and the minimum qualification and experience required for that role	
Deliverables to be produced in the implementation of the Innovative Suggestion	
Performance indicators for the Innovative Suggestions implemented and committed performance levels	
Whether the Innovative Suggestion will be operated on a recurrent basis; and if affirmative, please specify the operation period opposite. The proposed operation period must not exceed the Contract Period.	

Whether any operating role (as defined in Table 26.2 below) will be deployed and the minimum qualification and experience required for that role	
Activities to be conducted for the operation of the Innovative Suggestion	
Deliverables to be produced for the operation of the Innovative Suggestion	
Performance indicators for the Innovative Suggestions operated within the operation period and committed performance levels annually	
Please explain the benefits which can be derived from such Innovative Suggestion which are relevant to the procurement of this Invitation to Tender	
Contractor Supplied Hardware and /or Software to be supplied for carrying out the Innovative Suggestion:	Please identify the Item No as quoted in Table 1.1 of Schedule 1 and/or Table 2.1 of Schedule 2 (if any):

(*) Please delete whichever is not applicable.

26.2.2 Tenderers shall provide in Table 26.2 the detailed of the additional staff resources to be deployed for implementing each Innovative Suggestion. A separate schedule table shall be prepared for each Innovative Suggestion.

Table 26.2 - Staff Resources Allocated to implementing and operating Innovative Suggestions

Staff resources allocated to Innovative Suggestion Item No [xx] ^(a)				
Role and numbers ^(b)	Responsibilities for implementing or operating Innovative Suggestion ^(c)	For implementing or operating the Innovative Suggestion Part-time or Full-time ^(d)	Total number of man-months for implementing the Innovative Suggestion specified opposite (“implementing manpower for the Innovative Suggestion”) ^(e)	Total number of man-months per annum for operating the Innovative Suggestion specified opposite (“operating manpower for the Innovative Suggestion”) ^(f)

Notes for Table 26.2:

- (a) Please quote the Item No assigned to the Innovative Suggestion in Table 26.1 of this Schedule above at the top of this Table. Different Innovative Suggestions should have its own Table 26.2.
- (b) Please fill in the role and the number of persons to fill such role for implementing or operating the Innovative Suggestion. No person already assigned to fill a role in Part A of Table 7.3 or Part A of Table 7.5 of Schedule 7 of this Part (“original role”) may be assigned again to fill a role in this column unless the original role is not a key role, and further that the original role does not require performance of the Implementation Services or System Support Services (as the case may be) on a full-time basis.
- (c) Please specify the responsibilities to be undertaking by the role.
- (d) Please specify whether the role is to be deployed for the implementation (an “implementing role”) or operating the Innovative Suggestion (an “operating role”), and whether he will be deployed on a full time or part time basis.
- (e) The total number of man-months to be completed in this column in this Table 26.2 should be equal to the estimated number of man-months required from the implementing role and should not be included in the total to be completed in Part B of Table 7.3 of this Part.
- (f) The total number of man-months per annum to be completed in this column in this Table 26.2 should be equal to the estimated number of man-months per annum required from the operating role and should not be included in the total to be completed in Part B of Table 7.5 of Schedule 7 of this Part.

PART VI

OFFER TO BE BOUND

1. Reference is made to the Invitation to Tender (Tender Reference: LCT 5012/19(S)) issued by the Government of the Hong Kong Special Administrative Region of the People's Republic of China. All capitalised terms used herein have the meanings ascribed to them in the tender documents published by the Government in connection with such Invitation to Tender ("Tender Documents").
2. In response to this Invitation to Tender, we, the Tenderer named below, hereby offer our tender to provide the Services on and subject to the terms and conditions set out in the Contract.
3. We hereby warrant that all information given in or attached to our tender is true, complete and correct.
4. We, as the Tenderer, have read and fully understood the Tender Documents, and in consideration of the Government agreeing to assess our tender in accordance with the Conditions of Tender, hereby as the Tenderer AGREE to be bound by all the terms and conditions set out in the Tender Documents.
5. The Government may, and is hereby authorised by us to, contact any of the persons nominated in Schedule 7 – Contractor Personnel and Their Duties of Part V, and any of our clients mentioned in Schedule 20 – Tenderer's Background and Experience of Part V. We hereby represent, warrant and undertake that all such nominated persons and all such clients have consented to be contacted by the Government.
6. This tender is submitted by the Tenderer whose name is further specified below (in the case of a sole proprietor or partnership), or with the authority and on behalf of the Tenderer whose name is further specified below (in the case of a company (including an incorporated joint venture) or an unincorporated joint venture).

Signed by the Tenderer / authorised signator(ies) for
and on behalf of the Tenderer: _____

Name and identity or post title of the person(s)
authorised by the Tenderer to sign tender for and on
behalf of the Tenderer above (in the case that the
Tenderer is a company or an incorporated joint venture
or an unincorporated joint venture): _____

Name of the Tenderer in English: _____

Name of the Tenderer in Chinese: _____

Date: _____

PART VII

Project Specifications

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A TENDER WHICH FAILS TO COMPLY WITH ANY OF THE ESSENTIAL REQUIREMENTS WILL NOT BE CONSIDERED FURTHER.

1. INTRODUCTION

1.1 Tenderers are invited to bid for the provision of application software, hardware, system software and network and ongoing daily operation, maintenance and enhancement of the proposed Ticketing System and Operation Services to the Leisure and Cultural Services Department (LCSD) of the Government of the Hong Kong Special Administrative Region (Government) as specified in these Tender Documents.

1.2 Requirement Overview

1.2.1 All essential requirements in these Project Specifications are marked with string “(ES#/R#)” at the end of each requirement, where “E” stands for essential requirement, “S#” and “R#” are the section number and sequence number respectively.

1.2.2 All requirements and specifications set out in these Project Specifications will form part of the Contract, and by which the Contractor will be bound, just like other parts of the Contract, regardless of whether they are classified as essential.

1.2.3 The proposed Ticketing System shall be designed to allow allocation of system resources rapidly and dynamically in the presence of time varying workloads. In particular, the System shall allow additional system resources to be added and removed without shutting down the whole system and affecting the ticketing services. **(E1/1)**

1.2.4 Tenderers shall propose a system with hardware, software, functions and all Operation Services that are compliant with the requirements specified under this tender. The proposed system and services shall meet the requirements specified in Sections 4 to 19 of the Project Specifications, and as stated below. In particular, all items as specified in Schedule 19 – Statement of Compliance of Part V – Contract Schedules must be either fully compliant or compliant with customisation. **(E1/2)**

1.2.5 The successful Tenderer shall be the prime contractor and supplier for all products and services offered and shall be fully responsible for the overall project management and coordination of the design, supply, delivery, installation, commissioning, implementation, system support and maintenance and the provision of other related services for the System. **(E1/3)**

1.2.6 The Contractor shall be the single point of contact and responsible for coordinating with its sub-contractors and other contractors of the Government (collectively “Other Contractors”) and Government project teams for the implementation, system support and maintenance and the provision of other related services for the System. **(E1/4)**

1.2.7 The Contractor shall be wholly responsible for the provision of all items and services as specified in the Contract including the following items and services with details specified in these Project Specifications and the Conditions of Contract

throughout the Operation Period (except that the Implementation Services shall be provided throughout the Implementation Period): **(E1/5)**

- (a) Provision of the Ticketing System equipped with all those functions and services as more particularly described in Section 4.5 of this Part and comply with the Overall Specifications, Reliability Levels and Performance Criteria for the provision of all those Operation Services on a sole and exclusive basis as further specified below in an automation manner without the need for any human intervention (unless otherwise specified);
- (b) Provision of public cloud services through a pre-existing Contractor Supplied Public Cloud (or alternatively known as Public Cloud) together with other physical items of hardware and software meeting the minimum quantities as specified in Part I of Annex E to this Part to form part of the System and complying with those requirements stated to apply to Cloud Services or just Public Cloud Services as more particularly described in Sections 7 and 10 of this Part (“Public Cloud Services”);
- (c) Provision of brand new hardware, system software and network services for the implementation of a brand new Contractor Supplied Private Cloud platform (or alternatively known as Private Cloud) including those minimum quantities as specified in Part II of Annex E to this Part dedicated for the exclusive use of the provision of the Operation Services as part of the System, with the ability to provide cloud services’ resources in a scalable manner complying with those requirements stated to apply to Cloud Services or just Private Cloud or its services as more particularly described in Sections 7 and 10 of this Part (“Private Cloud Services”);
- (d) Both the Public Cloud and the Private Cloud shall be located at data centres in compliance with the requirements specified in Section 7 of this Part; and in the case of the Private Cloud, the data centres shall house all physical items of hardware and pre-existing software of the Private Cloud (“data centre service”);
- (e) Provision of brand new terminal and workstation equipment (including keyboard with built-in card swipe reading devices), brand new ticket printing equipment, brand new report printing equipment, brand new QR code readers and reading devices for electronic payments, brand new hand-writing and handheld input devices and brand new data communication equipment with network, brand new handheld devices for the control of admission, and all other brand new equipment for each of the outlets and LCSD offices including those as listed in Section 5.4.1 of this Part as well as for the LCSD venues including those minimum quantities as specified in Part III of Annex E to this Part (collectively “ticketing equipment and admission equipment service”);
- (f) Provision of the latest data communication software, system management software, security control and management software to comply with the Government’s security guidelines and standards for the System (collectively, “system administration service”) as more particularly specified in Section 11 of this Part;
- (g) Provision of all System services and functions relating to the sale of tickets for events to be held at the venues as more particularly described in Section 4.5.13 of this Part which shall be available to all types of Ticketing Services (“ticket sale management service”);

- (h) Provision of all backend administrative services and functions as more particularly described in Section 4.5.14 of this Part (“backend administrative service”);
- (i) Equipping POS workstations and terminals and all necessary equipment and network services required for performing the e-payment service at each of the ticketing outlets as listed in Section 5.4.1 of this Part (viz., “outlets”) for LCSD staff (in the case of LCSD venues) or LCSD contractor staff (in the case of non-LCSD venues and offices) with services and functions for the staff at these outlets to perform daily counter ticketing services as more particularly specified in Section 4.5.15 of this Part (“counter ticketing service”);
- (j) Provision of Internet ticketing services and functions as more particularly described in Section 4.5.17 of this Part (“Internet ticketing service” or “online ticketing service”) and online enquiry service as more particularly described in Section 4.5.17 of this Part (“online enquiry service”) of this Part;
- (k) Provision of mobile ticketing service and functions through a mobile application as more particularly described in Section 4.5.17 of this Part (“mobile ticketing service”) and mobile enquiry service and functions through the same mobile application also as further described in the aforesaid Section (“mobile enquiry service”);
- (l) Provision of telephone ticketing service as more particularly described in Section 4.5.16 of this Part (“telephone ticketing service”) and provision of telephone enquiry service as more particularly described in Section 4.5.16 of this Part (“telephone enquiry service”).
- (m) Provision of self-service ticketing kiosks with all those services and functions as more particularly described in Section 4.5.18 of this Part (“self-service kiosk service”);
- (n) Provision of the accounting and reporting services and functions as more particularly described in Section 4.5.19 of this Part (“accounting and reporting service”);
- (o) Procurement of the e-Payment Services as more particularly described in Annex E to Part IV – Conditions of Contract and in Section 4.5.13.14 of this Part;
- (p) Provision of ticket collection services for making available tickets at counters and/or self-service ticketing kiosks for collection by the patrons in relation to tickets purchased on Internet, mobile and by telephone (“ticket collection service”);
- (q) Provision of the interface for the System to interface with other internal of LCSD and external systems as more particularly described in Section 4.5.20 of this Part (“system interfacing service”);
- (r) Provision of admission control services and functions through the provision of scanning equipment as more particularly described in Section 4.5.21 of this Part (“admission control service”);
- (s) Provision of an online portal for use by the presenters of events with all those services and functions as more particularly described in Section 4.5.22 of this Part (“presenter portal service”);
- (t) Provision of the marketing service as more particularly described in Section 4.5.23 of this Part (“marketing service”) including email direct marketing

service as specified in Section 4.5.23.2 of this Part (“email direct marketing service”);

- (u) Ensuring that the System shall constantly allow for the specified levels of concurrent transactions via the online and mobile platform more particularly described in Section 5 of this Part. The System shall be able to:
- maintain a centralised database of performance records, which includes event presenter information, venue of the performance, performance information, ticket sales information, seat plans, patron information, discount quota and sales of ticket;
 - allow multiple concurrent users to access the performance and presenter database;
 - allow real-time online checking of ticket sale, enquiries, ad hoc reporting and information update of both performance and presenter database;
 - allow real-time online access on cross venue information in the database;
 - allow capturing, displaying and printing of both Chinese and English for presenter name, venue name, event/performance name on terminal screens and admission tickets (which shall also accept Chinese Coding Standard ISO 10646, Hong Kong Supplementary Character Set (with Compatibility Points) developed by the Government of the Hong Kong Special Administrative Region, as well as Simplified Chinese characters);
 - integrate with the LCSD’s internal systems on revenue and event records (e.g. Revenue Recording System (RRS) and Campaign Records System (CRS)) to share data, capture the ticket receipts, bank-in data, and revenue collection data and provide data export utilities;
 - allow replication of data for use by other LCSD internal systems (e.g. Management Information System (MIS)) for data analysis on regular basis, or statistics analysis on ad-hoc basis; and
 - integrate with Government’s open data systems (e.g. Public Sector Information (PSI) and Greater Pearl River Delta Systems (GPRDS)) to share event and related information to the public;
- (v) Recommendation and provision of ticketing functions and facilities which are in line with the advanced technology developed or used in the world (e.g. corresponding secure ticket collection for mobile ticketing or admission control system with portable ticket scanner) as described in Section 18.21.7 of this Part (“system upgrade service”);
- (w) Provision of miscellaneous services and functions as more particularly specified in Section 4.5.24 of this Part;
- (x) Provision of the network and firewall services for the System as more particularly described in Section 10.7 of this Part and in compliance with the minimum communication lines as specified in Annex E to this Part (“network service”);
- (y) Provision of the backup, system resilience and disaster recovery services and functions for the System as more particularly specified in Section 14 of this Part (“resilience and DR service”);
- (z) Provision of all necessary consumables for the daily operation of the System including the equipment and printers at the outlets and the LCSD Offices and

including blank ticket stock for both thermal and continuous ticket printers, report printer paper, ink and ribbon or cartridge for printers (“consumable supply service”);

- (aa) Provision of announcement service to patrons via telephone or SMS or instant messaging service or other means as designated by the event organiser about late change of event information such as change of cast and/or programme, special arrangement of events such as replacement and refund arrangement for event cancellation or other information which the Event Presenters may consider necessary to inform the ticket buyers (“ad hoc customer service”);
- (bb) Provision of an Operation Team to operate the telephone ticketing and enquiry service, ticket verification, the Internet ticketing and enquiry service, the mobile ticketing and enquiry service; the requirements of the Operation Team is set out in Section 18.22.2 of this Part (“operation team service”);
- (cc) Provision of the System Support and Maintenance Services for the System and all Contractor Supplied Hardware and Software through the deployment of a Maintenance Team after the production rollout and throughout the Maintenance Period (which shall be the same as the Operation Period except that the Maintenance Period shall commence earlier as soon as the System is Ready for Use). The scope of these Services and the requirements of the Maintenance Team are as more particularly described in Section 18 of this Part;
- (dd) Provision of training as more particularly described in Section 19 – Training of this Part;
- (ee) Provision of the Implementation Services for the implementation and gearing-up of all of the above-mentioned services and items from (a) to (cc) including all those services as more particularly described in Section 17 of this Part based on a detailed implementation plan which details the implementation time frame, stages of work to be performed, pre-installation requirement, system migration plan, training plan, capacity planning, etc. for the whole project whilst still adhering to the completion dates for the major Activities specified in Section 3 of this Part as essential requirements;
- (ff) Performance of the parallel run and system cutover as more particularly specified in Sections 4.5.25 and 4.5.26 of this Part.

1.3 The Government reserves the right to accept all or part of the proposed items or services offered by the successful Tenderer when entering into the Contract with the successful Tenderer.

1.4 **Methodologies and Standards**

1.4.1 The Contractor shall adopt, where applicable, the Government standards and guidelines or equivalent for the design, supply, delivery, installation, commissioning, implementation, operation, system support and maintenance and other related services of the System. The major Government standards and guidelines currently in place are listed in Annex D – List of Major Government Standards and Guidelines. Brief descriptions on these standards and guidelines are available for reference on the website <http://www.ogcio.gov.hk/>. These standards and guidelines shall be regarded as the major references to ensure the quality of the deliverables. (E1/6)

1.4.2 The Contractor shall perform quality control and assurance on all Deliverables before passing them to the Government for review and/or approval. The Quality Policy and Requirements can be found at the website https://www.ogcio.gov.hk/en/our_work/infrastructure/methodology/quality_management/. **(E1/7)**

1.5 **Project Organisation**

1.5.1 The “Practice Guide to Project Management for IT Projects under an Outsourced Environment” or equivalent project management framework shall be adopted in this project and the LCSD is the project owner. The relevant documents can be found at the website https://www.ogcio.gov.hk/en/our_work/infrastructure/methodology/proj_mgmt/. **(E1/8)**

1.5.2 There shall be a Project Steering Committee (PSC) and a Project Assurance Team (PAT). The PSC is to provide an overall guidance and direction to the project and the PAT is to monitor the project progress and ensure product quality. For project organisation, please refer to the document “Project Management for IT Projects under an Outsourced Environment” on the website as mentioned in Section 1.5.1 hereinabove. **(E1/9)**

1.5.3 The Contractor shall be responsible for the project management and the technical management of the project. The Contractor shall also help and advise the LCSD to prepare, steer and monitor the project throughout the Implementation Period. **(E1/10)**

1.5.4 The Contractor shall perform quality control and assurance on all deliverables before passing them to PSC and PAT for comments and review. **(E1/11)**

1.6 **Quantities Required**

1.6.1 The minimum quantities of the hardware items for the System listed in Annex E – Minimum Quantity of New Hardware and Software Required are for reference only. Tenderers shall propose in Schedule 1 – Hardware, Schedule 2 – Software and Schedule 14 – Implementation Services of Part V – Contract Schedules the exact quantity of the hardware items, cloud services, software items required for the System and the related Implementation Services for fulfilling the objectives and requirements as stated in these Project Specifications. **(E1/12)**

1.6.2 For the Ticketing System and Operation Services, Tenderers are required to propose the hardware, software and services for a production capacity of at least 500,000 tickets daily and 200,000 tickets hourly at peak hours, and storage capacity and response time as specified in Section 4 – Functional Specifications, Section 5 – Workload Specifications and Section 6 – System Performance Specifications of this Part. **(E1/13)**

2. BACKGROUND

2.1 Leisure and Cultural Services Department

2.1.1 The Leisure and Cultural Services Department (LCSD) is a government department which provides a wide range of municipal services on leisure and culture in Hong Kong.

2.1.2 Besides leisure activities, LCSD is responsible for the management of cultural venues including libraries, museums, indoor stadia, performance venues, as well as for promotion and organisation of arts and cultural activities. URBTIX was primarily set up to offer convenient ticketing services for these events to the public.

2.1.3 LCSD has been exploring opportunities of improving and enhancing its ticketing services to better serve customers' need. At present, LCSD considers it necessary to revamp the ticketing services to allow a commercial ticketing contractor to upgrade, redevelop, operate and maintain a Ticketing System and Operation Services to provide quality ticketing services to the public having regard to the latest technology advancement.

2.2 Booking and Ticketing Services

2.2.1 URBTIX is managed by LCSD to automate the selling of admission tickets for cultural, entertainment and sports events.

2.2.2 The existing URBTIX system was redeveloped, upgraded with additional capabilities and launched in 2014. To enable URBTIX, which comprises diverse service delivery channels, in providing real-time and quality ticketing services for ticket buyers and event presenters, a stable and reliable computerised ticketing system and Operation Services were secured by tendering under the Public-Private-Partnership (PPP) model. The current contract with the service provider will expire in December 2021. Under this Contract, the Contractor has to develop, provide, install, support and maintain the ticketing system for LCSD at its own cost in return for a system service fee based on each ticket issued by the System. The service provider is also tasked to operate the fully automated Internet and mobile ticketing services as well as operator-assisted telephone ticketing and telephone enquiry services. The service provider is allowed to collect the Internet or Mobile Ticketing Service Fee and Telephone Ticketing Service Fee payable directly by customers for each ticket purchased by the Internet ticketing service or mobile ticketing service or telephone ticketing service but not tickets sold at the outlets.

2.2.3 URBTIX provides a one-stop ticketing service through its wide network for event presenters for their sales of admission-charged events held at LCSD performance venues as well as other non-LCSD venues including the Hong Kong Arts Centre, Youth Square, Tai Kwun and HKICC Lee Shau Kee School of Creativity under contractual agreements. Subject to resource availability, URBTIX will extend its services for ad hoc requests of hirers for their events staged at venues with no contractual relationship with LCSD. There are currently twenty-two (22) URBTIX outlets providing counter booking service but the number of those outlets may change from time to time.

2.2.4 LCSD provides a wide range of front-end ticketing services including counter booking, coordination with event presenters, event set-up in the ticketing system,

financial and accounting support as well as overall administration and monitoring of the URBTIX ticketing services, etc.

2.2.5 While URBTIX provides ticketing services for events held at many LCSD performance venues as well as other venues in Hong Kong, the use of URBTIX ticketing services is not compulsory at LCSD venues as indicated in Section 5.5.2. Under no circumstances should the list of venues in Section 5.5.2 be regarded as an indication of commitment in the coverage of venues of future URBTIX ticketing services.

2.2.6 The number of tickets issued through the URBTIX system and the ticket proceeds excluding consignment tickets in the past five financial years is tabulated below for reference only.

<u>2014/2015</u>	<u>2015/2016¹</u>	<u>2016/2017¹</u>	<u>2017/2018¹</u>	<u>2018/2019</u>
4.52 million	3.97 million	3.90 million	3.80 million	4.28 million

Ticket sale by channels in the past five years:

<u>Ticket sale channel</u>	No. of tickets issued				
	<u>2014/2015</u>	<u>2015/2016</u>	<u>2016/2017</u>	<u>2017/2018</u>	<u>2018/2019</u>
(a) Outlets	2 202 843	1 913 407	1 797 484	1 735 642	1 813 295
(b) Internet	808 951	731 079	626 638	684 494	864 047
(c) Mobile app	56 965	113 396	115 396	134 576	166 169
(d) Telephone	86 005	64 363	37 461	38 469	29 137
(e) Consignment & complimentary tickets issued by Ticketing Office of LCSD	1 364 845	1 150 572	1 320 214	1 213 390	1 407 918

<u>Payment means</u>	Ticket proceeds excluding consignment tickets (HK\$ in millions)				
	<u>2014/2015</u>	<u>2015/2016</u>	<u>2016/2017</u>	<u>2017/2018</u>	<u>2018/2019</u>
(a) Cash & cheque	108	92	130	105	89
(b) Credit cards & UnionPay card	443	420	537	483	595
Total	551	512	667	588	684

It is anticipated that from 2021/2022 onwards, the total volume of tickets per year will be around 5 million as a result of sale of more museum exhibition tickets. Under no circumstances should these figures be regarded as an indication of commitment in the volume of future URBTIX ticket sales and ticket proceeds.

¹ Drop of number of tickets issued is mainly due to closure of the Hong Kong Space Museum Exhibition Hall, Space Theatre and Lecture Hall from October/November 2015 for renovation, closure of the Hong Kong Coliseum Arena for 5 weeks in October - November 2015 for improvement works in 2015-16, continued closure of the Hong Kong Space Museum Exhibition Hall in 2016-17 and 2017-18.

3. IMPLEMENTATION PLAN

3.1 Project Stages

3.1.1 Tenderers shall indicate in their submissions the implementation time frame and the implementation approach in Schedule 8 – Implementation Plan of Part V - Contract Schedules for the Ticketing System and Operation Services. **(E3/1)**

3.1.2 If the implementation of the Ticketing System and Operation Services consists of different stages, Tenderers shall indicate the time frame of each stage to be completed whilst still adhering to the completion dates for the major activities specified in this Section 3 as essential requirements. **(E3/2)**

3.1.3 The Government reserves the right to stipulate changes to the Implementation Plan in accordance with the applicable provisions of the Contract.

3.2 Project Schedule

3.2.1 Tenderers shall propose a detailed Implementation Plan in Schedule 8 of Part V - Contract Schedules. Tenderers shall ensure that the new System and all Services shall undergo (a) successful production rollout for parallel run with the existing system by the end of 13th month after the Contract Date (viz., Completion Date as defined in Part IV - Conditions of Contract), and (b) successful cutover from the existing system to the new System and Services as certified by the Government by the end of 14th month after the Contract Date. **(E3/3)**

3.2.2 Tenderers shall propose the Implementation Timetable specifying the commencement and end dates for the following major activities to be performed by the Contractor. All the dates set out in bold below (including the Completion Date) are essential requirements that shall be adhered to by Tenderers when proposing the Implementation Timetable and are not subject to any counter-proposal. The schedule shall clearly indicate the expected installation dates for hardware and software components. Scheduled dates for training and the initial complement of supplies for start-up shall be included. **(E3/4)**

- (a) Time frame from award of contract to submission of final deliverables;
- (b) Contractor's responsibilities and key dates, including system design and system customisation, site preparation, accommodation for hardware and software, etc.;
- (c) Responsibilities of the Information Technology (IT) Office, Ticketing Office, Ticketing Outlets, and the dates of key events and activities required of LCSD leading to the implementation of the System;
- (d) Installation and provisioning of the proposed items in the data centres, pre-existing Contractor Supplied Public Cloud, outlets, Ticketing Office and IT Office;
- (e) System Acceptance Tests including functional tests, load tests, resilience tests, disaster recovery tests, data conversion and migration tests, reliability tests and system integration tests with the LCSD internal systems including RRS, CRS and MIS and third-party systems including PSI and GPRDS;
- (f) User Acceptance Tests;
- (g) User training;

- (h) Documentation delivery;
- (i) Data conversion plan;
- (j) Parallel run;
- (k) System Ready for Use;
- (l) Pre-production Security Review and Assessment; and
- (m) System Cutover in accordance with a cutover plan with appropriate schedule and arrangements that will not cause interruption in the Operation Services from the predecessor system to the new System.

3.2.3 The Government reserves the right to negotiate changes to be made to the Contractor's plan.

3.2.4 The Implementation Timetable shall be as follows: **(E3/5)**

Activity	Major activities	Deliverables to be prepared and completed by the Contractor	End date counting from the Contract Date
0	Contract Date		
1	Project Initiation	- Project Initiation Document	Month 1
2	System Analysis and Design <ul style="list-style-type: none"> - Study and analyse requirements - Conduct business impact analysis - Finalise list of business functions to be performed by the System - Design prototype of the System - Review system flow and design - Privacy Impact Assessment (PIA) on System Analysis and Design - High-level Security Risk Assessment (SRA) 	<ul style="list-style-type: none"> - User Requirement Specifications - List of business functions to be performed by the System - System Design Prototype - System Analysis and Design Report - PIA (Stage 1) Report - Security Risk Assessment Report (High-level) 	Month 1 – 5
3	System Development <ul style="list-style-type: none"> - Design of the System and database - Program development - System Acceptance Tests 	<ul style="list-style-type: none"> - Functional Specifications - Test plan and results for each part of the System - Acceptance Tests 	Month 4 – 9
4	Installation of Hardware, Software and related Infrastructure at Data Centres <ul style="list-style-type: none"> - Plan system hierarchy - Site Preparation - Delivery and installation of hardware and software and related infrastructure at the Data Centres - Conduct Installation Test - Prepare testing and production environment 	<ul style="list-style-type: none"> - System infrastructure diagram - Contractor Supplied Hardware and Software installed and installation tests at Data Centre completed - Site Preparation Plan - Installation Test Plan and Results - Backup and restore procedures 	Month 6 – 8

Activity	Major activities	Deliverables to be prepared and completed by the Contractor	End date counting from the Contract Date
5	Installation of Hardware, Software and related Infrastructure at Outlets, Ticketing Office and ITO <ul style="list-style-type: none"> - Plan system hierarchy - Site Preparation - Delivery and installation of hardware and software and related infrastructure at outlets and offices - Conduct installation test 	<ul style="list-style-type: none"> - Contractor Supplied Hardware and Software installed and installation tests at outlet side completed. - Site Preparation Plan - Installation Test Plan and Results 	Month 10 – 12
6	System Testing <ul style="list-style-type: none"> - Conduct Data Conversion and Migration Tests - Conduct Functional Tests - Conduct Resilience Tests - Conduct System Integration tests - Conduct User Acceptance Tests - Conduct Load Tests - Conduct Reliability Tests - Follow up with problems and fix bugs and errors - Security Risk Assessment and Audit (SRAA) - PIA Review and Audit 	<ul style="list-style-type: none"> - Test plan and results for each type of system tests - Problem and incident logs - System which has incorporated changes recommended by the SRAA contractor - SRA Report - Security Audit (SA) Report - PIA (Stage 2) Report 	Month 8 – 11
7	Training and DR Drill <ul style="list-style-type: none"> - Training to be provided to various users and system operators - Disaster Recovery (DR) Drill 	<ul style="list-style-type: none"> - Training Plan - Training Manual - Trained Users - DR Plan - DR Drill and Results - Parallel Run Plan 	Month 12
8	Successful Completion of production rollout for Parallel Run and the System Ready for Use <ul style="list-style-type: none"> - Complete necessary data conversion and migration to the new System - Launch the system into production environment for Parallel Run - The System being Ready for Use 	<ul style="list-style-type: none"> - System Migration Test Plan and Results - Data Migration Plan and Results - System Installation Plan and Results - Application Operation Manual - Application User Manual - Computer Operation Procedures Manual - System Manual - Security Incident Handling Procedure - System Cutover Plan 	Month 13 (Completion Date as defined in Part IV – Conditions of Contract)
9	Parallel run with the predecessor system for one month	<ul style="list-style-type: none"> - Parallel Run Results 	Month 14
10	System Cutover and Launch <ul style="list-style-type: none"> - All Operation Services shall be cutover to the new System 	<ul style="list-style-type: none"> - System Maintenance Plan 	Month 14

- 3.2.5 In relation to each Activity, reference to end date shall mean the last working day of such number of month from the Contract Date specified in the last column opposite that Activity. **Therefore, the last working day of “month 1” means last working day of the first month from the Contract Date.** Depending on the Contract Date, each month from the Contract Date does not necessarily end on the last day of a calendar month. The end date is the completion date for that Activity and Deliverables specified in the third column. A Deliverable shall not be deemed to have been completed unless the Government Representative accepts the same in writing. **(E3/6)**
- 3.2.6 The Contractor shall carry out the Implementation Services in accordance with the Implementation Plan. **(E3/7)**
- 3.2.7 The Contractor shall ensure timely completion of the milestones and Activities set out in this section. Where necessary, the Contractor shall liaise with all necessary parties to seek the relevant information which may be necessary for completion of the milestones and Activities. Where any Work is sub-contracted to a sub-contractor approved by the Government in accordance with Clause 63 of Part IV – Conditions of Contract or any products are to be procured from a supplier, the Contractor shall ensure timely completion of such Work by the sub-contractor, and timely delivery of the products. The Contractor as the primary obligor shall ensure that the Implementation Plan is adhered to. **(E3/8)**
- 3.2.8 The Contractor shall ensure that the quality of all the delivered Custom Programs are error-free, delivered hardware and software are fully functional and thoroughly tested before they are put to the Installation Test, System Acceptance Test and User Acceptance Tests. **(E3/9)**
- 3.2.9 Tenderers may submit a better plan to advance the Completion Date for Government’s consideration.

4. FUNCTIONAL SPECIFICATIONS

4.1 Tenderers' Responsibilities

- 4.1.1 Tenderers shall propose in Schedule 4 – Technical Proposal and System Configuration of Part V, the proposed system design including network architecture, system components, application architecture, and rack layout diagram that satisfies all essential requirements specified in this Part. **(E4/1)**
- 4.1.2 Tenderers shall provide the technical specifications of the proposed hardware and software for the System in Schedule 3 – Specifications of Part V – Contract Schedules and the overall technical solution and system configuration for the System in Schedule 4 – Technical Proposal and System Configuration of Part V. **(E4/2)**
- 4.1.3 Tenderers shall propose in Schedule 4 – Technical Proposal and System Configuration of Part V, the proposed network design and configuration for the System with at least one network diagram, the batch functions such as system backup, database backup and housekeeping for the System. Tenderers shall also propose the schedule of batch functions and the length of overall time window. **(E4/3)**
- 4.1.4 Tenderers shall propose in Schedule 4 – Technical Proposal and System Configuration of Part V, a proposed system architecture for the System. **(E4/4)**

4.2 Contractor's Obligations

- 4.2.1 The Contractor shall provide a completely new and fully functional System, comprising the new Contractor Supplied Hardware, the new Contractor Supplied Software and the new Custom Programs. **(E4/5)**
- 4.2.2 In relation to any function requirements specified in this Section 4 where it is expressly stated that Custom Programs shall or may be developed for implementing such functional requirements, any such Custom Programs to be deployed must be newly developed by the Contractor to fulfil the relevant functional requirements. The Government will not provide any source code of any of the existing custom programs to the Contractor for enhancement. The Contractor must rewrite the custom programs to implement the functions. Regardless of whether Custom Program is permitted or required in relation to any functional requirement, under no circumstances whatsoever will the Tenderer be permitted to offer to use, or the Contractor be permitted to use, the source code of the existing custom programs to implement any functional requirements set out in Section 4 of this Part. **(E4/6)**

4.3 System Objectives

- 4.3.1 The main objectives of the Ticketing System and Operation Services are:
- (a) to provide reliable, secure, efficient and effective computerised culture, entertainment and sports event ticketing system with bilingual support (Chinese and English) for the maintenance and management of the related event performance and ticketing;
 - (b) to provide an open design system platform for easy enhancement and customisation;

- (c) to provide innovative use of new technologies such as the feasibility of biometric ticketing, multi-media, radio-frequency identification, near-field communication, electronic commerce to address customers' needs and demands with secure transaction arrangements as well as practical and efficient operational processes;
- (d) to provide daily operation of the System including monitoring, system support and database management;
- (e) to provide Internet, mobile and telephone ticketing and enquiry service;
- (f) to provide ticket selling and collection services at counters and via use of self-service ticketing kiosks;
- (g) to provide method(s) of data transfer from the Ticketing System and Operation Services to the LCSD's internal systems including RRS, CRS, MIS, PSI and GPRDS; and
- (h) to provide replication services required from the Ticketing System and Operation Services to the LCSD internal systems for data analysis on regular basis, or statistics analysis on ad-hoc basis.

4.4 **Overview of Current URBTIX Services and System (as general information for Tenderers' reference)**

4.4.1 **Current Services Provided to Stakeholders Including Event Presenters, Public, Venues and Ticketing Agents**

4.4.1.1 For Event Presenters

4.4.1.1.1 The Ticketing Office of LCSD provides various types of services for event presenters using URBTIX including ticketing logistics, reporting and accounting, event promotion and publicity, information dissemination, etc. Ticketing logistics include tasks that span from preparation for commencement of ticket sale to event end tasks, including:

- (a) Event set-up in the ticketing system,
- (b) Monitoring of the ticketing operation during the sales period,
- (c) Provision of regular sales reports,
- (d) Checking and dissemination of event publicity materials to URBTIX outlets,
- (e) Issuance of consignment tickets (for event presenter's own sale and distribution),
- (f) Issuance of complimentary tickets (for event presenter's own distribution),
- (g) Normal reimbursement of ticket proceeds after completion of the event, and
- (h) Weekly reimbursement during sales period upon request subject to relevant clauses in the "Terms and Conditions for the Use of URBTIX".

4.4.1.2 For All Stakeholders Where Applicable

4.4.1.2.1 Booking Channels:

- (a) Advance Booking:

This is usually available for some large scale events with multiple performances for subscription programme up to one year before the performance date of the event.

(b) Counter Booking Service (22 URBTIX outlets):

- A total of 22 URBTIX outlets (the number of which may change from time to time) serve ticket buyers territory-wide and provide counter services for ticket sale of all URBTIX events. The outlet network covers 15 LCSD performance venues and other outlets under contractual relationship with LCSD including:
 - Hong Kong Arts Centre,
 - HKICC Lee Shau Kee School of Creativity,
 - Tai Kwun,
 - Youth Square,
 - Tom Lee Music Co. Ltd. (Tsimshatsui and Wanchai branches), and
 - Parsons Music Ltd. (Yau Tong branch)
- In addition to the above 22 URBTIX outlets, Yau Ma Tei Theatre, Hong Kong Space Museum and Hong Kong Film Archive of LCSD also have box offices which provide counter booking service for tickets of their own venues' events using URBTIX system but these box offices do not provide ticket sales for other URBTIX events.

(c) Internet and Mobile App Booking Service:

- The Internet and mobile app ticketing service extends the coverage of URBTIX globally to serve both local and overseas ticket buyers. These services are available 24 hours globally. They accept payment by credit cards (Visa, Mastercard and American Express) and UnionPay card. These services are currently provided by the service provider of the ticket system. A service fee at a rate approved by the Government (currently at \$8) per ticket purchased is levied on the ticket buyers.

(d) Credit Card Telephone Booking Service Hotline:

- Credit card telephone booking are available from 10 am to 8 pm daily. It accepts payment by credit cards (Visa, Mastercard and American Express) and UnionPay card. It is currently provided by the service provider of the ticketing system. A service fee at a rate approved by the Government (currently at \$8) per ticket purchased is levied on the ticket buyers.

(e) Telephone Enquiry and Customer Service Hotline:

- Two telephone hotlines are operated by service provider from 10 am to 8 pm daily for handling customer enquiry regarding the ticketing information on events or after-sale support such as loss ticket report, etc.:
 - Telephone enquiry hotline – 3761 6661 (dedicated service for URBTIX under contract requirement)
 - Customer service hotline – 2314 4228 (service provider's enhanced support to telephone enquiry service)

4.4.1.2.2 Support Services:

(a) Exchange of Tickets

- Customers' application for ticket exchange will be subject to certain conditions and the discretion of the event presenters.

(b) Wheelchair Reservation by Telephone

- Tickets can be reserved via telephone enquiry hotline (3761 6661) free of charge by wheelchair users for wheelchair seats of all events. Reserved tickets must be collected, and be paid for at any URBTIX outlets within the days specified (currently three days). Unclaimed reservations will be automatically released for public sale.

(c) Bulk Booking, Consignment and Complimentary Tickets for Event Presenters

- A presenter may request for purchase of bulk amount of tickets, issuance of consignment tickets for their own arrangement for sale and complimentary tickets for their own distribution. All these tickets will be issued at the Ticketing Office of LCSD and collected by the presenter.

(d) Ticket Loss

- This is a customer support service and replacement of tickets may be arranged by service provider subject to certain conditions.

(e) Return of Tickets (at outlets)

- This function is confined to return of tickets within the same date of transaction at the same URBTIX outlet.

(f) Return of Consignment and Complimentary Tickets

- This function is different from the return of tickets at URBTIX outlets and is confined to the Ticketing Office of LCSD.

4.4.2 **Current System of URBTIX**

4.4.2.1 The existing URBTIX is an integrated system developed, managed and maintained by Cityline (HK) Limited through open tender.

4.4.2.2 All servers are equipped with extensive hardware features to maximise reliability including redundant disks, dual power supply, cooling, and other autonomic functionality.

4.4.2.3 These servers are hosted in a Class 3+ Data Centre to sustain URBTIX's 99% availability service level.

4.4.2.4 Server virtualisation technology from VMware is deployed to the web, application and management tier. Core servers (including servers in the DB, Web and Application tiers) are deployed with N+1 architecture or equivalent. Failure of any single server in each of the tiers can still fulfill the performance and workload requirement of the contract requirement.

4.4.2.5 There are two database servers in the URBTIX system, which are configured in mutual takeover mode to provide high availability. Two database instances are designed for online transaction processing and reporting.

4.4.2.6 Servers and equipment are hosted in Data Centres, with production site and disaster recovery site in two separate locations. The system is designed to provide the service level of 99% availability for URBTIX.

4.4.2.7 URBTIX's Network

4.4.2.7.1 The URBTIX's network consists of three core networks, namely the Production Data Centre (PDC) Network, Disaster Recovery Data Centre (DRDC) Network and Outlet Network. There are four other networks that the core networks are connected to, namely LCSD Network, Cityline's Office Network, Data Centre (DC) Management Network and Cityline's Data Centre Network which contains the Cityline's Payment Platform and Ticket Dispensing Machine (TDM) Server Platform.

(a) PDC Network

- The PDC Network is the central hub of the whole solution. It is geographically located in the production data centre, and all production servers are located in this network. The PDC Network is linked to various networks to support ticketing operations and provides Internet and mobile ticketing services to the public.

(b) DRDC Network

- The DRDC Network is the disaster recovery site of the PDC Network. The DRDC Network consists of a set of backup systems and devices which is similar to the PDC. The Database transaction log files are transferred to the DR environment through network in nearly real time via IBM DB2 HADR technology. There is a point-to-point link connecting the PDC and DRDC. With the latest database transaction logs, data can be recovered in the DR site in DR scenario.

(c) Outlet Network

- The Outlet Network contains distributed networks located at LCSD venue box offices which are not URBTIX outlets, LCSD and non-LCSD URBTIX outlets and Cityline Call Centre. The Outlet Network connects to PDC and DRDC via Megalink MPLS. There are a number of POS terminals, printers, and network devices at each of these locations which connect to the PDC Network under normal circumstance and will be routed to the DRDC Network upon disaster declaration. Cityline TDMs are also installed at LCSD venues and share the network at venue box offices connecting back to PDC Network except the TDMs at Hong Kong Cultural Centre, Queen Elizabeth Stadium, Hong Kong Coliseum and City Hall. The TDMs in these four venues are directly connected to Cityline TDM server network at Cityline Data Centre. In addition, two terminals are set up in Lockhart Road Municipal Services Building through this network to execute specific commands for troubleshooting purposes by IT Office of LCSD.

(d) LCSD Network

- In order to provide integration with LCSD systems, an integration server is set up in LCSD's De-militarised Zone (DMZ) Network for transferring data files to internal LCSD systems, namely the Management Information System (MIS) and Revenue Recording System (RRS) regularly.

(e) Cityline's Office Network

- Cityline's Office Network is connected to PDC and DRDC Network for remote production support, application deployment and other management functions. All activities from Cityline's Network to the production systems are limited and under control. Prior approval has to be sought from LCSD before any changes could be made in the production environment.

(f) DC Management Network

- IBM BlueCARE (Tivoli Monitoring), PRTG and Server Resources Manager (SRM) are used to monitor the server system resources utilisations and capacity monitoring. IBM Tivoli Endpoint Manager is implemented to provide server patch management. The backend infrastructure for these IBM monitoring tools is sitting in IBM's secured management network that is connecting to the internal firewalls in the URBTIX.

(g) Cityline's Data Centre Network

- Payment Platform
 - It is a shared payment platform at Cityline's own PDC for credit card and UnionPay card payment processing for URBTIX's Internet, mobile and telephone bookings. This network acts as a central hub of payment processing for all card types. The URBTIX system connects to Cityline's payment platform via Internet. The same services are provided at the Cityline's payment platform at Cityline DR DC.
 - URBTIX accepts payment by credit cards (Visa, Mastercard, American Express) and UnionPay card through outlet counters, Internet, mobile and telephone bookings. In such cases, the system will connect Cityline's Payment Platform for credit card and UnionPay card payment processing (except outlet counters which use other contractors' payment platforms) via the PDC and DRDC Network where appropriate.
- TDM Server Platform
 - The TDM Server Platform located at Cityline's PDC controls all Cityline's TDMs installed in Hong Kong. TDM service will not be supported in Cityline's DR DC.

4.4.2.8 Application Design

4.4.2.8.1 The existing system was developed on a J2EE platform together with IBM DB2 Database Server with over 300 relational database tables. The current ticketing system consists of 8 major modules:

- (a) Administration module,
- (b) Email Direct Marketing (EDM) module,

- (c) Integration and General module,
- (d) Internet module,
- (e) Presenter Portal module,
- (f) Report module,
- (g) Mobile module, and;
- (h) Point of Sales (POS) module.

4.4.2.9 The interface of the Internet module supports three languages (namely English, Traditional Chinese and Simplified Chinese), while that of the POS module supports English and Traditional Chinese languages, and the other three modules support English only.

4.4.2.10 In front of the URBTIX production system, there is an external Throttling System to provide Internet traffic flow control to the URBTIX infrastructure. The throttling infrastructure consists of two load balancers and two web servers. Two load balancers are implemented in active-standby mode with automatic failover feature and distribute workload on the two web servers evenly. Two web servers are used to provide the web content of busy page.

4.4.2.11 The existing URBTIX is running on the following hardware configuration:

Item	Server	Hardware Specifications	Qty
PRODUCTION DATA CENTRE			
1.	App Server	2 x 8 core 2.4GHz processor, 64GB PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	4
2.	Web Server	2 x 8 core 2.4GHz processor, 64GB PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	4
		Intel Xeon 2.6GHz CPU x 28, 128G DDR Ram, 4.2T HDD	4
3.	Database Server	1 x 8 core 3.55 GHz processor, 32GB Memory DIMMs, 1066 MHz, 2Gb DDR3 DRAM	2
4.	Throttling Server	1 x 4 core 1.8GHz processor, 4GB PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	2
5.	SAN Storage	72 x 300 GB 2.5-inch 15K RPM SAS HDD	1
6.	SAN Switch	With 24 ports supporting 2, 4, or 8 Gbps speeds	2
7.	Backup Server	1 x 4 core 3.0 GHz processor, 16GB Memory DIMMs, 066 MHz, 2Gb DDR3 DRAM	1
8.	Backup Tape Library	With 48-tape cartridge capacity and contains four LTO Ultrium 5 Half-High tape drives	1
9.	System Management Server	2 x 8 core 2.4GHz processor, 32GB PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	2
10.	Edge Router	Integrated Service Router by PCCW on service basis	2

Item	Server	Hardware Specifications	Qty
11.	Internet Router	With 4 built-in GE Dual P/S	2
12.	External Firewall	With IPS, SW, 8GE Data, 1GE Mgmt, AC, 3DES/AES	2
13.	Internal Firewall	With 6 GPIM Slots, 2 MPIM Slots, 6 10/100/1000Base-T Ports, 4 GE SFP Ports, dual PS Slots, fans	2
14.	Intrusion Prevention System (IPS)	With 10 x 10/100/1000Base-T RJ-45 ports 10 x Fixed Gigabit Ethernet SFP Ports One out-of-band 10/100/1000 Base-T RJ-45, One RJ-45 serial console Manageable vis Security Management System(SMS), LSM HTTPS web interface	2
15.	Network Switch	With 48-port 10/100/1000Base-T (8-ports PoE) + 320W AC PS, includes 50cm VC cable	4
16.	Internet Bandwidth	Supporting both International and local bandwidth	2
17.	Throttling Balancer	With 8 GE ports and 2 1/10 GE ports	2
18.	Web Balancer	With 8 GE ports	4
19.	Data Circuit (Server-End Connection to Outlet Network)	Megalink Plus MPLS	2
20.	DDOS & Anti-bot Appliance	Appliance for DDOS attack and anti-bot protection	1
DISASTER RECOVERY DATA CENTRE			
1.	App Server	2 x 8 core 2.4GHz processor, 64GB PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	2
2.	Web Server	2 x 8 core 2.4GHz processor, 64GB PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	2
3.	Database Server	1 x 8 core 3.55 GHz processor, 32GB Memory DIMMs, 1066 MHz, 2Gb DDR3 DRAM	1
4.	SAN Storage	72 x 300 GB 2.5-inch 15K RPM SAS HDD	1
5.	SAN Switch	With 24 ports supporting 2, 4 or 8 Gbps speeds	1
6.	Backup Server	1 x 4 core 3.0 GHz processor, 16GB Memory DIMMs, 066 MHz, 2Gb DDR3 DRAM	1
7.	Backup Tape Library	With 48-tape cartridge capacity and contains four LTO Ultrium 5 Half-High tape drives	1
8.	Management Support Server	2 x 8 core 2.4GHz processor, 32GB PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	1
9.	Balancer	With 8 GE ports	1
10.	Internet Router	With 3 GE; (2 SFP)	1
11.	Edge Router	Integrated Service Router by PCCW on service basis	2

Item	Server	Hardware Specifications	Qty
12.	Network Switch	With 48-port 10/100/1000Base-T (8-ports PoE)	2
13.	External Firewall	With IPS, SW, 8GE Data, 1GE Mgmt, AC, 3DES/AES	1
14.	Internal Firewall	With 6 GPIM Slots, 2 MPIM Slots, 6 10/100/1000Base-T Ports, 4 GE SFP Ports, dual PS Slots, fans	1
15.	IPS	With 10 x 10/100/1000Base-T RJ-45 ports 10 x Fixed Gigabit Ethernet SFP Ports One out-of-band 10/100/1000 Base-T RJ-45, One RJ-45 serial console Manageable vis Security Management System(SMS), LSM HTTPS web interface	1
16.	Data Circuit (Server-End Connection to Outlet Network)	Megalink Plus MPLS	1
LCSD's DE-MILITARISED ZONE			
1.	Integration Server	1 x 4 core 1.8GHz processor, 8GB PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	1
2.	Router & Modem	Integrated Service Router and Modem by PCCW on service basis	1
3.	Switch	Linksys 5-port 10/100Base-T Switch	2
4.	Data Circuit	Megalink Plus MPLS	2

Equipment used at Outlet:²

Item	Equipment	Description
1.	POS Workstation	M72e Small form factor(SFF) Installed with: - Microsoft Windows 8.1 Pro 64bit (OEM Version) - Symantec Endpoint Protection Client
2.	Monitor	ThinkVision L1712p 17" Monitor
3.	Swiper Card Keyboard	Multifunctional, Compact USB Keyboards with Enhanced Key Layout and optional Magnetic Card Reader & Touchpad for POS and Commercial Applications
4.	Network Printer	Lexmark MS510dn printer
5.	Ticket Printer	New Lemur-S Ticket Printer
6.	Barcode scanner	LS2208 Barcode scanner (USB Kit)
7.	Pen power	PenPower Jr. Star (晶鑽小蒙恬)
8.	Router & Modem	Integrated Service Router and Modem by PCCW on service basis
9.	Switch	Linksys 5-port 10/100 Switch
10.	Data Circuit	Megalink Plus MPLS

² The quantity of equipment will vary at each outlet. Please refer to Section 5.4.1 of this Part and Part III of Annex E to this Part for a list of URBTIX ticketing outlets/offices.

Item	Equipment	Description
	(Client-End Connection to Outlet Network)	

4.5 Functional Requirements

- 4.5.1 The Ticketing System and Operation Services shall possess all of the functions as stated in Section 4.5 and handle the workloads as stated in Section 5 based on the hardware, software and Custom Program specifications as proposed in Schedules 1 to 4 of Part V. **(E4/7)**
- 4.5.2 An off-the-shelf application software package with necessary customisation must be offered for the implementation of the functions specified in this Section 4.5 (except for the system interface service which shall be implemented through the development of the Custom Programs). The off-the-shelf application software package (whether the version which is being proposed or an earlier version) must have been used by at least one real-time ticketing system by another user but it is not necessary that the Tenderer was responsible for implementing such ticketing system. **(E4/8)**
- 4.5.3 Tenderers shall specify clearly each party's responsibilities in Schedule 17 of Part V – Contract Schedules if sub-contractors are proposed to be appointed for performing any of the Services. **(E4/9)**
- 4.5.4 The Contractor shall specify during the SA&D Stage the ownership of the Intellectual Property Rights and other proprietary rights subsisting in all application software proposed in Schedule 2 of Part V – Contract Schedules (regardless of whether or not further customisation is required) for the Ticketing System and Operation Services. **(E4/10)**
- 4.5.5 The Contractor shall be responsible for supplying and installing all subsequent software releases of the application program of the Ticketing System and Operation Services without charge to the Government. **(E4/11)**
- 4.5.6 It is likely that certain house-keeping functions will be performed daily by the Contractor in order to keep the System in proper operating condition. In such a case, the Contractor shall specify during the SA&D stage the necessary housekeeping functions and the number of hours required every night for these functions. The service hours of the Ticketing System and Operation Services is required to be 7 x 24 hours to provide Internet and Mobile Ticketing Service. The Contractor shall also specify other functions which may be performed on a weekly, monthly or yearly basis. **(E4/12)**
- 4.5.7 The Contractor shall propose a comprehensive disaster recovery plan for the Government's approval during the System development stage to address the contingency arrangement in case of any catastrophic event at the production data centres. The Government Representatives shall be involved in every disaster recovery drill. The disaster recovery drill shall be arranged at least once a year. **(E4/13)**
- 4.5.8 The System shall provide an account based system and be customer centric with each patron having their own account within the System so that their transactions,

or purchases, can be captured and traced in the customer account. Being account based, it shall enable the System to provide better insight for analytics. (E4/14)

4.5.9 The application architecture of the System shall be scalable, elastic and distributed with ability to scale up and down on demand and system architecture shall be able to support the dynamic demands of services from the public on all types of events in response to changes in loading. (E4/15)

4.5.10 The Contractor shall provide a completely new and fully functional Ticketing System and Operation Services, including the hardware and software needed for indexing, storage and retrieval of records from the Ticketing System and Operation Services. The Ticketing System and Operation Services shall be flexible to cater for future expansion, future addition of functions, and changes in requirements; and to cope with the changes in replacement of the interface systems. Data conversion is also required. (E4/16)

4.5.11 The Contractor shall develop Custom Programs for integration of the System with the existing RRS, CRS, MIS, PSI and GPRD internal systems of LCSD. Data replication services are required for the LCSD's internal systems for data analysis on regular basis, or statistics analysis on ad-hoc basis. The following functions shall be provided: (E4/17)

- (a) Interface between the Ticketing System with the LCSD's RRS and other accounting systems to allow data transfer from the Ticketing System to the RRS (a bank-in function shall be provided by the System for the outlets' staff to record in the System after completing physical deposit of the ticket proceeds in cash collected from sale transactions to the bank), and another function to extract data in standard formats from the Ticketing System to the RRS.
- (b) Interface between the Ticketing System and the CRS, MIS, PSI and GPRD to allow data transfer from the Ticketing System to these systems.
- (c) Interface between the Ticketing System with the LCSD internal systems and third-party systems to allow data replication from the Ticketing System to these systems.
- (d) Sending XML files of event and ticketing information on daily basis via email to specified recipients in Guangdong and Macao for daily updating of programme information on official culture websites.

4.5.12 Besides the above requirements, the new System shall include all essential functions as specified in this Section 4.5. All these functions are essential requirements and shall be made available when the System Ready for Use unless acceptance of Government on a revised schedule after tender award. (E4/18)

4.5.13 **Management Services for Ticket Sale**

4.5.13.1 All the services whether through the functions of the System or otherwise specified in this Section 4.5.13 shall be applicable to all modes of sale (viz., sale at the outlets, Internet ticketing service, mobile ticketing service, telephone ticketing service and self-service kiosk sale) and shall be available throughout the Operation Period unless otherwise specified. (E4/19)

4.5.13.2 Bilingual (Chinese and English) System

- 4.5.13.2.1 The System shall be a bilingual (Chinese and English) ticketing system that is capable of capturing Chinese input and displaying both Traditional and Simplified Chinese characters. **(E4/20)**
- 4.5.13.2.2 The System shall display all user interfaces (regardless of the type of user) both in English and Chinese. **(E4/21)**
- 4.5.13.3 User Login and Security Control
- 4.5.13.3.1 The System shall enable effective access right management with tight control and allow management of LCSD Ticketing Office (alternatively referred to as “Ticketing Office”) to make adjustments in order to cater for regular and ad-hoc requirements. **(E4/22)**
- 4.5.13.3.2 The System shall allow at least 30 different categories of users with separate login passwords and different combination of system privileges to access individual functions. For example, counter staff of a ticket outlet shall be allowed to sell tickets and to make enquiries of active performances; staff at supervisory levels shall have the privilege to access non-active or past performances; staff at supervisory levels shall be allowed to issue tickets blocked for specific purpose such as tickets of management seats and to reserve seats for selling standing tickets; system managers shall have the privilege of creating and deleting performance set-up data and events, and so on. The exact categories of users and their respective privileges for accessing the functions of the System shall be further stipulated by the Government during the SA&D Stage. **(E4/23)**
- 4.5.13.3.3 Transaction log and audit log for every transaction of each login user shall be provided by the System for audit control. **(E4/24)**
- 4.5.13.4 Screen Display for Terminals at Outlets, Offices and Patron’s Screen
- 4.5.13.4.1 Both Chinese and English characters shall be displayed on the seating plan and information page of each performance of each event. **(E4/25)**
- 4.5.13.4.2 The System shall display in multiple colours for different price zones and ticket sale and on-hold status. **(E4/26)**
- 4.5.13.4.3 The System shall display the overall seat plan layout. **(E4/27)**
- 4.5.13.4.4 The System shall generate the overall seat plan layout in an A4 and an A3 size paper. **(E4/28)**
- 4.5.13.4.5 The System shall display warning symbols, flashes or colour for seats with blocked sight-lines, designated and suitable wheelchair seats, lost ticket seats or exchanged seats, etc. **(E4/29)**
- 4.5.13.4.6 The System shall allow user to locate performances by venue, event, performance date and/or time. **(E4/30)**
- 4.5.13.4.7 The System shall display ticket price zones and ticket availability status graphically on seating plan. **(E4/31)**
- 4.5.13.4.8 The System shall display ticket availability summary of various parts of seat plan for each performance of each event. **(E4/32)**

- 4.5.13.4.9 The System shall allow user to navigate through booking screens of various parts of a seating plan. **(E4/33)**
- 4.5.13.4.10 The System shall display offered seats simultaneously to all sales units that are displaying the same seating plan. **(E4/34)**
- 4.5.13.4.11 The System shall provide different screen display for different level of users. For example, the set up users will have a full information (such as total number of blocked seats, reservation seats, etc.) display of the seats status. And the outlets' operators will have a limited information (such as the blocked seats, reservation seats, available seats, discount code, etc.) display of the seat status. **(E4/35)**
- 4.5.13.5 Ticket Selling and Online Enquiry
- 4.5.13.5.1 All ticket selling functions specified in this Section 4.5.13.5 shall be available to the outlet operators and telephone sale operators unless otherwise specified; and all online enquiry functions shall be available to all members of the public. **(E4/36)**
- 4.5.13.5.2 The System shall sell tickets by cash (for counter bookings only), cheque (for internal bookings by event presenters only), credit cards (Visa, Mastecard and American Express), UnionPay card and other electronic payment methods using Near Field Communication Technology or QR code covering Octopus, contactless credit card, Faster Payment Service ("FPS"), Apple Pay, Google Pay, Alipay, WeChat Pay and Quickpass to be used in all applicable Ticketing Services (viz., "Electronic Payment Means"). Notwithstanding anything herein to the contrary, the final list of Electronic Payment Means to be covered for each type of Ticketing Service shall be as set out in the Articles of Agreement. **(E4/37)**
- 4.5.13.5.3 The System shall support selling of marked seating events, free seating events and events comprising of both marked and free seating on a single seat plan. **(E4/38)**
- 4.5.13.5.4 The System shall have the ability to scan for vacant seats within a set of given parameters such as event names, performance and prices of a particular performance. **(E4/39)**
- 4.5.13.5.5 Online workstations installed at each outlet shall be used for enquiry of seats available and selling of tickets for every performance of each event. Summary statistics on seat availability of all performances of the desired event for a particular date shall be displayed on one screen. **(E4/40)**
- 4.5.13.5.6 In case the seat plan of a particular venue is too large to be displayed on one screen, an online updated simplified overall view with multiple level of "zoomed in" access of different windows of the same performance shall be provided. **(E4/41)**
- 4.5.13.5.7 Status and ticket price of every seat of each performance shall be reported. They shall be either available, currently being offered at another outlet, booked or reserved for different reasons. **(E4/42)**
- 4.5.13.5.8 Upon availability of a selected seat or seats, it shall be offered to the customer on a first-come-first-served basis. The seats offered shall be shown on screens so that no other workstation can offer the same seats at that moment. The same information shall also appear on all other workstations that display the same seating window of the same performance. **(E4/43)**

- 4.5.13.5.9 The System shall be able to set a quota per purchase from a range of 1 to 99 tickets, e.g. maximum of 40 tickets per transaction per patron depending on events. Ticket quota setting for first day sale, on the day of performance, and any other dates throughout the sale period shall be configurable subject to operational conditions. **(E4/44)**
- 4.5.13.5.10 The System shall be able to set a quota per credit card and UnionPay card from a range of 1 to 10 tickets, e.g. maximum 2 tickets per transaction per credit card and UnionPay card depending on events or event series. Ticket quota shall be applied on first day sale and/or on-the-day sale. Limit shall be cleared every day and the control setting shall be adjustable to disable on-the-fly when needed. **(E4/45)**
- 4.5.13.5.11 The System shall detect and warn the customer when a purchase limit is exceeded during the course of purchase. The System shall not allow ticketing process to continue if the total number of tickets to be purchased has exceeded the purchase limit. **(E4/46)**
- 4.5.13.5.12 The System shall accumulate offers for different tickets for any event window or venue, before selling or reserving the accumulated seats. **(E4/47)**
- 4.5.13.5.13 Accumulation of offers across up to 30 events for the purchase in one lot is also required. Individual accumulated offers can be changed without affecting other accumulated offers. The accumulation features shall be available to all users online without affecting the System's performance. **(E4/48)**
- 4.5.13.5.14 The System shall be able to display a full picture of the accumulative purchase, say in table form, with total sales value, event names, dates, price and discounts of each selection. **(E4/49)**
- 4.5.13.5.15 The System shall allow the capture of patron particulars for fulfilling specific ticketing needs, for example credit card and UnionPay card cardholders' names, numbers and expiry date for processing payment by credit cards, UnionPay card and other Electronic Payment Means; address for mail or courier delivery of tickets; name and telephone number for contact purpose; email address for confirmation of Internet and mobile transaction, etc. Excessive information shall not be collected. **(E4/50)**
- 4.5.13.5.16 For friends or membership scheme, the System shall allow the capture of membership number (for applicable discounts) and membership password (for Internet and mobile ticketing), etc. **(E4/51)**
- 4.5.13.5.17 The System shall be able to retrieve the sales history of tickets for access on screen by authorised users. **(E4/52)**
- 4.5.13.5.18 The System shall allow blocking of seats under no less than 50 different statuses. Blocking of seats and their access shall be restricted to different levels of privileged users. **(E4/53)**
- 4.5.13.5.19 The System shall allow the operator to find out all available ticket type quotas for all performances under an event on one single page. **(E4/54)**

- 4.5.13.5.20 The System shall be able to generate ticket receipt automatically for the handling charge of ticket exchange, Internet, mobile and telephone booking. Manual calculation is disallowed. **(E4/55)**
- 4.5.13.5.21 In addition to events on sale, the System also shall display upcoming events on sale in next 2 days. **(E4/56)**
- 4.5.13.5.22 To accelerate ticket sales at counters and reduce waiting lines during busy times, the System shall be able to switch to a quick sale mode seamlessly which offers a means to set predetermined defaults such as: **(E4/57)**
- (a) A specific quantity of tickets or most common quantity requested;
 - (b) An offer code;
 - (c) Payment method; and
 - (d) Patron type such as standard, adult, child, etc.
- 4.5.13.5.23 The System shall cancel error entries before tickets are issued or claimed. **(E4/58)**
- 4.5.13.5.24 The System shall provide end-of-day reports for outlet operators such as daily close-out, settlement, cash drawer accounting and balancing reports. **(E4/59)**
- 4.5.13.5.25 The System shall allow ticket collection at outlets for pre-paid tickets booked via Internet, mobile or telephone ticketing services. **(E4/60)**
- 4.5.13.6 Best Seat Offer
- 4.5.13.6.1 The System shall be able to offer the best seats available across multiple windows or parts of the houses or venues within the same performance. The best seats offered shall allow manual override to change to other available seats by operator as required by customers. **(E4/61)**
- 4.5.13.6.2 The best seat algorithm shall allow default pre-set as well as the input of parameters such as first best seat, horizontal or vertical selection preference, importance of minimising occurrence of single seat, etc. **(E4/62)**
- 4.5.13.6.3 The System shall also be able to offer the best seats across performances of the same event. **(E4/63)**
- 4.5.13.6.4 The System shall allow the pre-set best seat setting to be adjusted any time during sale period. **(E4/64)**
- 4.5.13.7 Exchange of Wheelchair Seating Function
- 4.5.13.7.1 The System shall allow wheelchair users to purchase seats of any ticket price available in the normal seating zone first and then request for exchange for a wheelchair platform space during the course of ticket purchase. This function is primarily designed for Hong Kong Coliseum events but shall be extendable to other venues in future. **(E4/65)**
- 4.5.13.7.2 The System shall allow pre-defined seating zone of wheelchair platform spaces in the seat plan. **(E4/66)**

- 4.5.13.7.3 The System shall allow setup of the seating capacity of wheelchair users and minders for each individual wheelchair platform space. Each platform may be different for different event on setting. **(E4/67)**
- 4.5.13.7.4 The System shall support marked seats with numbering for individual wheelchair platform space. **(E4/68)**
- 4.5.13.7.5 The System shall allow Assistant Managers (“AM”) of Ticketing Office and venue management to release the wheelchair platform spaces for public sale to non-wheelchair users at specified workstations on the performance day. **(E4/69)**
- 4.5.13.7.6 The System shall control the ticket quota of each wheelchair platform in each transaction. The number of wheelchair user tickets of each wheelchair platform in each transaction shall be more than or equal to the number of minder tickets but not vice-versa. **(E4/70)**
- 4.5.13.7.7 The System shall be able to automatically generate notification email daily to venue management with the summary of wheelchair platform transactions. **(E4/71)**
- 4.5.13.7.8 For exchange of wheelchair seating during Internet booking, the System shall display message to inform wheelchair users and minders of the steps and arrangement about purchase of wheelchair platform tickets on Internet website and mobile app. The System shall automatically check seat availability of normal seating zone. If seats are available for normal seating zone, the System shall hold the seats in normal seating zone and automatically check space availability of wheelchair platform and wheelchair user and minder quota of wheelchair platform within the same performance. If space is available at wheelchair platform, the System shall be able to “exchange” the held seats to the best wheelchair platform space available subject to wheelchair user and minder quota availability of individual wheelchair platform. The held seats of the normal seating zone shall be released immediately for public sale after seats “exchanged” successfully by background process. **(E4/72)**
- 4.5.13.7.9 Same function shall be provided for the mobile ticketing service. **(E4/73)**
- 4.5.13.7.10 The System shall support pre-registration of fringe activities of the event on website or mobile app during ticket purchase. **(E4/74)**
- 4.5.13.7.11 The System shall be able to generate a timed admission ticket based on predefined rules and allow a patron to go into a specific location in the venue of the event at a specified date and time or within a pre-set timeframe. **(E4/75)**
- 4.5.13.7.12 Through website or mobile app in which the user has registered, the System shall enable alert to customers on their mobile devices when they approach or leave a specific location in the venue of the event on the event day. The data collected shall also be used to learn about patron habit. **(E4/76)**
- 4.5.13.8 Payment and Discount
- 4.5.13.8.1 Upon confirmation, the customer shall pay the amount indicated on the screen (for counter, Internet or mobile booking) or informed by staff over the phone (for telephone booking only). Payment is made in cash (counter booking only), or each applicable Electronic Payment Means. **(E4/77)**

- 4.5.13.8.2 Up to 30 discount types shall be available. **(E4/78)**
- 4.5.13.8.3 For payment by credit cards, UnionPay card and other Electronic Payment Means at counters, the System shall automatically read the credit card, UnionPay card or the relevant Electronic Payment Means number into the transaction reference field through the use of a SWIPE machine, QR code reader or other device that shall be capable to read the information through the operation by a staff at the outlet. **(E4/79)**
- 4.5.13.8.4 The System shall offer discounts automatically once certain criteria are met e.g. purchase of a certain number of tickets of certain price across a selection of event(s) of a particular series within a certain promotion period. **(E4/80)**
- 4.5.13.8.5 The System shall check for update, offer and withdraw any quota of discounted tickets automatically. **(E4/81)**
- 4.5.13.8.6 The System shall be able to capture the total number of sales transactions and the total number of tickets with breakdown of different payment methods for transaction log and report. **(E4/82)**
- 4.5.13.8.7 The POS workstations at counters shall be able to prompt out onscreen message before printing of tickets for alerting operators and for confirmation by operators that payment has been received in full. **(E4/83)**
- 4.5.13.8.8 The System shall be able to handle the high demand of payment transactions which may arise during the ticket purchase process of hot events. The System shall ensure that all confirmed ticket purchase and payment is correctly processed. **(E4/84)**
- 4.5.13.8.9 The System shall handle possible bottleneck for high concurrent payments connections which may arise. During the ticket transaction process, the System shall send a booking reference number to payment gateway (merchant to payment). In case the payment gateway is unable to return the status within the predefined time limit (e.g. the bank cannot handle the large amount of traffic at the same time), the System shall do further enquiry on the transaction status using booking reference number to get the payment status and re-try the transaction. In the event all actions failed after many attempts, the transaction shall be logged for manual follow-up action. The System shall inform the patron the transaction is not yet completed through email, SMS or instant message. **(E4/85)**
- 4.5.13.8.10 The System shall provide a mechanism to avoid failed transactions for late acknowledgement from bank but client has received SMS notification from bank on successful payment. **(E4/86)**
- 4.5.13.9 Special Discounts
- 4.5.13.9.1 The System shall offer various ticket discounts with monitoring of discount quota. **(E4/87)**
- 4.5.13.9.2 On-the-day discount
- 4.5.13.9.2.1 The System shall provide “on-the-day discount tickets”. Special discounts shall be allowed to be offered on the show date only or any specific period of dates requested by event presenters. This discount type is only valid on a configurable discount period and can be offered to any specified group of patrons such as student,

senior or patrons with membership card etc. or under certain condition e.g. each purchase of 4 or more tickets on show day. **(E4/88)**

4.5.13.9.3 Concert or Theatre season, series and subscription sale

4.5.13.9.3.1 The System shall allow for sale of ticket for more than one event within a season or a series or a festival in one single purchase transaction during a predefined sale period (“subscription sale”) and provide package discount for such subscription sale. The System shall allow building package discount for multi-performances events within season or series across any ticket prices. The System shall allow custom package discount under flexible parameters that are configurable and user-defined, which include but are not limited to: **(E4/89)**

- (a) User-defined number (minimum and maximum) in respect of number of tickets, performances and events or other countable attributes.
- (b) User-defined package rate in term of percentage or user-defined discounted price.
- (c) User-defined parameter to select which events are applicable to the discount.
- (d) A configurable promotion period.
- (e) Nature of discount shall be flexible, e.g. buy certain amount of tickets get one free, family package discount, discount for buying certain number of tickets on performances or events, etc.

4.5.13.9.3.2 The System shall allow events under a festival or season to be grouped into different and smaller series within festival or season. For instance, for a major orchestra subscription season, it may have several smaller series and each small concert series consists of several individual events. The System shall allow custom discount for specific concert series within a user-defined promotion period. Discount shall be offered automatically by system once user-defined criteria are met. The System shall also support the offering of concert series discount specifically for the selected performances on specific concert days, e.g. ticket purchase of the Friday or Saturday performance of all events under a specific concert series. **(E4/90)**

4.5.13.9.3.3 The System shall provide family package discount which is configurable and user-defined. The System shall allow user to define flexible number of standard tickets and concessionary tickets across any ticket price of each event for the family package discount. For instance, each purchase of two standard tickets plus two student tickets can enjoy the discount. **(E4/91)**

4.5.13.9.4 Multiple discounts

4.5.13.9.4.1 The System shall offer discounts automatically for more than one criterion met if the double discount is pre-set, e.g. each purchase of concessionary discount ticket for more than two concert series can enjoy double discount if the same transaction fulfils membership discount of say each purchase of 4 or more tickets with certain membership card, credit card, UnionPay card or other Electronic Payment Means. **(E4/92)**

4.5.13.9.5 Tickets plus coupon discount

4.5.13.9.5.1 The System shall allow coupon selection automatically once certain criteria are met, e.g. each purchase of 20 or more tickets of a film festival, system will automatically

offer the customers to select the redemption coupon, e.g. booklet A or booklet B. **(E4/93)**

4.5.13.9.5.2 The System shall be able to offer customers with the best redemption award item based on the price of respective awarded items when more than one discounts are offered from a single purchase. For instance, a customer is entitled to obtain a complimentary booklet offered by a package discount from a bulk purchase. If there are two complimentary booklets with a discounted price of \$700 and \$1,500 respectively, the System shall offer the latter to the customer which is of a higher value. If the booklets after discount are with the same price, the System shall allow the customer to select which one to redeem. **(E4/94)**

4.5.13.9.5.3 The System shall allow other coupon offerings once certain criteria are met, e.g. for a major festival, each booking of tickets worth of a total of certain face value, say \$700, is entitled to a free drink coupon (i.e. 2 drink coupons for a booking worth of \$1,400). **(E4/95)**

4.5.13.9.6 Promotion codes and discount

4.5.13.9.6.1 The System shall provide promotion codes for offering discount at all sales channels, including but not limited to counter, Internet, mobile app and telephone bookings. The setting of promotion codes and discount prices shall be configurable and user-defined. The promotion codes shall be unique and not be replicated and they shall be in alphanumeric with up to 20 digits. The System shall allow subject AMs of Ticketing Office to set up unique promotion codes either by manual input or generate randomly by system. The System shall allow promotion code discounts to be applied to any ticket prices, performance, event and concert or theatre series. Promotion codes of expired events shall no longer be valid or reuse. **(E4/96)**

4.5.13.9.6.2 The System shall offer discounts automatically when the promotion codes are inputted by operators and customers during patronisation via any of the sale channels. For Internet and mobile app booking, promotion codes can be embedded into a hyperlink and emailed to customers for group sales. Customers who click on this hyperlink will be diverted to the corresponding event page for group sales with the promotion discount on Internet website. **(E4/97)**

4.5.13.9.7 Credit card, UnionPay card and other Electronic Payment Means discount

4.5.13.9.7.1 The System shall provide discount features based on specific credit card, UnionPay card (e.g. card type from specific financial institution) and other Electronic Payment Means. The System shall provide validation of the credit card, UnionPay card and other Electronic Payment Means provided by the patron and automatically offer discount during ticket purchase. **(E4/98)**

4.5.13.9.8 Cultural pass discount

4.5.13.9.8.1 The System shall offer discount automatically to customers who purchased a number of tickets for same type or series of events. For instance, a purchase of tickets of 10 different orchestral performance events in a single transaction is entitled a certain discount offer. Discount shall be configurable and pre-defined by authorised persons only. **(E4/99)**

4.5.13.9.9 Late-bird discount

- 4.5.13.9.9.1 The System shall provide late-bird discount features that enable customers who purchase tickets on the event day or after a specified time (e.g. 7 days before the commencement time of a performance) at a discounted rate. This feature would potentially foster the sales of unsold tickets. **(E4/100)**
- 4.5.13.9.9.2 The System shall provide functions for an authorised person to set up the discount rate and other criteria such as the effective date and time of late-bird discount. The System shall base on those criteria configured for the specific event by the authorised person to calculate the discounted ticket price. **(E4/101)**
- 4.5.13.9.10 Membership of Friends of Organisations
- 4.5.13.9.10.1 The System shall handle membership of Friends scheme and membership discount at all sales channels. **(E4/102)**
- 4.5.13.9.10.2 The System shall allow AMs of Ticketing Office to create “Friends membership discount accounts” for event presenters. In addition, a web-based function shall be provided for event presenters with such account to login, upload, update and remove membership lists of the relevant membership discounts. **(E4/103)**
- 4.5.13.9.10.3 The membership list upload function shall support file format of common PC software, such as Microsoft Excel or CSV. Membership list shall consist of at least three fields including membership numbers, membership expiry date and identifier passwords as assigned by event presenters. The membership numbers shall be in alphanumeric with up to 30 digits. **(E4/104)**
- 4.5.13.9.10.4 During Internet booking and mobile booking, the System shall allow customers to input their membership numbers together with the identifier passwords on Internet ticketing website and mobile app in order to enjoy ticket discounts offered for corresponding membership. The System shall verify the membership numbers and the identifier passwords with the membership list uploaded by event presenters before offering the corresponding membership discount to customers. The System shall check the expiry date with membership list and shall not offer discount to expired membership. Only the membership numbers shall be recorded in the transaction records. **(E4/105)**
- 4.5.13.9.10.5 The System shall allow AMs of Ticketing Office to register multiple membership discounts whenever applicable that are under one membership discount account, e.g. A Theatre Company membership discount account shall also handle its Buddies member discount and Kids member discount. **(E4/106)**
- 4.5.13.9.10.6 The System shall automatically generate daily raw data reports for all transactions of membership discounts as registered in presenter’s account. The raw data reports shall be in the file format of common PC software, such as Microsoft Excel or CSV. The report shall be encrypted and sent only to the designated email address assigned by event presenters. **(E4/107)**
- 4.5.13.10 Admission Ticket
- 4.5.13.10.1 Admission tickets shall be printed for each performance. Information on the performance such as date, time, venue, organiser, event name, seat column and row, part of house, issuing terminal, discount type, payment type, issuing date and time, transaction reference number and QR Code shall be printed on the ticket. **(E4/108)**

- 4.5.13.10.2 Some information is required to be printed in Chinese, e.g. the venue name, organiser name and event name. The Chinese information is captured during the data setup process. The printing shall accept Chinese Coding Standard ISO 10646, Hong Kong Supplementary Character Set (with Compatibility Points) developed by the Hong Kong Special Administrative Region as well as Simplified Chinese characters. **(E4/109)**
- 4.5.13.10.3 Printing of paper tickets shall be within **4 seconds** from the confirmation of the orders at each ticketing outlet and self-service ticketing kiosk. **(E4/110)**
- 4.5.13.10.4 The System shall be able to allow variable ticket formats and possibly different ticket sizes. Printing of graphic or images in commonly adopted file formats, e.g. jpg, png, etc., shall be allowed. **(E4/111)**
- 4.5.13.10.5 The System shall provide bulk printing for large quantity of tickets with at least 1,000 tickets per hour per terminal. **(E4/112)**
- 4.5.13.10.6 The System shall print bulk tickets or consignment tickets on high speed printers. **(E4/113)**
- 4.5.13.10.7 The System shall provide control on issuing consignment and complimentary tickets. Alert shall be prompted with on-screen message to prevent tickets over-issued beyond a predefined percentage or quantity. **(E4/114)**
- 4.5.13.10.8 The System shall allow user to assign ticket output to selected printers. **(E4/115)**
- 4.5.13.10.9 The System shall accept thermal tickets that allow multiple counterfeit-proof security features to be built in. **(E4/116)**
- 4.5.13.10.10 The Contractor shall provide ticketing consumables (including but not limited to the supply of blank ticket stock and report printer paper, cartridges, ink and ribbon for printers) for use in the ticketing equipment at no additional costs. The tickets shall contain at least three (3) sufficiently high standard security features commonly adopted in the industry to protect against counterfeiting and forgery. The Contractor shall not include any advertisement on the tickets without obtaining the written approval of the Government. **(E4/117)**
- 4.5.13.11 Printing of QR Codes on Tickets
- 4.5.13.11.1 QR codes shall be printed on paper ticket stubs and e-tickets incorporating various ticketing information to enable quick, accurate and automatic operations such as admission control, return of tickets, identification of tickets reported lost, refund and exchange of tickets, etc. **(E4/118)**
- 4.5.13.11.2 The System shall provide automatic printing of QR codes on paper ticket stubs and e-tickets encoding event synonym, performance date, ticket price and discount types and transaction reference. For real-name registration tickets, the QR code shall also encode patron's name and ID number. **(E4/119)**
- 4.5.13.11.3 Computer sales terminal shall be provided with QR code readers for scanning returned tickets, automatically returning the tickets into system for resale, automatically checking for tickets reported lost, automatically checking against counterfeiting such as double admission or double refund involving the same QR

code number and automatically checking patrons' name and ID number of tickets for real-name registration events. **(E4/120)**

4.5.13.12 Electronic Ticket (e-ticket)

4.5.13.12.1 At the request of the event presenter, the System shall provide e-ticket to support the event sales and ticket delivery as follows: **(E4/121)**

(a) During the checkout process, the System shall allow patron to specify the delivery location for the e-ticket such as mobile app e-wallet or email depending on the available channels for the type of e-tickets (e.g. restricted real name registration tickets can only use e-wallet whilst open tickets can apply to both). After the purchase process is completed, the e-ticket shall be delivered to any one of the following and all of which shall be available for selection by the patron:

- patron's mobile device via mobile app ("mobile app e-wallet"); or
- patron's email address and allow patron to print a hardcopy e-ticket at home (i.e. print-at-home ticket).

(b) For those registered patrons, they can view the e-ticket QR code in their transaction history record after logging in their account on the website of the System and can copy the QR code to their mobile device via scanning or copying of the QR code.

(c) When a patron purchases multiple tickets, the patron has the option to specify the name of others and the means of delivery to those patrons.

4.5.13.12.2 The System shall handle inclusion of marketing messages and images in the print file of ticket in order to market or up-sell other events. **(E4/122)**

4.5.13.12.3 The System shall provide mobile app e-wallet to allow patrons to keep their tickets and membership cards on their mobile devices and offer the potential for quick pay by Electronic Payment Means at concessions and merchandise stands. **(E4/123)**

4.5.13.12.4 The System shall allow patrons to transfer their e-ticket(s) to another or other person(s) by specifying the delivery location of the e-ticket(s) such as mobile apps e-wallet or email depending on the available channels for the type of e-tickets (e.g. restricted real-name registration tickets can only use e-wallet or uncontrolled tickets can apply to both). **(E4/124)**

4.5.13.12.5 The System shall capture sufficient data for the generation of the following reports for event presenters: **(E4/125)**

- (a) Statistics of number of seats admitted for individual event with breakdown on performance date, part of house, price zone, ticket type, etc.; and
- (b) Graphical report of seat map showing the admission status of seats.

4.5.13.13 Real-Name Registration

4.5.13.13.1 The System shall allow authorised users to define globally or for a single event that requires real-name registration and configure the settings for it such as maximum number of tickets that can be purchased under a single name for an event, maximum number of tickets that a person can purchase in a single event, allowing ticket

buyers to change the names on their confirmed tickets limited by a prescribed number of times, etc. **(E4/126)**

4.5.13.13.2 The System shall allow ticket buyers and POS operators to input ticket registration information which includes, but is not limited to the following: **(E4/127)**

- (a) A disclaimer shall be displayed right at the beginning to inform the ticket buyer that he/she will be requested to enter his/her name same as that on his/her personal identification document for the purpose of printing on ticket(s) issued and for admission verification in accordance with the Data Privacy Ordinance of Hong Kong. The ticket buyer is required to agree with the disclaimer before proceeding to the real-name registration process; and
- (b) Allow the ticket buyer to input, update and confirm registration information (e.g. registered person's name) for each single event as follows:
 - Allow the ticket buyer to input his/her name for purchase of ticket(s), where the name displayed on the ticket will be verified against the ticket holder's official ID document during admission. The System shall provide the following:
 - Input a name for one ticket of a single ticket purchase;
 - Input multiple names (e.g. 4 different names) for purchase of multiple tickets in a single purchase of a single event; and
 - Input a single name for purchase of multiple tickets of different performances of a single event.
 - Verify the entered ticket information (e.g. able to view and modify the ticket information such as name of ticket holder) before confirmation. Alert the ticket buyer that information entered must be the same as his/her personal identification document for verification at admission gate upon request; and
 - Confirm the entered ticket information and purchase ticket.

4.5.13.13.3 The System shall allow ticket buyers to change the ticket information after the purchase is confirmed if the event is configured to allow such change. The System shall: **(E4/128)**

- (a) Validate and verify change of registered name if it is allowed in accordance with the setting specified for the event;
- (b) Allow ticket buyer to update the registered name(s) of the ticket(s) after the ticket(s) information is confirmed;
- (c) Specific information (e.g. authorisation code, credit card, UnionPay card and Electronic Payment Means number, the original registered name) is required to be entered in order to update the registered name; and
- (d) Keep the history of name(s) changed of the ticket(s).

4.5.13.13.4 The System shall provide adequate field length for inputting of each registered name on tickets. **(E4/129)**

4.5.13.13.5 The System shall provide multiple languages including but not limited to English, Traditional Chinese and Simplified Chinese for entering registered name(s) of ticket(s). **(E4/130)**

- 4.5.13.13.6 The System shall allow tickets to be returned to the event presenter for a refund at less than the face value substantially coupled with real-name registration. **(E4/131)**
- 4.5.13.13.7 The System shall verify each customer prior to ticket purchase. The patron would be required to fill in a profile of questions which help to identify and deny tickets to patron. **(E4/132)**
- 4.5.13.14 E-payment Service (all capitalised terms appearing in this Section 4.5.13.14 not otherwise defined elsewhere shall have the meanings given to them in Annex E to Part IV)
- 4.5.13.14.1 High performance payment gateway service shall be deployed by the Contractor to solve the bottlenecks in payment process during high volume of concurrent sessions of ticket sale transactions. The payment gateway shall handle high-volume of transaction in synchronous mode or asynchronous or queue mode to process up to 25,000 ticket sale transactions per 15 minutes. **(E4/133)**
- 4.5.13.14.2 The System shall provide one single centralised payment gateway service for processing payment for tickets purchased via online ticketing service, mobile ticketing service, telephone ticketing service, self-service ticketing kiosk and at each of the outlets using credit cards (covering Visa, Mastercard, American Express), UnionPay card and mobile payment methods covering Octopus, contactless credit card, FPS, Apple Pay, Google Pay, Alipay, WeChat Pay and Quickpass, the final list of which shall be as set out in the Articles of Agreement (viz., “Electronic Payment Means”). The information in relation to the sub-contractor to be appointed for performing e-payment service shall be set out in Schedule 17 – Sub-Contracts of Part V. **(E4/134)**
- 4.5.13.14.3 The payment gateway service shall be equipped with resilience equipment or service to avoid single point of failure. **(E4/135)**
- 4.5.13.14.4 Disaster recovery drill on the payment gateway system and service shall be conducted once per year and the Drill Report shall be provided to the Government for record. **(E4/136)**
- 4.5.13.14.5 The Contractor shall bear any transaction bad debts arising, and handle customer complaints on services, as well as claims of lost tickets or ticket non-delivery promptly and satisfactorily. **(E4/137)**
- 4.5.13.14.6 The Contractor shall enter into appropriate arrangement with up to six (6) clearing service sub-contractor(s) (“CSC”) for providing Electronic Payment Means to accept payment of ticket through all applicable Ticketing Services (viz., sale at the outlet, Internet ticketing service, mobile ticketing service, telephone ticketing service and self-kiosk ticketing service). As part of the Implementation Services, the Contractor and the CSC shall perform all necessary implementation services for interfacing the System with the e-Payment Systems of the Clearing Service Contractor(s) and the Electronic Payment Means for complying with the specifications of the e-payment service, installation and provision of equipment (including any Contractor Supplied Reader where applicable) and necessary mobile application at all outlets, self-service ticketing kiosks, and for use in the mobile ticketing service. **(E4/138)**

- 4.5.13.14.7 Throughout the parallel run and the Operation Period, the Contractor shall perform, and shall appoint the CSC to perform the e-payment service covering all of the following: (a) authorisation of the ticket sale transactions (regardless of the applicable sale mode) (viz., “Transactions”) using any of the Electronic Payment Means by the CSC; (b) the preparation of a daily Settlement Report by the CSC based on the raw transaction data created instantly at the time of the Transaction and transmitted from the System to the e-Payment System; (c) the collection of the Settlement Report on a daily basis by the Contractor and checking of the Settlement Report containing information on the Total Transaction Value of all Transactions within a 24-hour Transaction Period and that there are at most two clear days between the Transaction Period and the date of issue of the Settlement Report; (d) the CSC shall pay the proceeds of the Total Transaction Value as stated in the Settlement Report into Designated Bank Accounts on the same date as the Settlement Report is issued without any deduction whatsoever; or a provisional amount if the Settlement Report for any Transaction Period cannot be produced for any reasons subject to reconciliation mechanism when the Settlement Report can be produced afterwards; (e) if based on any checking the Contractor disputes with the calculation, issuing a dispute notice and the parties will work further to determine the correct amount, failing which the parties shall follow a dispute resolution procedure; (f) downloading by the Contractor of blacklists to be made available by the CSC for all Electronic Payment Means into the System; and (g) all other services as specified in Annex E to Part IV – Conditions of Contract. Full details of the service specifications of the e-payment service to be provided are further set out in Annex E to Part IV – Conditions of Contract. **(E4/139)**
- 4.5.13.14.8 Throughout the Operation Period, the CSC to be appointed shall either be in the actual capacity as, or with proper authority from, (a) the SVF Licensee in the case that the Electronic Payment Means is an SVF, and (b) the applicable Payment Card Scheme Operator in the case that the Electronic Payment Means is a credit card operated under the Payment Card Scheme or in the case of UnionPay Card. The CSC must also be the actual Real-time Participant of the FPS. **(E4/140)**
- 4.5.13.15 Monitoring, Auditing and Recording Core Activities of System Users
- 4.5.13.15.1 Each and every core activity performed by each and every system user (such as outlet operators, hotline operators, Ticketing Office staff, etc.) shall be recorded automatically by the System and corresponding audit log shall be retrieved and generated from the System for audit and monitoring purpose. Core activities to be logged shall include but not be limited to the following: **(E4/141)**
- (a) Any changes of seat plan configuration.
 - (b) Any changes of ticket price configuration.
 - (c) Any changes of discount package configuration.
 - (d) Any changes of ticket type and block type configuration.
 - (e) Any changes of price zone configuration.
 - (f) Any changes of ticket template configuration.
 - (g) Any changes of outlet setup.
 - (h) Any changes of payment type setup.
 - (i) Any changes of System global parameters.

- (j) Any changes of payment gateway configuration.
- (k) Any changes of roles setup.
- (l) Exchange tickets.
- (m) Return and refund of tickets.
- (n) Exemption of handling fees.
- (o) Block and release seat activity.
- (p) User activity (e.g. user login and logout time, no. of tickets sold, exchanged, returned and total amount, etc.).

4.5.13.15.2 The information to be logged shall include at least the following: **(E4/142)**

- (a) The identity of login user.
- (b) The user login date and time.
- (c) Location of the login user.
- (d) The user logout date and time.
- (e) The function name of user accessed.
- (f) Date and time for a user manipulates a system record, e.g. add, update, view, delete, report generation, printing action, exchange of tickets, refund of tickets, exemption of handling fee, reserve of tickets, block and release of seats and block types, etc.
- (g) The details of changes, addition and deletion of information in the System.
- (h) Send alert to administrators if the data change is not conducted by the event creator himself.
- (i) Send alert to administrator according to the predefined rules and criteria, e.g. a large amount of sales activities appears in non-office hours, the same user attempts to access the system frequently, etc.

4.5.13.15.3 The System shall provide transaction log for user activities including, but not limited to the following: **(E4/143)**

- (a) Submission of event setup requirement and updates;
- (b) Submission of request for consignment tickets;
- (c) Ticketing activities such as transfer of ticket;
- (d) Activities related to price change of any seats;
- (e) Scheduled communications (published events, updates etc.);
- (f) Follow up communications (surveys, feedback, etc.).

4.5.13.15.4 An online user interface shall be built to access the audit reports along with searching criteria and filtering features so that users can easily retrieve the useful information when needed. **(E4/144)**

4.5.13.15.5 The System shall provide audit track records down to seat level for core activities performed by person who is not the original creator of the record. **(E4/145)**

4.5.13.15.6 The System shall provide audit track records down to seat level for core activities performed by the original creators. **(E4/146)**

- 4.5.13.15.7 The System shall capture all activities and have alert mechanism if irregularity on system user is spotted and such alert message can be automatically forwarded to specific officers of Ticketing Office. **(E4/147)**
- 4.5.13.16 Measures for Handling Sudden Surge in Transactions of Very Popular Events
- 4.5.13.16.1 The Contractor shall provide measures to cater for sale of very popular events, which would result in a great and dynamic upsurge in Internet traffic, POS patronage and system workload. **(E4/148)**
- 4.5.13.16.2 The System shall allow for a higher number of visits to the website of the System and mobile app during the sales of very popular events. **(E4/149)**
- 4.5.13.16.3 The System shall handle the sale of tickets of very popular events without slowing down the sale of other events. **(E4/150)**
- 4.5.13.16.4 The System shall provide service for other events during the sale of very popular events. The System shall provide measures to ensure other events' patrons are not unduly affected by the sudden surge of access requests from very popular event patrons. **(E4/151)**
- 4.5.13.17 Expandability
- 4.5.13.17.1 The System shall provide system expandability by vertical scaling (scaling up) and/or horizontal scaling (scaling out) such that the computation power and capacity of the System, including servers, storage, network, bandwidth and backup system, can be increased or decreased without disturbing the interconnection of all the other servers or causing major changes to the infrastructure and application system design, e.g. additional components can be added to achieve the expandability. This scalability requirement applies to the whole system including the servers' configuration, network and storage device connection, security measures, hard disk size and backup needs. **(E4/152)**
- 4.5.13.17.2 The Contractor shall also indicate clearly in the SA&D Report the detailed expansion capability and path of the System to cope with future expansion and customers' need. **(E4/153)**
- 4.5.14 **Backend administrative service**
- 4.5.14.1 Online Functions
- 4.5.14.1.1 All administrative backend services to be provided by the System functions specified in this Section 4.5.14.1 shall be available to the staff of the Ticketing Office throughout the Operation Period. **(E4/154)**
- 4.5.14.1.2 The System shall provide online function to facilitate daily ticketing operation in real-time. **(E4/155)**
- 4.5.14.1.3 The System shall allow real-time blocking and release of seats. Only authorised users can be allowed to use real-time blocking and release functions. **(E4/156)**
- 4.5.14.1.4 The System shall log all activities of real-time blocking and release of seats, including performance date and time, part of houses, block and release date, time, user name and terminal etc. **(E4/157)**

- 4.5.14.1.5 The System shall enable AMs of Ticketing Office to generate the activity log as a report by inputting different searching criteria. **(E4/158)**
- 4.5.14.1.6 The System shall also support batch command to process large amount of block and release seats by importing a CSV format file. The System shall allow display and print the seat map of active, non-active and past performances. **(E4/159)**
- 4.5.14.1.7 The System shall display and print seat map for active or non-active or past performances and every individual seat shall be able to trace in the transaction history. **(E4/160)**
- 4.5.14.1.8 The System shall allow users to check the real-time block type statistic with the breakdown of price zones, block type and sold status. **(E4/161)**
- 4.5.14.1.9 The System shall allow AMs of Ticketing Office to release seats that are held or blocked by specific workstation. **(E4/162)**
- 4.5.14.1.10 The System shall provide real-time statistics for consumed, on hold and remaining quota of discount tickets in any event, such as student tickets, senior tickets etc. **(E4/163)**
- 4.5.14.1.11 The System shall provide online publish function for immediately sending out modified event information to online workstations, Internet, mobile app and social media (e.g. Facebook). **(E4/164)**
- 4.5.14.1.12 The System shall provide checking tool to monitor online publish, with the function to display a full list of queuing publish schedules, to show the publish status and to edit or delete the pending publish schedule. **(E4/165)**
- 4.5.14.1.13 The System shall allow immediate retrieval of most updated ticketing information to a specific workstation, in order to facilitate urgent printing of tickets and testing of event package. **(E4/166)**
- 4.5.14.2 Data Setup
- 4.5.14.2.1 All functions specified in this Section 4.5.14.2 shall be available to the staff of the Ticketing Office. **(E4/167)**
- 4.5.14.2.2 Online functions for real-time editing shall be given for all relevant data setup such as venue, event, performance, price definitions, discount, ticket format, etc. **(E4/168)**
- 4.5.14.2.3 The setup process shall be functioned in both interactive online and batch mode. **(E4/169)**
- 4.5.14.2.4 The System shall also allow capturing and displaying of English and Chinese characters for the venues, events and hirers and other necessary data which will be printed on tickets. **(E4/170)**
- 4.5.14.2.5 Standard graphical user interface such as point and click, drag and drop are required. **(E4/171)**
- 4.5.14.2.6 The System shall allow administrators to add, delete and modify ticketing system users; and restrict user access privilege by individual function. **(E4/172)**

- 4.5.14.2.7 The System shall allow users to create, amend and delete venue, seat plan, events, performances, and formats of printed ticket. **(E4/173)**
- 4.5.14.2.8 The setup process shall also allow copying or reproduction of the setup data or file. **(E4/174)**
- 4.5.14.2.9 The setup process shall allow the setting of different prices of each performance in different colours or different symbols. The System shall provide function of converting the seating plan into a compatible format (such as jpg, pdf, etc.) for display to customers and operators in different booking channels. **(E4/175)**
- 4.5.14.2.10 A minimum of 10 standard prices and up to 30 discount types are required for each performance. **(E4/176)**
- 4.5.14.2.11 The System shall have the flexibility to 'release' any selected event performances to different categories of users for counter sales and telephone ticketing on different days. The System shall allow manual setting of performance release dates for different categories of users by certain user level such as supervisor. The System shall also allow pre-set of performance release dates and parameters and automatically perform the release functions on the specified sales commencement dates for different users. **(E4/177)**
- 4.5.14.2.12 The System shall have an Admission Ticket Counter function for set up of free seating events. Instead of creating a marked-seat record for every ticket, only a seat quota is created. When tickets have been sold, seat quota of individual performances will be deducted. This admission counter calculation shall include different part of houses, price zone, ticket type and package in every performance. **(E4/178)**
- 4.5.14.2.13 The System shall allow editing of the information of multiple performances during set up process, including performance date and time, performance name, ticket print name, performance duration, ticket remarks, categories of film show etc. **(E4/179)**
- 4.5.14.2.14 The System shall display name of presenter, joint presenter and sponsor and detailed information of a venue, event, performance and ticket format. **(E4/180)**
- 4.5.14.2.15 The System shall allow users to attach graphic and insert description text to specific events. **(E4/181)**
- 4.5.14.2.16 The System shall permit or disable specific performances for sale by users with access privilege. **(E4/182)**
- 4.5.14.2.17 The System shall allow users to set specific seats of a performance to special symbols so that they can be retained from public sale. **(E4/183)**
- 4.5.14.2.18 The System shall allow users to define best seat for performances and automatic offer of best seat with a variety of user-selected algorithms. **(E4/184)**
- 4.5.14.2.19 The System shall allow users to create, amend and delete price structures and discount codes; and apply them to specific performances. **(E4/185)**
- 4.5.14.2.20 The System shall allow users to perform global setting and editing of block type. **(E4/186)**

- 4.5.14.2.21 The System shall allow users to block seats for consignment and complimentary tickets. **(E4/187)**
- 4.5.14.2.22 Edited or revised data shall be immediately published to online workstations and Internet website once verified by event presenters. **(E4/188)**
- 4.5.14.2.23 The System shall allow generating a full price table and package table of any event, with the breakdown by performance, price zone and ticket types, for the purpose of event setup verification. **(E4/189)**
- 4.5.14.3 Data Setup by Non-LCSD Organisations
- 4.5.14.3.1 All functions specified in this Section 4.5.14.3 shall be available to the staff of the organisations which are not LCSD venues. **(E4/190)**
- 4.5.14.3.2 The functions available to non-LCSD organisation(s) (such as non-LCSD venue management) for event data setup shall be identical to the functions given to Ticketing Office. The only difference is that non-LCSD organisation(s) users can only work on their own event setup, data editing, report and set up event sale data. As such, the System shall allow venue-based or role-based security to control the access right of non-LCSD organisation(s) users. **(E4/191)**
- 4.5.14.3.3 The System shall provide facilities for non-LCSD organisations to prepare and submit event setup requirements. The System shall: **(E4/192)**
- (a) Allow event presenters to:
- Create event setup requirement, or copy event setup requirement from previous templates; and
 - Submit completed event set up requirement together with the seat plan to venue management for vetting. The System will validate and check for any exceptions.
- (b) Allow venue management to:
- Vet the received event setup submission online and check if system has generated any rejection or exceptions (e.g. quantity of seats blocked is within approved quota of consignment and complimentary tickets); and
 - Approve and forward the event set up information to Ticketing Office for review.
- (c) Allow Ticketing Office to:
- Review the event setup information and seat plan online, and clarify with event presenter and venue management whenever required;
 - Confirm ticketing requirements in the System. The System will generate digital ticket layout for review by Ticketing Office and event presenters.
- (d) Allow Ticketing Office and event presenters to:
- Review and confirm the information on the digital ticket layout. The event information will be published online to outlets' POS, Internet and Mobile and ready for ticket sale after confirmation of ticketing information.
- 4.5.14.3.4 Apart from the banner in the website and mobile app of the System, the System shall provide multi-media feature for event presenters to place their previews or

- advertisement of the event, e.g. allow them to embed YouTube video(s) on the event page. **(E4/193)**
- 4.5.14.3.5 The System shall provide multiple options for authorised user to configure seated and capacity-controlled venues including: **(E4/194)**
- (a) Controlling venue and seat map setup, with no limits on the number of maps;
 - (b) Defining capacity, sections, row and seat number values, and screen labels;
 - (c) Creating interactive seat maps to show available seats;
 - (d) Mapping out how the best seating function will assign seats, and creating multiple best seat maps for the same venue;
 - (e) Setting aside inventory that can only be accessed by customers with a particular rank value or a particular promotion code for particular event;
 - (f) Creating an unlimited number of hold codes for internal inventory control based on users' security rights.
- 4.5.14.3.6 The System shall provide function for non-LCSD organisations to set up their own master data, including venue information setup, creation and modification of seating configuration of their venue facilities and master ticket layout template for their events. Each non-LCSD organisation can only access to the master data of their own venue. Their access right to events not created by the organisation is strictly restricted to ticket selling just as any URBTIX outlet. Ticketing Office, assuming a central monitor role, can access to master data created by all non-LCSD organisation(s) users. **(E4/195)**
- 4.5.14.3.7 The System shall provide an online tool for real-time blocking and release of seats for the non-LCSD organisation(s). This tool shall restrict to block and release seats of their own events. Non-LCSD organisation(s) shall only be allowed to access the event setup data and report data of their own venue's events. Access to event setup data and report data of other events shall be restricted. **(E4/196)**
- 4.5.14.3.8 The System shall allow non-LCSD organisation(s) to release seats of their own events to different categories of users for counter sales as well as Internet and telephone ticketing by pre-setting the performance release dates. Access of all event performances shall be automatically released to Assistant Manager (AM) users of Ticketing Office for auditing and monitoring purpose. **(E4/197)**
- 4.5.14.3.9 The System shall allow AM users of Ticketing Office to view, modify and delete the master data and event setup data created by non-LCSD organisation(s) users for supporting and monitoring purpose. **(E4/198)**
- 4.5.14.3.10 The System shall allow event presenters and non-LCSD organisation(s) to perform data setup only on a specified portal. **(E4/199)**
- 4.5.14.3.11 The System shall provide built-in standard templates and customisable templates for event presenters and non-LCSD organisation(s) to perform data setup and data editing. Event presenters and non-LCSD organisation(s) can create an event by filling in a simple e-form and the System will generate the event setup data automatically. **(E4/200)**

- 4.5.14.3.12 The System shall provide transaction log and audit log of core event setup and updated activities. **(E4/201)**
- 4.5.14.4 Ticket Reservation (for wheelchair seats and wheelchair platform seats only)
- 4.5.14.4.1 All functions specified in this Section 4.5.14.4 shall be available to the staff of the Ticketing Office. **(E4/202)**
- 4.5.14.4.2 The System shall allow ticket reservation solely for the sake of wheelchair seats or for wheelchair platform seats. Information such as patron defined reference number for identification, patron telephone number, discount types, user defined reference, etc., is required for input into the System. The operator ID, the performance name, venue, date and time, transaction date and time, ticket price and seat numbers of the reservation shall be automatically recorded by the System. **(E4/203)**
- 4.5.14.4.3 The System shall be able to cancel the reservation automatically after a lapse of, say, 3 days or up to, say, one hour before the performance time of each performance, whichever is the earlier. The default reservation period shall be adjustable by supervisor user, and the System shall also allow manual override of reservation period for special individual reservations. The reservation period shall allow a range from 30 minutes up to one year. **(E4/204)**
- 4.5.14.4.4 The System shall be able to cancel the reservation when required, and have the ability to record and retrieve whether a particular customer, given his/her defined reference number for identification or registered patron number or user defined reference, has already reserved tickets for a particular event or performance. The System shall allow to keep all these reservation transaction records and to provide facilities to inquire, amend and delete the reservation records. **(E4/205)**
- 4.5.14.4.5 On the day of a performance, the System shall automatically release unsold seats in the wheelchair platform and wheelchair price zones to allow purchase by general public via all ticketing channels including Internet, mobile app, telephone booking and counters at the performance venue. **(E4/206)**
- 4.5.14.5 Consignment and Complimentary Tickets
- 4.5.14.5.1 All functions specified in this Section 4.5.14.5 shall be available to the staff of the Ticketing Office. **(E4/207)**
- 4.5.14.5.2 The System shall enable designated system users of the Ticketing Office to print consignment and complimentary tickets for event presenters. This function shall be different from the ticket selling function of online workstations at outlets. **(E4/208)**
- 4.5.14.5.3 The System shall allow users to select the seats blocked by subject AMs of Ticketing Office, edit ticket discounts and print the tickets. The System shall distinguish public discount and consignment discount. Consignment function shall only allow printing tickets in consignment discount. **(E4/209)**
- 4.5.14.5.4 The System shall sort the printed tickets in a pre-defined seat number sequence, e.g. tickets shall be sorted by performance date and time, part of house, row, section and seat number. The System shall allow subject AMs of Ticketing Office to pack

seats into a Claim ID with pre-set ticket discount so as to simplify the workflow of printing consignment and complimentary tickets. These Claim IDs shall be valid until event ends. **(E4/210)**

4.5.14.5.5 The System shall also allow subject AMs of Ticketing Office to print a preview page of the Claim ID content and to cancel the unused Claim IDs. **(E4/211)**

4.5.14.5.6 The System shall allow return of consignment and complimentary tickets. This function shall be different from the return of tickets at outlets. The System shall allow returning the tickets for public sale and returning the tickets to block seats. **(E4/212)**

4.5.14.5.7 The System shall have control on the number of tickets that can be issued via consignment and complimentary function. Warning message shall be shown on screen if the quantity of consignment and/or complimentary tickets exceeds the pre-defined limit and the System shall disallow to proceed the transaction. **(E4/213)**

4.5.14.5.8 The System shall provide online functions for presenters to request consignment tickets either during event setup or request additional consignment tickets during public sales. The System shall: **(E4/214)**

- (a) Allow event presenters to submit request for consignment tickets to Ticketing Office and venue management via the Presenter Portal. The System shall validate the deposit amount and check for any exceptions;
- (b) Allow Ticketing Office and venue management to view the submitted consignment ticket request and check whether the System has generated any rejections or exceptions for additional deposit;
- (c) Allow Ticketing Office to confirm reservation of consignment tickets after obtaining online confirmation from venue management. Based on the configured business rules, the System will then mark these tickets for:
 - Manual collection by event presenters; or
 - Priority sale via the System;
- (d) Allow event presenters to generate consignment ticket sales reports of their own events.

4.5.15 **Counter Ticketing Service**

4.5.15.1 All services and functions specified in this Section 4.5.15 shall be available to operators of all outlets throughout the Operation Period. The Electronic Payment Means to be made available at all of the outlets must comprise the three brands of credit cards (Visa, Mastercard and AMEX), UnionPay Card, and all other Electronic Payment Means which use the QR code or Near Field Communication Technology. **(E4/215)**

4.5.15.2 Customer-oriented Colour Display

4.5.15.2.1 Customer-oriented colour displays at outlets shall facilitate easy comprehension of the event seat plan showing location of vacant seats and best available seat(s) offered by the computer as well as easy selection of seats by patrons. **(E4/216)**

4.5.15.2.2 The general requirements are: **(E4/217)**

- (a) Up to two (2) separate colour display unit(s) (e.g. LCD or IPS) for each sales unit at all the outlets.
 - (b) A top-down screen display approach, starting from the overview of the whole venue, then gradually detailed views and the ultimate seating window, shall be provided. For example, two dimensional overall seat plan displays with online seat availability shown in colour pixels. Point-and-click zoom features to enlarge a specific part of house for transaction details shall be provided.
 - (c) Sensitive information assessed by operator, such as credit card or UnionPay card number, etc. shall not be displayed on the customer-oriented display.
- 4.5.15.2.3 As different from the seat plan display for operators which shall contain full seat status information, the customer-oriented display shall show seats that are not available for sale due to reservation or blocking for various reasons using only one common “unavailable” symbol. **(E4/218)**
- 4.5.15.2.4 The System shall enable the customer-oriented display to show the seat availability status, with the figures of available seats in different performances and different price zone of respective event. **(E4/219)**
- 4.5.15.3 Refund and Return of Tickets
- 4.5.15.3.1 The System shall allow refund and return of tickets upon request. Return of seats and their access shall be restricted and differentiated to different levels of system users according to operational needs. **(E4/220)**
- 4.5.15.3.2 Return of tickets can be made at any outlets or at the Ticketing Office as decided by the management according to the situation. The System shall automatically read the transaction reference number, QR code printed on tickets to control and keep track of the exact reversal of the seats and payment amounts of refund transactions. **(E4/221)**
- 4.5.15.3.3 The System shall generate report concerning tickets returned into the System. Information that can be captured in report shall include event name, performance date and time, venue, section, row and seat number, ticket issuance date and time, return date and time, system users for ticket issuance and system users for the return tickets etc. **(E4/222)**
- 4.5.15.3.4 Return of Tickets
- 4.5.15.3.4.1 Authorised users of Ticketing Office can process return of all kinds of tickets with no restriction on sale terminal, time frame etc. Every return ticket shall be recorded in system and clearly displayed in relevant report for control purpose. **(E4/223)**
- 4.5.15.3.4.2 The System shall allow clear demarcation of access right in respect of ticket return. For example, outlet operators are not allowed to process return of consignment tickets and complimentary tickets. Outlets can only process return of tickets issued on the same date and at same sales terminal and of the same payment type. **(E4/224)**
- 4.5.15.3.5 Ticket Refund

- 4.5.15.3.5.1 Refund of tickets shall only be allowed to be processed by only authorised system users. **(E4/225)**
- 4.5.15.3.5.2 Refund of tickets shall be processed by the Contractor with prior written consent or request of the Government. Further refund procedures are set out in Annex E to Part IV – Conditions of Contract. **(E4/226)**
- 4.5.15.3.6 Exchange of Tickets
- 4.5.15.3.6.1 The System shall allow exchange of seats and their access shall be restricted and differentiated to different levels of system users according to operational needs. **(E4/227)**
- 4.5.15.3.6.2 The System shall enable exchange of tickets at outlets and Ticketing Office. **(E4/228)**
- 4.5.15.3.6.3 The System shall automatically calculate the price difference between tickets exchanged and tickets being exchanged and the total handling fee required. **(E4/229)**
- 4.5.15.3.6.4 The System shall prompt out onscreen message for alerting outlet operators to receive payment in full, including difference of ticket price and handling fee, before printing tickets and receipt. **(E4/230)**
- 4.5.15.3.6.5 The System shall differentiate the number of tickets returned and exchanged under separated items in transaction log, till summary and other related reports. **(E4/231)**
- 4.5.15.3.6.6 The System shall enable the following in respect of exchange of tickets: **(E4/232)**
- (a) Automatic recording of information on tickets exchanged.
 - (b) Report designed for recording exchange of tickets for certain sales terminal including event date and time, event name, venue, system user, section, row and seat number and price of tickets exchanged, handling fee, etc.
 - (c) Display remarks in reporting the tickets exchanged to facilitate matching.
 - (d) Automatic calculation of handling fee per ticket exchanged.
 - (e) Each order of exchange will be up to a maximum of 40 tickets.
- 4.5.15.3.6.7 The System shall provide an express exchange function for customer to pay for supplementary charges including handling fee for their concessionary tickets at counter on the performance date. **(E4/233)**
- 4.5.16 **Telephone Ticketing and Enquiry Service**
- 4.5.16.1 All services and functions specified in this Section 4.5.16 shall be available to the operators of the telephone ticketing and enquiry services to be set up and operated by the Contractor throughout the Operation Period. **(E4/234)**
- 4.5.16.2 The Contractor shall set up and operate telephone ticketing and enquiry services through itself or sub-contractors, which shall provide ticketing and enquiry services through telephone concurrently with all URBTIX outlets. The Contractor shall also provide and operate telephone reservation service through itself or sub-contractors, which shall provide ticket reservation service in respect of solely wheelchair seats or wheelchair platform seats through telephone concurrently with

- all URBTIX outlets. LCSD reserves the right to advance or postpone the telephone ticketing service commencement date for specific events. **(E4/235)**
- 4.5.16.3 Telephone ticketing and enquiry and reservation services shall be provided on each and every day and for no less than 10 consecutive hours per day. The operators shall possess good command of spoken English and Chinese (both Cantonese and Putonghua). **(E4/236)**
- 4.5.16.4 The Contractor's telephone ticketing and enquiry services call centre shall provide not less than 15 concurrent sessions for the telephone access which means that the telephone ticketing and enquiry services have to be manned by at least 15 operators during the service hours from 10:00 a.m. - 8:00 p.m. daily. **(E4/237)**
- 4.5.16.5 Telephone Enquiry Service, Telephone Reservation Service and Ticket Verification Service
- 4.5.16.5.1 For telephone enquiry and reservation services, the Contractor shall meet the performance pledge that the customer can be served within 5 minutes except during peak hours (10:00 a.m. – 11:00 a.m. and 12:30 p.m. – 2:00 p.m.). The Contractor shall maintain a comprehensive log and recording of all telephone in-coming calls received. The log and recording shall be made available upon request for LCSD's inspection on whether performance pledge had been met. The Contractor shall provide a report in each month to list out details of special cases of customer enquiries, complaints and actions taken for LCSD's inspection. **(E4/238)**
- 4.5.16.5.2 For ticket verification service, the Contractor shall provide the service to the general public upon request during normal office hours and keep a log and record of the service so provided upon request for LCSD's inspection. **(E4/239)**
- 4.5.16.6 Telephone Ticketing Service
- 4.5.16.6.1 The Contractor shall promote the telephone ticketing service and provide updated URBTIX event information for telephone ticketing customers' reference. **(E4/240)**
- 4.5.16.6.2 The telephone ticketing service shall sell tickets of various prices and discounts with marked seat numbers. Customers shall be automatically offered the best available seats and allowed to choose the available seats as they want. Customers shall be informed of all applicable discounts and be allowed to choose the applicable discounts as appropriate. Customers shall be informed of any sightline problems and other specific remarks for that particular seat(s) chosen if such information is available. The Contractor shall monitor and observe the application of discount criteria. Customers shall be allowed to purchase a maximum of 40 tickets per order or the maximum quantity per order as preset for individual event. **(E4/241)**
- 4.5.16.6.3 The System shall allow customers who purchase tickets via telephone ticketing service the choice of ticket collection options, i.e. by self-collection from counters and ticketing machines provided by the Contractor or by mail or courier delivery. For customers who choose self-collection of tickets, they can collect their pre-paid tickets from the counter and ticketing machines provided by the Contractor any time before end of performance. **(E4/242)**

- 4.5.16.6.4 The telephone ticketing service commencement date of each URBTIX event shall be at the sole discretion of LCSD and may be adjusted from time to time. The telephone ticketing service shall be available till some time, e.g. one hour prior to and after the performance on event or venue base and the time may be adjusted from time to time at the sole discretion of LCSD. **(E4/243)**
- 4.5.16.6.5 For telephone ticketing transactions, the Contractor shall sell tickets of all the events at face value, and perform and procure the CSC to perform e-payment services in relation to all telephone ticket sale transactions using all and any applicable Electronic Payment Means. The Electronic Payment Means to be made available for telephone ticketing service must comprise the three brands of credit cards (Visa, Mastercard and AMEX) and UnionPay Card. The Contractor shall print tickets using the System ticket stocks. The Contractor shall deliver tickets to customers who choose ticket delivery by the next working day from the receipt of order. **(E4/244)**
- 4.5.16.6.6 The Contractor shall bear any transaction bad debts arising, and handle customer complaints on services, as well as claims of lost tickets or ticket non-delivery promptly and satisfactorily. For lost ticket cases, the Contractor shall provide LCSD with details such as event purchased, date, time and venue of performance, seat number(s) and price, customer name, copy of document which can prove the identity of the customer, contact telephone number, and the date and time of issue of the lost ticket. **(E4/245)**
- 4.5.16.6.7 The Contractor may collect a service fee from telephone ticketing service patrons of URBTIX events according to Schedule 23 – Price Schedule of Part V. The Contractor shall give online confirmation to all telephone booking orders. The Contractor shall issue receipt to telephone ticketing service customer showing the separate amount of URBTIX ticket face value and the telephone ticketing service charge collected. **(E4/246)**
- 4.5.16.6.8 The Contractor shall not operate, or allow any third-parties to operate, any other ticket sale channels for URBTIX events without the written approval of the Government. **(E4/247)**
- 4.5.16.6.9 The Contractor or its employees or its agents shall only issue URBTIX event tickets for selling to telephone ticketing service customers, and shall not issue or reserve URBTIX event tickets for their own use. **(E4/248)**
- 4.5.16.6.10 The Contractor shall maintain a comprehensive log of all telephone ticketing service orders received, Transaction number of the Electronic Payment Means used, Transaction amount, customers' names, payment details, postal addresses (to be collected only when customer choose ticket delivery) and ticket delivery records. The log shall be made available for LCSD's inspection upon request. In addition to the log of all Telephone Ticketing Service orders received, LCSD shall be entitled to inspect the Contractor's relevant records, documents and records in relation to the transactions effected by all or any of the Electronic Payment Means, the Settlement Reports, any Dispute Notices and evidence of payment of the Transaction Fee due to CSC. **(E4/249)**
- 4.5.16.6.11 The Contractor shall not include any advertisement during the provision of telephone ticketing service of URBTIX events, on the tickets, or on the ticket

delivery envelopes and/or ticket pouches without obtaining the written approval of the Government. **(E4/250)**

4.5.16.6.12 The Contractor shall obtain the consent of the Government before offering the sale of mercantile(s) along with the telephone ticketing service. Wine, obscene and tobacco products must be excluded. **(E4/251)**

4.5.16.6.13 The information in relation to the sub-contractor to be appointed for performing the telephone ticketing service and/or the telephone enquiry service shall be set out in Schedule 17 – Sub-Contracts of Part V. **(E4/252)**

4.5.17 **Internet and Mobile Ticketing Services**

4.5.17.1 The Internet and Mobile Ticketing Servers shall be set up and operated by the Contractor and all functions specified in this Section 4.5.17 shall be available to all members of the public unless otherwise specified throughout the Operation Period. **(E4/253)**

4.5.17.2 The System shall provide a full range of ticketing service through Internet platform via the website of the System (“System website” or “website of the System” or “online platform”) and mobile platform via the mobile app of the System (“mobile platform” or “mobile app platform”). The Contractor is required to provide and operate Internet and mobile ticketing services through itself or sub-contractors which shall handle Internet sale concurrently with all URBTIX outlets and telephone ticketing service. For details of mobile ticketing service, please also refer to Section 4.5.17.26 below. The Contractor is required to provide Internet and mobile sale event setup for all URBTIX events, prepare and update Internet ticketing web pages and mobile app pages, perform Internet and mobile event promotions, and prepare updated Internet URBTIX event information for public reference. **(E4/254)**

4.5.17.3 The Contractor shall provide dedicated URLs (both English and Chinese) which can allow user to submit performance date and venue facility code as parameters to search for events and display the results in the website of the System or redirect to the main page of the website when no record can be found within the searching criteria. **(E4/255)**

4.5.17.4 The Internet and mobile ticketing services shall sell tickets of various prices and discounts with marked seat numbers. Customers shall be automatically offered the best available seats and allowed to choose the available seats as they want. Customers shall be informed of all applicable discounts and be allowed to choose the applicable discounts as appropriate. Customers shall have choice on ticket delivery options, i.e. by mail or courier delivery or self-collection from outlet counters and/or ticketing machines provided by the Contractor. The Contractor shall monitor and observe the application of discount criteria. Customers shall be allowed to purchase a maximum of 40 tickets per order or the maximum quantity per order as pre-set for individual event. **(E4/256)**

4.5.17.5 Internet and mobile ticketing services shall be provided on each and every day and for 24 consecutive hours per day (except during system close down time for system maintenance). The Internet and mobile ticketing services commencement date of each URBTIX event, and the number and location of tickets available for Internet and mobile ticketing, shall be at the sole discretion of the LCSD and may be

adjusted from time to time. The Internet and mobile ticketing services shall be available till some time, e.g. one hour prior to and after the performance on event or venue base and the time may be adjusted from time to time at the sole discretion of LCSD. **(E4/257)**

4.5.17.6 For Internet and mobile transactions, the Contractor shall sell tickets of all the URBTIX events at face value, perform and procure the CSC to perform all e-payment service in relation to tickets sold through using all or any of the Electronic Payment Means via the Internet or mobile ticketing service. The Electronic Payment Means to be made available must comprise the three brands of credit cards (Visa, Mastercard and AMEX), UnionPay Card and Electronic Payment Means which uses the QR code. The Contractor shall print tickets using the System ticket stocks when paper tickets are used. The System shall allow customers who purchase tickets via Internet and mobile app the choice of ticket collection options, i.e. by self-collection from counters and ticketing machines or by ticket delivery. For customers who chose self-collection of tickets, they could collect their pre-paid tickets from the counters and ticketing machines provided by the Contractor any time before end of performance. The Contractor shall deliver tickets to customers who chose ticket delivery by the next working day from the receipt of order. **(E4/258)**

4.5.17.7 For successful Internet and mobile purchase, in addition to the printing of paper tickets, it shall allow the printing of an e-ticket on A4 paper with an unique QR code that corresponds with the ticket content such as event date and time, ticket price, serial number and details of the transactions. The printed QR code on A4 paper shall be readable by QR code reader that is attached to each terminal. The Contractor shall send a confirmation email to customer for each successful Internet transaction. For successful Internet and mobile purchase in which e-ticket is adopted, the e-ticket shall be sent (pushed or notified) to ticket buyers' smartphones and stored in the registered mobile app e-wallet directly via the mobile app. For unsuccessful Internet and mobile purchase due to whatever reason, the Contractor shall send alert email to customers to remind them to purchase again. **(E4/259)**

4.5.17.8 The Contractor shall bear any transaction bad debts arising, and handle customer complaints on services, as well as claims of lost tickets or ticket non-delivery promptly and satisfactorily. For lost ticket cases, the Contractor shall provide the LCSD with details such as event purchased, date, time and venue of performance, seat number(s) and price, customer name, copy of document which can prove the identity of the customer, contact telephone number of the customer, and the date and time of issue of the lost ticket. **(E4/260)**

4.5.17.9 The Contractor may collect a service fee from Internet and mobile ticketing patrons of URBTIX events according to Schedule 23 – Price Schedule of Part V. The Contractor shall give online confirmation to all Internet and mobile booking orders. The Contractor shall issue receipt to Internet and mobile ticketing service customers showing the separate amount of URBTIX ticket face value and the Internet and mobile ticketing service charge collected. **(E4/261)**

4.5.17.10 The Contractor shall not operate, or allow any third-parties to operate, any other ticket sale channels for URBTIX events without the written approval of the Government. **(E4/262)**

- 4.5.17.11 The Contractor or its employees or its agents shall only issue URBTIX event tickets for selling to Internet and mobile customers, and shall not issue or reserve URBTIX event tickets for their own use. **(E4/263)**
- 4.5.17.12 The Contractor shall maintain a comprehensive log of all Internet and mobile ticketing orders received and the response times for confirmation and ticket delivery. The log shall be made available for the LCSD’s inspection upon request. In addition to the log of all Internet and mobile ticketing orders received, the LCSD shall be entitled to inspect the Contractor’s relevant records, documents, and records in relation to the transactions effected by all or any of the Electronic Payment Means, records generated through the provision of the e-payment service including the Settlement Reports, any Dispute Notices and evidence of payment of the Transaction Fee due to CSC. **(E4/264)**
- 4.5.17.13 The System shall have the capacity to handle not less than 3,000 concurrent sessions at the System website on the Internet and via the mobile app platform (including all sale, browsing and enquiry transactions) (collectively, “concurrent sessions”) and shall be automatically scaled up to 100,000 concurrent sessions or more for the first day sale of popular events with the following additional requirements: **(E4/265)**
- (a) Initial setup and updating functions of home page service.
 - (b) Interactive menu content display similar to customer-oriented display mode.
 - (c) Chinese (Traditional Chinese and Simplified Chinese) and English support.
 - (d) System shall be well-protected, say using firewall and bot protection solution, against hackers and robots.
 - (e) A mechanism with relevant components shall be incorporated and operated independently with the System so as to protect the System from the risk of system overloading by overwhelming Internet traffic. The component shall be able to handle not less than 64,000,000 active connections³ at any one time and have the ability to display busy page message to visitors when the maximum number of concurrent Internet and mobile sessions has been reached.
 - (f) Capability to operate 24 hours except during system close down time for system maintenance.
 - (g) Access control of selected functions to the public (programmable or parameter driven).
 - (h) Transaction journals for all Internet and mobile orders.
 - (i) Instant update capability upon urgent changes of ticketing information.
 - (j) “Out of service or Busy” message display upon detection of irregularity.
 - (k) Matured performance not to be accessible.
 - (l) Highly secured means of ticket sale transactions through the use of credit card, UnionPay card and other Electronic Payment Means.
 - (m) Programmable “ticket on hold” time for Internet and mobile transactions (e.g. 5 minutes), after which seats on “hold” status by Internet and mobile customers will be automatically released.

³ “Active connections” means the number of incoming connection requests passing through the network appliance and successfully established a connection with each other.

- (n) System shall allow wheelchair patrons to choose seats of any prices available in the normal seating zone of Hong Kong Coliseum events primarily and request for exchange for a wheelchair platform space in the course of ticket purchase.
- (o) System shall release idle Internet and mobile sessions after a pre-defined time limit (e.g. 15 minutes).
- (p) System shall generate option to encourage customers to donate any additional amount of money to the event presenters upon check out.
- (q) System shall display upcoming related activities or events to customers.
- (r) System shall display real-time seat availability of events and performances to customers.
- (s) Website of the System shall run on the following browsers:
 - Firefox;
 - Edge;
 - Chrome; and
 - Safari.
- (t) Website of the System shall be accessible to people with disabilities by complying with the prevailing version of Web Content Accessibility Guidelines Level AA standard (<https://www.w3.org/TR/WCAG>) and in accordance with the Promulgating Guidelines and Tips under Web/Mobile App Accessibility Campaign through the Government Website (https://www.ogcio.gov.hk/en/our_work/community/web_mobileapp_accessibility/promulgating_resources/).

- 4.5.17.14 A mechanism to control the number of Internet & mobile app traffic to access the System in order to safeguard the System and outlet operation will not be affected by the overwhelming of Internet traffic during the sale of popular events shall be provided. Busy page message shall be displayed for users who cannot access to the URBTIX system. **(E4/266)**
- 4.5.17.15 The Contractor shall not include any advertisement on the Internet ticketing service webpages and mobile app pages of URBTIX events, on the tickets, or on the ticket delivery envelopes and/or ticket pouches, etc. without obtaining the written approval of the Government. **(E4/267)**
- 4.5.17.16 The Contractor shall obtain the consent of the Government before offering the sale of mercantile(s) along with the Internet and mobile ticketing service. Wine, obscene and tobacco products must be excluded. **(E4/268)**
- 4.5.17.17 The information in relation to the sub-contractor to be appointed for performing the Internet ticketing service or enquiry service or mobile ticketing or enquiry service where applicable shall be set out in Schedule 17 – Sub-Contracts of Part V. **(E4/269)**
- 4.5.17.18 The Contractor shall use responsive webpage design to provide an intuitive and up-to-date look and feel design for website of the System based on a customer-centric and easy to use approach as follows: **(E4/270)**
- (a) clear explanation and guidelines to facilitate manipulation (e.g. input and enquiry) of the System such as mouse-over help and ask-for-assistance capability; and

- (b) user-friendly searching function to enhance the searching and exploration of programme experience.
- 4.5.17.19 Website of the System shall display basic information on event, performance, and seat, as well as other user-defined information based on the setting of event from the System. The website shall at least include the following features that facilitate and enhance interactions with patrons as follows: **(E4/271)**
 - (a) On Sale Today section to show the events' information on sale for the day.
 - (b) Top Sellers of The Day section to show events information that have the most tickets sold on the previous day.
 - (c) Event calendar with programme search features.
 - (d) Calendar view of an event.
 - (e) Scrollable banner for highlighted events.
 - (f) A notification area to display ad-hoc notices.
 - (g) Social networking sharing features (e.g. Facebook, Twitter and Weibo share).
 - (h) Banner on the main page for listing the programmes that will start their ticket sales within the coming two days.
 - (i) "Special Deals" area to offer advertising opportunities for event presenters to promote their events as a special deal.
- 4.5.17.20 The Contractor shall provide a user-friendly Internet and mobile shopping flow which allows patrons to register an account in the System before purchase of ticket. Personal and other general information will have to be entered including registered name, telephone number, email address and other information such as preference, favourite artists by popular categories etc. It also allows patrons to select at their own preferences for receiving acknowledgements and friendly reminders after a successful purchase. Similar function shall be provided at counters to allow operators to register account for patrons who purchase tickets at outlets. **(E4/272)**
- 4.5.17.21 All patrons shall be requested to input their registered account for ticket purchase. If the patron is not registered with the System, functions shall be provided for patron to register an account and to enter the required personal information such as patron name, telephone number, email account, etc. **(E4/273)**
- 4.5.17.22 The System shall allow registered patron to enquire his/her own account details which include, but are not limited to the following: **(E4/274)**
 - (a) To view the personal information and other information of the account such as registered name, telephone number, email address, preference, membership information etc.; and
 - (b) To view the ticket purchase history.
- 4.5.17.23 The System shall allow patrons to use their electronic identification (eID) developed by the Government for member registration; support registered patrons to use their eID for authentication to login to the System for ticket purchase and subsequent admission checking by making use of the QR code associated with the eID for verification of the purchaser's identity. **(E4/275)**

4.5.17.24 Apart from the normal Internet booking process which presumes patrons are regular users and fully aware of ticketing information and discounts of the event they wish to buy tickets, the System shall be designed with interactive seat map features and seat view photos to enhance the smoothness of the self-serviced booking process. Ticketing information such as price range, ticket availability across different performances of the same event, best seats available, discounts, seat selection etc. shall be offered during shopping process so that patrons have choices and been duly informed of ticketing information, discount offers and save the time of going back-and-forth the Internet screens to make wild search. **(E4/276)**

4.5.17.25 The System shall provide online ticket sales features as follows: **(E4/277)**

- (a) Allow patrons to browse events and access available tickets from an easy-to-navigate event list, grouping, or calendar;
- (b) Support popup windows for upcoming related activities or events;
- (c) Support interactive seat maps and seat view photos of all seating options for better customer experience;
- (d) Provide various controls such as system checks of whether single vacant seats will be generated after a purchase to restrict leaving single seats (non-adjacent) in rows;
- (e) Provide options to capture patrons' contact and demographic information in appropriate situations;
- (f) Provide options for reserved seating, free seating, and/or best seats available for sale within a single transaction;
- (g) Ability to accept donations in as little as 2-3 clicks to keep lines at the window to a minimum;
- (h) Provide quick sale features for day of show "walk-up" sales with the fewest possible keystrokes required;
- (i) Support fast transactions that can be completed within minutes for efficient ticket sale transactions via Internet and mobile bookings especially for first day public sale of very popular events with a huge demand;
- (j) Provide flexible payment options that allow multiple payment types in one transaction (i.e. split payment); and
- (k) Provide options for patrons to transfer and forward ticket digitally to their guest or companion.

4.5.17.26 Mobile Ticketing Service

- (a) The Contractor shall also provide native mobile apps (at least iOS App and Android App) to allow patrons to browse event information and purchase tickets online using credit card, UnionPay card and other Electronic Payment Means through the use of such Mobile app to be installed on their mobile phones. The mobile ticketing app (or mobile app) shall at least include the following features that facilitate and enhance interactions with patrons as follow: **(E4/278)**

Secure Login:

- Mobile app of the System shall provide secure login, linkage to the phone number, biometric verification such as fingerprint and/or face and mobile e-wallet for receiving, storing and retrieval of e-tickets (similar to banking

mobile apps using fingerprint or face for login to access their accounts). It is assumed that the registration of the mobile app can uniquely identify a patron and control his limit on the number of ticket purchased and ticket transfer.

Ticket Purchase:

- Specify method for despatching e-ticket

When a patron purchases tickets using the mobile app, the patron shall specify the delivery location for the e-ticket such as mobile app e-wallet or email depending on the available channels for the type of e-tickets (e.g. restricted real-name registration tickets can only use e-wallet or uncontrolled tickets can apply to both). Once the e-ticket is saved to the e-wallet, only the registered mobile app can access the e-ticket. When a patron purchases multiple tickets, the patron has the option to specify the name of others and the means of delivery to those patrons.

- Transfer e-ticket(s)

The mobile app shall allow the patron to transfer the e-ticket(s) to another or other person(s) by specifying the delivery location of the e-ticket such as mobile app e-wallet or email depending on the available channels for the type of e-tickets (e.g. restricted real-name registration tickets can only use e-wallet or uncontrolled tickets can apply to both). The number of times that the transfer of the e-ticket(s) to another person(s) shall not exceed the predefined e-ticket transfer limit.

Admission with E-ticket Scanning:

- The mobile app shall generate the QR code (i.e. dynamic QR code) with the ticket stored in mobile app e-wallet for patron (i.e. ticket holder) to open it before admission.
- The dynamic QR code shall be used to avoid ticket duplication or QR code replication for admission.
- The dynamic QR code shall be generated in the following ways to avoid ticket duplication and prevent fraud for admission:
 - Use of timestamp to eliminate generation of duplicate QR codes to prevent ticket duplication; and
 - Use of time-limit validation control to prevent code replication such as taking photo, screen capture and used by other persons, as the generated QR code is valid only for a certain period of time (e.g. 1 to 2 minutes).
- The QR code reader shall scan the QR code in smartphone, verify the ticket information against data in admission control system, and allow admission if the QR code is valid.

Other Features:

- On Sale Today section to show the event information on sale for the day.
- Top Sellers of The Day section to show events information that have the most tickets sold on the previous day.
- Programme search features.
- Browse events by an event calendar.

- Browse events by venues.
- View information of events and venues.
- A notification page to display ad-hoc notices.
- Integrate with Internet booking service for patron to select ticket delivery method and payment method.
- Support SMS and email notification.

(b) Mobile apps shall run on the following platforms: **(E4/279)**

- iOS with the 2 latest firmware versions (such as iOS 12 and iOS 13) for iPhone;
- iPad iOS with the 2 latest firmware versions (such as iOS 12 and iOS 13) for iPad;
- Android with the 2 latest firmware versions (such as Android 8 and Android 9) for not less than 5 kinds of mobile device sizes including smartphones, tablets and computers.

(c) The mobile apps shall be accessible to people with disabilities by complying with the Mobile Application Accessibility guidelines through the Government website

(https://www.ogcio.gov.hk/en/our_work/community/web_mobileapp_accessibility/promulgating_resources/). **(E4/280)**

4.5.17.27 Customer Personalised Service

4.5.17.27.1 The System shall allow Internet customers at their own preferences to register their own membership account for use of personalised features. The registration process shall capture information such as name, telephone number, email address, password, favourite artists, event types, event sub-categories, patronised venues, presenter groups, preference of receiving e-marketing emails, etc. The System shall not collect excessive personal information for providing this personalised service for customers. **(E4/281)**

4.5.17.27.2 The System shall be able to provide the following personalised functions to registered customers when they login the website: **(E4/282)**

(a) Reminder of event with ticket purchased

- When ticket-buyers login the website after registration, the front page can show the upcoming event with ticket purchased, which serves as a function to remind the ticket-buyer to attend the show.

(b) History of purchase record

- The website allows the ticket-buyers to view their history of purchase record of past 12 months.

(c) Change Profile, Unsubscribe Service and Forget Password

- The System shall allow customers to amend their own preferences or unsubscribe the service and shall handle forget password enquiry from customers.

(d) Notification of favourite events

- The System shall show the top recommended events to customers and allow the customer to obtain news of events that matches their favourite list when the customers login to the system.

(e) Bookmark of browsed events

- The System shall bookmark customers' last browsed events and list them out when they re-login to the system.

4.5.17.28 Virtual Queuing Service

4.5.17.28.1 When ticket buyers are waiting to access an online sale of a very popular event on Internet and mobile channels, the System shall provide the application of virtual queuing to line up online customers while they are waiting, to put customers in sequence, and to inform and communicate with customers when the waiting time exceeds a defined time period. **(E4/283)**

4.5.17.28.2 The System shall be able to differentiate between very popular event users and normal users and direct very popular event users and normal users to appropriate virtual queue for access. **(E4/284)**

4.5.17.28.3 The System shall put the end-users in a queue and redirect the end-users who waited in line back to the website in the correct, sequential order. End-users exceeding the website capacity limits are offloaded to the virtual waiting room and wait for access back to the website to purchase tickets. **(E4/285)**

4.5.17.28.4 The System shall communicate real-time updates to the ticket buyers while they are in queue; or when the waiting time exceeds a defined time period. **(E4/286)**

4.5.17.28.5 The System shall integrate with a virtual or online queuing system service to provide online queue management to manage website overload during first day ticket sale of very popular events for extreme end user peaks. **(E4/287)**

4.5.17.29 Verify Customer Prior to Ticket Purchase

4.5.17.29.1 The System shall allow patrons to pre-register the event on website or mobile app. **(E4/288)**

4.5.17.29.2 The System shall require patrons to fill in a profile of questions and verify the inputs against the customer profile, which help to identify and deny tickets to patron. **(E4/289)**

4.5.17.29.3 The System shall be able to detect customers who show signs of disconcerting activity (such as creating false emails, creating multiple profiles, etc.) and disqualify these customers to purchase tickets. **(E4/290)**

4.5.17.30 Fan Pre-Registration for Specific Event

4.5.17.30.1 In order to enhance the possibility of getting more tickets into the hands of fans, the fan pre-registration programme shall be provided to allow patrons to pre-register to purchase tickets of specific events. **(E4/291)**

4.5.17.30.2 The System shall allow fans to pre-register the event before the public sale of tickets of specific event. The pre-registration period of the event will be pre-defined in the System. **(E4/292)**

- 4.5.17.30.3 The System shall allow patron to fill in a number of fields at the pre-registration. This may include account number, surname, name, email address (to receive email alerts), mobile phone number and ID number, etc. The System shall verify the input against the accounts in the System. If account was not created before, the System shall prompt the patron to create an account during pre-registration. **(E4/293)**
- 4.5.17.30.4 The System shall inform the patron about the confirmation of the pre-registration via email and inform the patron about the upcoming public sale date(s) when the fan verification process is completed successfully. **(E4/294)**
- 4.5.17.30.5 The System shall generate and distribute a link to the patron (verified fan) on designated date(s) before public sale after the pre-registration period ends. The verified fan shall be allowed to purchase tickets of specific event. The availability of ticket(s) is based on a first come, first served basis. **(E4/295)**
- 4.5.17.31 Anti-robot Features and Measures
- 4.5.17.31.1 The Contractor shall provide measures to proactively monitor and curb robotic activities on the Internet and mobile to ensure fair chance of ticketing. **(E4/296)**
- 4.5.17.31.2 The System including the Contractor Supplied Public Cloud Services shall include but not be limited to the following anti-bot functions and implementation measures: **(E4/297)**
- (a) To curb malicious bots activities through monitoring and analysing unusual behaviour of Internet and mobile transactions;
 - (b) To proactively monitor and curb bots activities including access, browsing, searching and holding event tickets on the Internet and mobile to prevent ticketing transactions made by bots to ensure fair chance for human (real person) to purchase tickets;
 - (c) To detect, identify and eliminate automation tools to affect the normal ticketing services provided by the System through analysing incoming traffic including but not limited to the use of worldwide threat intelligence technology, on an ongoing basis;
 - (d) To provide malicious bot defence mechanism to filter malicious bot traffic to protect the normal ticketing services;
 - (e) To intercept malicious requests based on common HTTP header fields, such as IP, URL, User Agent, and Referer parameters to achieve the access control;
 - (f) To provide deep learning to build and train custom models on bot prevention;
 - (g) To provide CAPTCHA verification to curb suspicious bots with variation at least once per year, or upon request from the Government;
 - (h) To implement counter-measures to deter bot activities on an ongoing basis including but not limited to enhancing the CAPTCHA when it becomes not effective to deter bots;
 - (i) To analyse the anti-bot effectiveness for abnormal transaction behaviour; and
 - (j) To generate analysis reports for the blocking results and anti-bot effectiveness.

- 4.5.17.31.3 The System shall request entry of verification code sent via email and SMS before allowing customers to place order. **(E4/298)**
- 4.5.17.31.4 The System shall make use of virtual keyboard with random positioning of characters for data entry of CAPTCHA and provide random questions for online customers to input a set of random system-generated characters or a combination of characters and numeric. The System shall allow the ticket purchase to proceed if the inputted data matches with the displayed characters. **(E4/299)**
- 4.5.17.31.5 The System shall allow placing limits on the number of tickets that can be bought and transferred by any one person on selected events. **(E4/300)**
- 4.5.17.31.6 The System shall allow placing limits on the number of tickets that can be bought per transaction on the first public sale day and/or other days. **(E4/301)**
- 4.5.17.31.7 The System shall allow tickets to be returned to the event presenters for a refund at less than the face value substantially coupled with real-name registration. **(E4/302)**
- 4.5.17.31.8 The System shall provide “delayed digital ticket delivery” and “delayed print-at-home” functionalities that allow delaying the delivery of digital tickets to patrons. **(E4/303)**
- 4.5.17.31.9 The System shall restrict tickets from printing or viewing online; collection from outlets and ticketing kiosks provided by the Contractor; and mailing to the patron until a predefined date set for the event and performances. **(E4/304)**
- 4.5.17.31.10 The System shall not issue a QR code for a ticket and allow the delivery of digital tickets to the patron until a specific time, e.g. 48 hours prior to the commencement date of the performance. **(E4/305)**
- 4.5.17.31.11 The System shall be able to shut off some functionalities, such as the ability to transfer or post a ticket for resale, a few hours prior to the event. **(E4/306)**
- 4.5.17.31.12 The System shall provide measures in application to guard against robotic activities. **(E4/307)**
- 4.5.17.31.13 The System shall provide Red Flag Reports to inspect all transactions and occurrences within the ticketing system for the sake of looking for typical behaviours that criminals and bots elicit. This includes, but is not limited to the following reports: **(E4/308)**
- (a) Reports that allow the review of data across performances and events.
 - (b) Reports that identify accounts that have frequent purchase orders to various events to spot potential ticket-scalpers.
 - (c) Reports that show multiple purchase orders using same credit card, UnionPay card or other Electronic Payment Means number for different accounts.
 - (d) Reports that show orders which meet the suspicious criteria which require human intervention for investigation. For example, if fraud is spotted to exist previously in last minute group sales orders, ticketing staff can create and run daily reports that show orders which meet the suspicious criteria. The staff

can then investigate by combining and browsing through the reports to see if anything fraudulent is happened.

(e) Other reports for random spot checking include but are not limited to:

- Over-the-Limit Report
 - The report is produced to reduce the manual attempts at mass booking through online purchase, outlets or telephone call. An example is imposing the ticket limits that are usually put in place for every event.
- IP Address Identification Report
 - The report is produced to see if mass purchases have been made by the same IP address or physical address.

4.5.17.31.14 The System shall provide virtual waiting room features to sort out actual fans from robots. During the time when patrons stay in the virtual waiting room, the System shall accurately and effectively identify all the perpetrators and move them to a separate virtual holding area for cordoning off from normal purchase process. **(E4/309)**

4.5.17.31.15 The System shall provide big data analysis on bot activities using tools such as Google Analytics. **(E4/310)**

4.5.17.32 Balloting Sales of Tickets

4.5.17.32.1 The System shall allow subject AMs of the Ticketing Office to define the events for balloting such as balloting application period, number of batches for balloting, balloting sales period for each batch, etc. **(E4/311)**

4.5.17.32.2 The System shall allow the patrons to pre-register balloting for ticket sale of the event on website, mobile app or via POS at outlets. **(E4/312)**

4.5.17.32.3 The System shall use random process to draw lots for all registered patrons after close of pre-registration. **(E4/313)**

4.5.17.32.4 The System shall have a de-duplication process to eliminate duplicated patrons before drawing lots. **(E4/314)**

4.5.17.32.5 After the drawing, the System shall either: **(E4/315)**

- (a) send the access code to each successful patron via email and/or mobile app which allows and links them to purchase tickets at the allotted time; or
- (b) allocate seats according to the preference of the applicants in order of priority based on the drawing lot result.

4.5.17.32.6 The System shall offer a balloting sale of tickets to control the number of patrons to access the ticketing system at pre-determined time if the balloting sale method stipulated in Section 4.5.17.32.5 (a) above is applied. **(E4/316)**

4.5.18 **Self-service Ticketing Services**

4.5.18.1 The Self-service Ticketing Services shall be set up and operated by the Contractor and all functions specified in this Section 4.5.18 shall be available to all members of the public unless otherwise specified throughout the Operation Period. **(E4/317)**

- 4.5.18.2 In order to reduce customer queuing time, to leverage on sales opportunities during non-office hours, to maximise impulse sales by having screens featuring full motion video and stereo sound, and to provide new channel for marketing and sales of all events, the Contractor shall provide and operate self-service ticketing kiosks through itself or sub-contractors, which shall handle self-service ticketing concurrently with all URB TIX outlets. The fitness of the machine unit to the environment, such as standalone or table top, outdoor or indoor, operational temperature and the location shall be handled by the Contractor. **(E4/318)**
- 4.5.18.3 The requirements of the self-service ticketing kiosk are as follows: **(E4/319)**
- (a) Provide ticket collection for customers to collect pre-paid tickets booked via Internet, mobile or telephone ticketing services.
 - (b) Allow ticket purchase.
 - (c) Allow patron to login or register as new members and capture patron information.
 - (d) Display membership information and benefits.
 - (e) Search the catalogue of events.
 - (f) Select events and purchase tickets.
 - (g) Depending on the seating arrangement of the event, the System shall display ticket price zones and ticket availability status graphically on seating plan of events and allow patron to select their desired seats, or assign the best seats to the patron via automatic allocation.
 - (h) Built-in online workstation with touch screen nature and ticket printers.
 - (i) Chinese (Traditional and Simplified) and English support.
 - (j) Capability to operate 24 hours except during system close down time for system maintenance or running of day-end jobs.
 - (k) Limited access of selected functions to the public.
 - (l) Strong casing and security features against theft and vandalism of the machines.
 - (m) Storage for a certain amount of tickets, say 5,000.
 - (n) Built-in sensor to monitor the stock of ticket and send alert email to designated email addresses when stock is lowered to specified level.
 - (o) Ticket printing speed shall support high speed printing.
 - (p) Protection of the ticket against damage and the data line against hackers.
 - (q) Automatic reading of credit card, UnionPay card and Electronic Payment Means number into transaction record through swipe machine or interface or QR-code scanning.
 - (r) Highly secure means of accepting payment of ticket through all Electronic Payment Means using Near Field Communication Technology or QR Code. Security feature to authenticate credit card, UnionPay card and the card or device of any other Electronic Payment Means shall be provided.
 - (s) Tickets to be printed out for patron's collection after credit deduction.
 - (t) Transaction journals for individual self-service unit.

- (u) Warning message or indication of out of ticket stocks to draw the attention of the Contractor for repairing and ticket replenishment. Display, say “Out of Order”, message upon detection of irregularity.
- (v) Feature to record claims of malfunction by patrons (e.g. damaged ticket).
- (w) Automatic shut down or reject ticket selling function when ticket is out of stock.
- (x) Ticket refund and return procedure shall be taken at outlet counter instead of through the machine unit.
- (y) An appropriate display angle of the machine shall be in place to facilitate wheelchair users.
- (z) Other security measure such as CCTV surveillance system and measures to prevent people standing aside to peep on the information inputted by customers or displayed on the screen.
- (aa) Issue receipt to customers patronised the ticketing machine showing the separate amount of URBTIX ticket face value and the handling fee collected (if applicable).
- (bb) Connection to the Production system for real-time information, and ability to switch to DR system in case of disaster.
- (cc) Matured performance shall not be accessible.

4.5.18.4 Tenderers shall assume that a minimum of 70 machine units will be required for the initial stage. The number of machine units may be expanded up to 90 machine units depending on customers’ response on this new channel of ticketing. **(E4/320)**

4.5.18.5 The Contractor shall assist in the implementation of the self-service ticketing function when the machine units are to be set up. **(E4/321)**

4.5.19 **Accounting and Reporting Service**

4.5.19.1 All functions specified in this Section 4.5.19 shall be available to the staff of the Ticketing Office throughout the Operation Period. **(E4/322)**

4.5.19.2 Reconciliation of Sales and Accounting

4.5.19.2.1 The System shall maintain transaction records with patron information of credit card, UnionPay card and Electronic Payment Means and cheque transactions for accounting purposes. **(E4/323)**

4.5.19.2.2 The total amount received at each outlet for each type of payment shall be printed at each outlet and Ticketing Office. The total amounts received for all outlets with breakdowns for each type of payment to be printed at Ticketing Office is also required. **(E4/324)**

4.5.19.2.3 The System shall provide accurate accounting reports such as daily revenue collections, outlet sales, etc. These reports shall cater for figures up to \$9,999,999,999.99. **(E4/325)**

4.5.19.2.4 The System shall also provide statistical reports and journal reports with a combination of date, venue, event, transaction time, operator, the applicable Electronic Payment Means transaction number, ticket price, discount type,

- subscription series, operations (reserve, claim, exchange, offer, return etc.), station ID, performance time, part of house, payment type, etc. **(E4/326)**
- 4.5.19.2.5 The System shall provide functions to print journal records and cumulative statistics with date range selection feature. **(E4/327)**
- 4.5.19.2.6 The System shall provide function for authorised users and the Accounts Office to online enquire the sales and collection details and other accounting information (e.g. account codes and payment methods) by different combinations. **(E4/328)**
- 4.5.19.2.7 The System shall allow the use of report generation function with no time restriction and the report generation function or vice versa shall not be affected by heavy patronage at public sales channels. **(E4/329)**
- 4.5.19.2.8 The System shall provide accounting functions involving two or more currencies. **(E4/330)**
- 4.5.19.2.9 The System shall provide function for exporting the data according to prescribed criteria to common PC software, including Microsoft Excel, for users' analyses purposes. **(E4/331)**
- 4.5.19.3 Reporting
- 4.5.19.3.1 General Requirements
- 4.5.19.3.1.1 The System shall contain a set of handy tools that focus, filter, and organise the information for analysis, presentation, decision making and future planning such as capacity planning. **(E4/332)**
- 4.5.19.3.1.2 The System shall have the ability to offer a wide flexibility in selecting different grouping criteria for information presentation, either through on screen display or printed report in tabulated or graphical formats. **(E4/333)**
- 4.5.19.3.2 Reports
- 4.5.19.3.2.1 The System shall allow printing journal reports selected by a wide choice of criteria: **(E4/334)**
- (a) by venue, event, performance (date and time);
 - (b) by terminal and user;
 - (c) by transaction date, time, payment type and discount.
- 4.5.19.3.2.2 Beside various online journal transaction logs, the System shall produce various kinds of reports extracted from the sales transactions. The System shall allow printing revenue and ticket analysis reports for specific venues, events, or performances. The System shall allow end-users to generate ad hoc reports when required. **(E4/335)**
- 4.5.19.3.2.3 The System shall provide, but not be limited to, the following reports: **(E4/336)**
- (i) Ticket Sales Performance Reports for each event and performance
These reports provide detailed ticket sales information of selected events and performances within a specific period of time. They shall include:

- (a) Performance Return - number of tickets sold for each price category and discount type for each part of house;
 - (b) Payment Method Report - the corresponding ticket proceeds by payment type, ticket proceeds in movement, the credit card, UnionPay card and other Electronic Payment Means commissions and other deductible handling charges;
 - (c) Inventory Report - number of tickets of each price break and their ticket value under different status such as event capacity, house seats, sight-line problem seats, not-on-sale seats, seats held under different reservation purposes, seats with discounts, seats unsold, etc.;
 - (d) Advance Reports of the above-mentioned reports showing sales progress, revenue collected, credit card, UnionPay card and other Electronic Payment Means commissions and deductible charges, seats available and their respective percentage total as compared with the full-house capacity; and
 - (e) Mapping of the final seat plan showing seats availability for verification.
- (ii) Event Management Reports
- (a) Event List
It provides detailed information on all URBTIX events loaded on the System showing event synonym, event name, account code, account closing date, ticket sale commencement date, and total number of events.
 - (b) Event Control Report
It provides detailed information on the status of events in the System, e.g. event dates, performance times, prices, windows, ticket sale commencement date, payment type accepted, etc.
- (iii) Ticket Collection Reports
- It provides detailed information and summary on ticket collection such as collection status (collected or un-collected), sales channel, event name, performance date and time, venue facility, number of tickets collected and un-collected, transaction reference, patron name, credit card and UnionPay card number, card type, card expiry date, other Electronic Payment Means number and type, purchase date, transaction amount, number of tickets of the transaction etc.
- (iv) Patron Transaction Report
- It provides detailed information of temporary transactions such as ticket reservations and telephone bookings. For each transaction, it shall print the patron's name, collection method, reservation type, reservation status, workstation of transaction, credit card, UnionPay card and other Electronic Payment Means number, authorisation code, card expire date, operator identity, comments or remarks, venue, event, performance date and time, transaction reference, total value, reservation date and time, number of dates on hold, reservation symbol, etc. The report shall also generate statistics

on a combination of the above criteria. All personal data of customers shall be masked.

(v) Management Reports on Ticket Sales

(a) Ticket Analysis Report

It provides tabulated statistics for analysing where and when the tickets are issued, sold, reserved and returned. The report shall include number of tickets sold, issued, reserved and returned and their ticket values by each ticket issuing point or outlet by hour and by calendar day for a month, monthly sub-totals for each category with percentages, and accumulative monthly totals for calendar year, financial year, or for any specified period.

(b) Statistics of Tickets Issued, Sold, Returned, Exchanged and Reserved by Programme Type and Outlets

It provides daily and monthly statistics of tickets issued and handling charges received through outlets (number and value) by categories of the LCSD and other outlets for LCSD programmes and hirer programmes (by the previously mentioned venues with breakdowns), with percentages and accumulative totals across calendar year, financial year, or any specified period. If there are tickets exchanged, display remarks in report on the tickets exchanged to facilitate matching.

(c) Consignment and Complimentary Tickets Reservation Report

Before issuing complimentary and/or consignment tickets, subject AMs of Ticketing Office need to choose the ticket type of seats and reserve the tickets by Claim ID. Subject AMs then can insert the Claim IDs and generate this report. It provides the reservation content of Claim IDs such as performance date and time, number of consignment and/or complimentary tickets reserved and the ticket types. The report shall also show the URBTIX charge and calculate the gate receipt (if any).

(vi) Revenue Collection Reports

(a) Advance Revenue Statement

It provides statistics on the number of tickets sold and ticket proceeds (gross as well as net of credit card, UnionPay card and other Electronic Payment Means service commission and handling charges) collected for each event as well as the daily, monthly and yearly total of all events, with breakdown by payment type and by each sales outlet or ticket issuing point as well as grouping of outlets.

(b) Daily Revenue Collection Record

It provides daily statistics on the number of tickets sold, issued, returned and exchanged and ticket proceeds (gross as well as net of credit card, UnionPay card and other Electronic Payment Means service commission and handling charges) collected at each outlet for each event (with revenue account codes), with breakdown by payment type which is to be printed at each outlet daily for revenue reconciliation purpose.

(c) Daily Sales Outlets Sales Analysis Report

It provides daily summary on the number of tickets sold, issued, returned and exchanged and ticket proceeds (gross as well as net of credit card and service commission and handling charges) collected at each outlet for each event (with revenue account codes), with breakdown by payment type, which is to be printed at the Ticketing Office daily for revenue reconciliation purpose.

(d) Event Revenue Lists

It provides summary statistics of all URBTIX events on system showing event synonym, event name, revenue collected, account code, account closing date, ticket sale commencement date, total number of events and total revenue collected.

(e) Cashier Summary Report

It provides summary statistics of revenue collected during a specific period by system users showing the user identity number, user name, date and time log on, terminal number, sales total during session, number of tickets issued, etc.

(vii) Management Control Reports

(a) Ticket Exchange Report

It provides detail information on exchange of tickets made at specified sales terminal during a specific period by system users showing event date and time, event name, venue, system user, date and time of exchange, section, row and seat number and number of tickets exchanged, price of tickets exchanged, handling fee, net amount to be credited, waiver of handling fee (if any) and reasons/remarks etc. Tickets exchanged shall be remarked to provide matching convenience.

(b) Ticket Return Report

It provides detail information on return of tickets made at specified sales terminal during a specific period by system users showing event date and time, event name, venue, system user, date and time of return, section, row and seat number and number of tickets exchanged, price of tickets exchanged, handling fee, net amount to be credited, waiver of handling fee (if any) and reasons or remarks, etc. Tickets returned and the corresponding transaction made previously shall be remarked to provide matching convenience.

(c) Account Reconciliation Report

It facilitates users for calculating the amount of ticket proceeds which will be reimbursed by the cheque payable to the event presenter. On the report, it shall show the following details:

- Basic information of the programme: Name of presenter and event, number of performance(s), capacity, etc.
- Breakdown of ticket sale proceeds
- Breakdown of deduction items (such as surcharge, URBTIX charge, etc.)

Once the content is confirmed, the report will be sent to the presenter for reference.

(viii) Others

- (a) Till summary of specific terminals and users;
- (b) Exception report of any deviation from normal system operation;
- (c) Ticket sales statistics for each event and performance or a group of events and performances, break down by a specific period of time, by different prices, by different discount rates or by a combination of the above;
- (d) Booking and reservation statistics;
- (e) Monthly revenue collection report by account code or venue;
- (f) Monthly total ticket sales report by account code or venue;
- (g) Yearly revenue collection report;
- (h) Yearly total ticket sales report;
- (i) Ticket report shall allow saving in Adobe PDF format for better viewing and in CSV format for data analysis;
- (j) Monthly web statistic reports on traffic counts and trends such as visit counts, no. of unique visitors, page views count, hit rates count, top 20 pages, top users, most active countries, most used browsers, etc. for the website of the System; and
- (k) Others, to be specified by the Tenderers that will provide useful management and operation information.

4.5.19.3.2.4 The System shall have the function to display some of the reports online and shall have user-friendly reporting facilities for user to develop simple tailor-made reports to cope with ad-hoc requirements. **(E4/337)**

4.5.19.3.2.5 The System shall have the function of automatically generating and sending ticket sales reports of all ongoing events held at respective LCSD venues on daily basis from the night time to 8 a.m. (Hong Kong Time) to designated users' email address of that LCSD venue. Events expired and events not yet on sale shall be excluded. This self-generated ticket sales report shall include the number of tickets sold for each price category and discount type for each part of house of each ongoing performance. The reports generated by the System shall be in the format of CSV or Adobe PDF and shall be printable on A4 paper. **(E4/338)**

4.5.20 **System Integration Service**

4.5.20.1 Application Programming Interface (API) to Interface with Third-parties' Systems

4.5.20.1.1 The Contractor shall provide and develop APIs to enable the System to interface with third-party systems for the purpose of cross ticket selling as well as data exchange and ticketing function integration throughout the Operation Period. **(E4/339)**

4.5.20.1.2 The System shall handle selling of tickets across multiple distribution channels by giving other ticketing systems and online platforms access via the APIs to the System's ticketing inventory in real-time for selling or cross-selling of event ticketing. **(E4/340)**

- 4.5.20.1.3 The interfaces to be developed shall include Web API for the System to interface with third-parties' systems such as CRM system or other event presenter systems for the purpose of data exchange and ticketing function integration. **(E4/341)**
- 4.5.20.1.4 The System shall handle interlinking and collaboration with other presenters' own CRM system for information sharing and exchange with the consideration of adopting different protocol, schema, and API, etc. **(E4/342)**
- 4.5.20.1.5 The APIs shall give third party systems' access to at least, but not be limited to the following information and functions: **(E4/343)**
- (a) API on customer accounts, such as getting account information, etc.
 - (b) API on orders, such as creating a new order, modifying existing order, getting information on order, cancelling the order, closing the order, etc.
 - (c) API on payment, such as handling outstanding payment for the order, paying the order, getting specific information on an order, and confirming payment, etc.
 - (d) API on transaction history – such as getting a list of transactions of a specific event, getting a list of transactions of a specific customer or types of customers, etc.
 - (e) API on event position (e.g. number of seats of event, a list of open positions, and a list of sold position, etc.)
 - (f) API for enquiry of PSI datasets, etc.
- 4.5.20.1.6 The Web APIs shall be developed to allow other authorised parties to utilise it as a channel to interact with the System function. For instance, event presenters can use the API provided by the System to embed in their own CRM system to retrieve specific customer information of their events for use of marketing or promotion activities. **(E4/344)**
- 4.5.20.1.7 The event presenters can also embed the API to their website or mobile app to enquire an event and buy tickets of the event by passing the necessary information such as credit card, UnionPay card and other Electronic Payment Means number, delivery method, email address, etc. to the System for payment processing through the payment gateway. **(E4/345)**
- 4.5.20.1.8 Other use of API may include the sharing of seat inventory information of specified events with event presenters or venues and statistics of events, etc. The use of APIs shall be restricted to authorised event presenters and complies with data access and security policy. The availability of APIs shall be configurable in the System. **(E4/346)**
- 4.5.20.1.9 The Web APIs to be provided shall enable event presenters to have better integration with the System. The Web APIs to be made available shall be identified during the implementation stage. The management and access control of data as well as the right to execute the API shall be included. **(E4/347)**
- 4.5.20.1.10 A loosely-coupled approach shall be adopted which complies with the Interoperability Framework for e-Government (refer to https://www.ogcio.gov.hk/en/infrastructure/e_government/if/interoperability_fram

- ework.htm) when designing APIs in order to minimise the impacts to third-party systems due to changes in the System. **(E4/348)**
- 4.5.20.1.11 The System shall provide transaction log and audit log of core activities which include, but are not limited to the following: **(E4/349)**
- (a) Purchasing directly through other distribution channel - social media applications such as Facebook
 - (b) Data exchange and ticketing function integration with third-party system.
- 4.5.20.2 Support White Label of Event Presenters
- 4.5.20.2.1 The System shall provide white label solution that allows venues and event presenters to customise the required sales and marketing functionality to match their brand and organisational goals. **(E4/350)**
- 4.5.20.2.2 The System shall allow event presenters to customise the required sales and marketing functionality for patrons to view on the website. **(E4/351)**
- 4.5.20.2.3 The System shall allow patrons to view the upcoming events of specific event presenter(s) based on his/her preference. **(E4/352)**
- 4.5.20.2.4 The System shall allow patrons to purchase tickets after selecting the desired performance of the event presenter same as that of the Internet and mobile ticketing. **(E4/353)**
- 4.5.20.3 Interface with Internal Systems
- 4.5.20.3.1 The System shall interface with the LCSD's Revenue Recording System (RRS). Details of data transfer to the RRS are listed at Annex B (the files and records layout will be subject to changes from time to time). In addition to data sent to the RRS, the System is also required to provide bank-in data to RRS for data reconciliation purpose. The bank-in data shall include but not limited to the code of outlet or office, transaction date, amount of revenue in cash collected and bank-in date for all ticket sale transactions by cash made at each counter on each day. **(E4/354)**
- 4.5.20.3.2 The System shall be able to replicate data for use by other LCSD internal systems (such as MIS) for data analysis on regular basis, or statistics analysis on ad-hoc basis. **(E4/355)**
- 4.5.20.3.3 The System shall interface with the LCSD's CRS. Details of data transfer to CRS includes basic event and performance information such as event ID, event name, performance name, performance dates, performance venues, prices, online ticketing URL, etc. **(E4/356)**
- 4.5.20.4 Data Exchange with External Parties
- 4.5.20.4.1 The System shall provide a web-based exchange tool for other parties located in Macau and Guangdong as stipulated by the Government to obtain daily updates of event and performance information of the System. Same set of data in CSV or XML file format shall be put into a central area for Macau and Guangdong official parties to download via Internet. **(E4/357)**

- 4.5.20.4.2 The System shall allow event presenters and other external users to save sales statistical information or event and performance information into CSV or XML file format. **(E4/358)**
- 4.5.20.4.3 The System shall generate daily sales reports of all events in CSV or PDF format and send them to event presenters by email each night. Same set of data shall be copied to the Presenter Portal for presenters to download via Internet. **(E4/359)**
- 4.5.21 **Admission Control Service through the use of ticket scanning devices**
- 4.5.21.1 All services and functions specified in this Section 4.5.21 shall be made available by the Contractor for use by staff at all venues throughout the Operation Period. **(E4/360)**
- 4.5.21.2 To provide convenience for venue management to provide quick admission, checking of physical ticket and e-ticket validity, and also facilitate viewing attendance status of each performance, the Contractor shall provide and operate admission control system using portable QR code readers through itself or sub-contractors, which shall be able to handle admission requirements at venues. **(E4/361)**
- 4.5.21.3 The System shall handle at least 337 portable QR code reader units initially with the capacity to expand up to 400 portable reader units. **(E4/362)**
- 4.5.21.4 The requirements of the admission control system are: **(E4/363)**
- (a) Able to scan the QR code on physical tickets, e-tickets and confirm ticket validity in less than 5 seconds.
 - (b) Each QR code can only be used once to enter and copied tickets are rejected.
 - (c) Provide admission control to other supporting activities (e.g. pre-event talk, post-event parties, etc.) and access to restricted locations (e.g. access to donor lounges, VIP area, etc.) using the same QR code.
 - (d) Data captured from QR code will be used to generate admission, sales, operation and marketing uses such as ingress operations, security, future marketing campaigns as well as data mining.
 - (e) Provide real-time monitoring of admitted patron to enable authorised user to know who is in a venue.
 - (f) Provide views of real-time attendance data on the handheld scanning device, as well as in the access management system for authorised users.
 - (g) Provide views of seat availability in real time, by section or entry point.
 - (h) Provide checking on the status of a single seat and view purchaser details.
 - (i) Provide alerts and disable double entry to the same seat at the door when attempt to register the same QR code for admission.
 - (j) Allow authorised users to view seating issues on the spot.
 - (k) Allow authorised users to put seats available on hold from the scanner, so they will still be available when the patrons reach them.
 - (l) Integrate with the System to automatically generate seat map showing attendance status of the performance.

- (m) Allow generation of reports on statistics of number of seats admitted for individual event with breakdown on performance date, part of house, price zone, ticket type, etc.
 - (n) Allow venue management to download and save the statistics report into CSV file format.
- 4.5.21.5 Portable QR code reader shall be supplied to scan traditional, print-at-home and mobile tickets. The requirements of the portable QR code readers are: **(E4/364)**
 - (a) Able to scan the QR Code on the ticket in less than 2 seconds;
 - (b) Allow bulk ticket scanning;
 - (c) Has built-in indicator for valid and invalid tickets; and
 - (d) Shall be portable, wireless, handy and easy for use at main admission points or anywhere within the respective venue.
- 4.5.21.6 The Contractor shall provide relevant equipment and services for admission with ticket scanning. This includes but is not limited to hardware equipment – handheld scanning devices, turnstiles, network equipment (e.g. wifi router and extender), network implementation services as well as the integration services with the admission equipment. **(E4/365)**
- 4.5.22 **Presenter Portal Services**
- 4.5.22.1 All services and functions specified in this Section 4.5.22 shall be made available by the Contractor for use by event presenters through an online web-based application throughout the Operation Period. **(E4/366)**
- 4.5.22.2 General Requirements
- 4.5.22.2.1 The System shall provide a web-based enquiry sub-system for event presenters to check ticket sale statistics for their events held in the last 12 months and upcoming events. For example, event inventory report in detailed breakdown of every price zone and every part of house, with figures of available seats and ticket issued; ticket sales report with breakdown of different performances and price zone with number of seats blocked, number of issued complimentary, consignment and management seats, number of tickets sold etc. **(E4/367)**
- 4.5.22.2.2 The System shall allow 140 concurrent users to login to the sub-system to make enquiry on sales with time-out setting after a pre-defined limit (say 15-20 minutes), and release idle sessions after a pre-defined limit (say 15 minutes). **(E4/368)**
- 4.5.22.2.3 The System shall provide two-step authentication during login. Presenter can select to opt-in to this additional verification feature. All presenters' users under the presenter shall be forced to use double verification if such feature is enabled for the presenter. **(E4/369)**
- 4.5.22.2.4 The System shall provide real-time ticketing sales information with colour and/or symbol on seat map to distinguish the seat status for the event presenter to monitor sales performance on each sales channel. **(E4/370)**
- 4.5.22.3 E-forms and E-seat Plans

- 4.5.22.3.1 The Contractor shall provide e-forms for event set up and e-seat plans (for every seating configuration of venues in system) for easy completion of event setup form and seating layout plan by event presenters. It can facilitate event presenters in marking price zone, seats blocks, consignment and complimentary tickets and counting the number of tickets for different price zone as well as seat blocks, consignment and complimentary tickets. The fillable e-form and e-seat plan will be sent to AMs of Ticketing Office. **(E4/371)**
- 4.5.22.4 Features for Event Verification
- 4.5.22.4.1 The System shall generate all necessary information in softcopy format and upload them to the Presenter Portal for the event presenters to do the verification online. Information includes mapping of price table showing ticket price, discounted price and package price in a Microsoft Excel worksheet or compatible format and mapping of event information summary showing event name, event description, age limit, event categories, seating arrangement, special remarks, etc., in Adobe PDF or JPG format. **(E4/372)**
- 4.5.23 **Marketing Services**
- 4.5.23.1 All services and functions specified in this Section 4.5.23 shall be available by the Contractor for use by event presenters throughout the Operation Period. **(E4/373)**
- 4.5.23.2 Email Direct Marketing Service
- 4.5.23.2.1 The Contractor shall provide email direct marketing service to event presenters to send out promotional materials and/or special notices to registered members of URBOTIX or their customers on regular and ad-hoc basis. **(E4/374)**
- 4.5.23.2.2 The System shall provide the function of sending out at least 150,000 emails with average size of 100KB to target recipients within 24 hours. The Contractor shall recommend the size of the email for event presenters' reference and the size recommended shall be around 100KB. The Contractor shall provide services for more than one e-marketing campaign in a day and shall propose a mechanism to control email size and to maximise the number of marketing emails or notices to be sent for each marketing campaign. **(E4/375)**
- 4.5.23.2.3 The Contractor shall allow event presenters to determine their own e-marketing campaign criteria by defining the criteria, such as target group of recipients and date(s) of promotion, etc. The selection of target groups of recipients shall be configurable and allow multiple parameters, such as registered members that had bought tickets of a specific event type within a specified period of up to last 12 months or registered members who had bought event tickets of the presenters within a specified period of up to last 12 months or for specified event(s) held in the last 12 months by the presenters etc. The Contractor shall provide quotations to event presenters in respect of the number of recipients matching the event presenters' choice before confirming the service order with event presenters. **(E4/376)**
- 4.5.23.2.4 Event presenters will provide their promotional materials and notices with bilingual text and graphics, such as event contents, newsletters, pamphlets, poster images, thumbnail pictures, enquiry information and corresponding programme hyperlinks to the Contractor for arrangement of e-marketing campaign. Upon receipt of service order from event presenters, the Contractor shall send out emails to target

- recipients on the next working day or on the date(s) specified by the event presenters. The Contractor shall avoid sending duplicated emails to same recipient. **(E4/377)**
- 4.5.23.2.5 The Contractor shall resize, compress and optimise all images and graphic files of the promotional materials in an acceptable quality in order to reduce and/or minimise the size of emails for sending. **(E4/378)**
- 4.5.23.2.6 The Contractor shall send out the promotional materials and notices through emails to the target recipients from the matched registered members based on event presenters' e-marketing campaign criteria and registered members' preferences of receiving e-marketing emails, etc. **(E4/379)**
- 4.5.23.2.7 The Contractor may collect a service fee from the event presenters who patronised Email Direct Marketing Service according to Schedule 23 – Price Schedule of Part V. The Contractor shall issue receipts to event presenters patronising this service showing the exact amount of service charge collected. **(E4/380)**
- 4.5.23.2.8 The Contractor shall manage, operate and maintain the Email Direct Marketing Service. The Contractor shall update the records of the registered members at regular intervals and arrange housekeeping exercise annually or upon request by the LCSD. Any email address with 5 times of send-failure records shall be suspended from future direct email marketing sending. **(E4/381)**
- 4.5.23.2.9 The Contractor shall screen out double-inputs with same email for same category and sub-category of event types. The Contractor shall provide un-subscribe facility for registered members and follow up un-subscribe request from customers in accordance with legal provisions under related Ordinance. The Contractor shall maintain a comprehensive log on email marketing campaign, send-failure notices, successful email sending, un-subscribe requests etc. The log shall be made available for LCSD's inspection upon request. **(E4/382)**
- 4.5.23.2.10 The Contractor shall update on monthly basis the member list with patronisation in the recent 12 months for each event type and sub-category. **(E4/383)**
- 4.5.23.2.11 The Contractor shall not include any advertisement in the emails sent out without obtaining the written approval of the Government. **(E4/384)**
- 4.5.23.2.12 Based on the above requirements, guaranteed Internet access bandwidth shall be provided in supporting the Email Direct Marketing Service when required. **(E4/385)**
- 4.5.23.2.13 The Contractor shall not operate, or allow any third-parties to operate the Email Direct Marketing Service without the written approval of the Government. If the Email Direct Marketing Service is to be provided by a third-party service provider instead of the Contractor itself, Tenderers shall state in Schedule 17 – Sub-Contracts of Part V – Contract Schedules the information related to the sub-contractor. **(E4/386)**
- 4.5.23.3 Customer Relationship Management (CRM) Features
- 4.5.23.3.1 A web-based CRM system or third-party CRM service with user-friendly interface shall be provided for specified users, including Ticketing Office, venue management and event presenters, to perform CRM real-time sales enquiries functions. **(E4/387)**

- 4.5.23.3.2 The System shall provide the unified CRM and integrated database and allow authorised user to access CRM through multiple devices including tablets and smartphones. **(E4/388)**
- 4.5.23.3.3 The System shall provide role-based security to control the access rights of users to ensure venue management and event presenters can only work on data and customer data of their own events. **(E4/389)**
- 4.5.23.3.4 The System shall have CRM functionality that allows clients to collect data regarding each customer registered with the System for the purpose of better informing the customer of upcoming events or marketing information that may be of interest. The data collected about the customer shall adhere to the Data Privacy Ordinance with due consideration on following key principles: **(E4/390)**
- (a) Data Collection Principle – (i.e. Data subjects must be notified of the purpose and the classes of persons to whom the data may be transferred.);
 - (b) Accuracy and Retention Principle – (i.e. ensure personal data is accurate and not kept longer than is necessary to fulfil the purpose for which it is used.);
 - (c) Data Use Principle – (i.e. the data is collected for the stated purpose or for a directly related purpose, unless voluntary and explicit consent with a new purpose is obtained from the data subject.);
 - (d) Data Security Principle – (i.e. steps to safeguard personal data from unauthorised or accidental access, processing, erasure, loss or use.);
 - (e) Openness Principle – (i.e. steps to make personal data policies and practices known to the public regarding the types of personal data it holds and how the data is used.); and
 - (f) Data Access and Correction Principle – (i.e. A data subject must be given access to his/her personal data and allowed to make corrections if it is inaccurate.)
- 4.5.23.3.5 The System shall possess the following CRM capabilities and reporting functions: **(E4/391)**
- (a) Provide user-defined marketing data fields at the customer, contact, and order levels;
 - (b) Allow building customer profiles that provide valuable historical and demographic data;
 - (c) Allow creation of account linkages through linkage types, such as friends, colleagues or family. Customer account can share information with contacts linked to it, and each contact can interact individually;
 - (d) Impede duplicate accounts by warning event presenters that the customer profile they would like to create is similar to the one already created;
 - (e) Allow event presenters to ask their customers strategic questions for marketing purposes;
 - (f) Allow the provision of memberships, benefits, and associated entitlements that a customer can use within the System to allow for special discounts, events, payment methods, or delivery methods;
 - (g) Support loyalty programme based on the actions performed by the patron and offer rewards for online purchase. The System shall provide following

functionalities to encourage customers to continue to shop at or use the services of businesses associated with each loyalty programme.

- Status levels obtained by meeting predetermined goals with automated triggering of entitlements (access to upgrades, discounts, promotions, presales, better seats, etc.)
 - Assigning and distributing point values to patron accounts based on actions performed and then allowing patrons to redeem points and/or earn a status level.
- (h) Provide reporting functions that can be easily accessed through a web-based interface and run with real-time data;
- (i) Allow searching for records by various criteria, such as customer ID, name, postal code, order number, credit card, UnionPay card and other Electronic Payment Means number, gift certificate number, phone number or any user-defined attribute, membership number etc.;
- (j) Allow easy access to a customer's complete history with the event presenter, including contacts, transactions, membership, special offers, solicitations and event attendance;
- (k) Ability to store multiple postal, e-mail and social networking addresses with contact types, and assign specific mail purpose and date ranges to each address;
- (l) Allow creation of customer service issues, searchable by date range, type, contact method, category and origin;
- (m) Allow users to schedule reports to be emailed to a specified address;
- (n) Provide configurable customer record header showing relevant summary information;
- (o) Information requests from customer shall be logged, tracked, and fulfilled and become part of the overall customer history which will be used to target marketing efforts;
- (p) Allow authorised staff to view the customer's records. The information to be retrieved includes, but is not limited to the following:
- patron's account information;
 - membership information;
 - ticketing activities, such as ticket order and purchase history;
 - registered name history;
 - payment and donation history; and
 - event attendance history.
- (q) Allow authorised staff to view customer's communication history records. The information to be retrieved includes, but is not limited to the following:
- communication with event presenters and LCSD; and
 - customer's interest (e.g. type of event tickets, pre and post performance activities attended, etc.).

- 4.5.23.3.6 In order to have sufficient data to project the sales trend, the CRM system shall retain at least 3 years of sales and personal data for data mining and analysis purpose. **(E4/392)**
- 4.5.23.3.7 The System shall provide transaction log and audit log of core CRM activities including, but not limited to the following: **(E4/393)**
- Loyalty programme updates;
 - Communications with customers (such as surveys, service issues) etc.
- 4.5.23.3.8 The System shall have the ability to capture customers' buying habits and behaviour. **(E4/394)**
- 4.5.23.3.9 The System shall provide the following widely used marketing features: **(E4/395)**
- (a) Show advertisement to targeted audiences based on a user's browsing and buying activities on the website.
 - (b) Re-engage customers from past website visits and app usage, typically by email. Examples include email to patron on shopping cart abandonment.
 - (c) Ability to detect the presence of the customer on entrance to designated objects such as venue, through the customer's mobile app. This will facilitate effective communication with customer for marketing purposes.
 - (d) Ability to send message and push notifications to customer's mobile device to let customers know last-minute changes or reminders etc.
 - (e) Analyse data through a custom designed algorithm. Data gathered from a venue is plugged into the algorithm, which in turn creates models that predict future actions by patrons.
- 4.5.23.3.10 The System shall provide functionalities to allow authorised event presenters to perform e-marketing campaign and send e-mail to their target group of customers, manage campaign membership and analyse campaign effectiveness including but not limited to the following: **(E4/396)**
- (a) Create target lists of customers for the campaign
 - The System shall allow users to define the criteria to segment the target lists for each campaign (e.g. previous campaign response history). The System shall allow the lists to be created within the System and attached to a particular email. Upon sending, the lists would be extracted in real time toward up-to-date email blasts. The System shall allow creation of a variety of communication options for their customers regarding how they receive information.
 - The System shall possess campaign management tools for authorised users to create targeted email messages with a rich-text editor that is distributed to specific members of event presenters' customer base such as donors, sponsors, members, customers, potential ticket-buyers, etc. The System shall allow users to:
 - Select email design template
 - Create email content
 - Upload promotional materials such as poster graphic files

- Define the schedule (i.e. date and time) for the mass email sending.
 - The System shall allow event presenters to create multiple types of emails and schedule them to update and send based on various needs such as promotional offers, birthday card etc.
- (b) Execute campaign
- The System shall provide facility to send promotional material to their target customer via email.
 - The System shall have scheduler function that allow delivery of the messages to be scheduled as one time message or recurring monthly, weekly, daily, hourly that the event presenter desires.
 - The System shall allow messages to be delivered in a Hypertext Markup Language (HTML) or text format and contain direct links to performances or bundles that event presenters wish to promote.
- (c) Track campaign response
- The System shall provide facility to facilitate tracking marketing effort effectiveness, such as tracking special event or gala attendance, guests, table seating, giving levels, expenses and invitation lists and report on subsequent purchases as a result of the emailed message.
 - The System shall allow users to design and automate the extraction of complex data lists from the CRM data repository.
 - The System shall provide tools for targeting and analysis based on any criteria, attribute or data point in the System.
 - The System shall provide integrated e-mail deployment options including customisable communication templates and campaign analysis tracking tools and reports.
- (d) Analyse campaign effectiveness
- The System shall enable event presenters to manage donation and sponsor data, track prospects, evaluate campaign success and automatically process donation acknowledgement letters and tax receipts.
 - The System shall provide summary of a customer's donation and ticket buying history, contact information, important notes, and customised marketing data;
 - The System shall keep track of each written or electronic communication sent to donors; and
 - The System shall allow creation of unlimited number of notes, note types, and correspondence records.
- 4.5.23.3.11 The System shall allow authorised user to gain a better insight to understand patron's transactions, and finances from purchases and donations to interests and communications and obtain a 360-degree picture of that person's relationship. The information to be retrieved includes, but is not limited to the following: **(E4/397)**
- (a) Tickets sales;
 - (b) Memberships;

- (c) Donations;
 - (d) All customer's communication history with event presenter and LCSD;
 - (e) Customer's interest based on his/her buying pattern;
 - (f) Website browsing history as well as the customer's key connection such as friends, etc.
- 4.5.23.3.12 The System shall allow authorised users to enquire their real-time sales information by retrieving their sales performance information instantly at any time during the sales period. **(E4/398)**
- 4.5.23.3.13 The System shall log completed or upcoming CRM tasks such as sending reminders to fans for an upcoming event and assign the task to Ticketing Office. **(E4/399)**
- 4.5.23.3.14 The System shall provide transaction log and audit log for enhanced CRM activities which include, but are not limited to the following: **(E4/400)**
- (a) Marketing activities;
 - (b) Campaign activities; and
 - (c) Communications for marketing campaigns, etc.
- 4.5.23.3.15 The System shall be able to provide customisable sale analytic tools regarding membership purchases for event presenters in a web-based interface. **(E4/401)**
- 4.5.23.4 Business Intelligence (BI) and Reporting
- 4.5.23.4.1 The System shall provide business intelligence (BI) and sales analytics tools that can generate various event analysis results and present them in graphical and tabular format through a web-based interface for event presenters to visualise the sale trends, sale comparisons and sale patterns of different events, different festivals, events of different venues and events under different categories etc. at any time during the sales period (with nearly real-time data) and after sales (with historic data) and to enable advanced pricing and revenue analysis. The event presenter could select specific event or combination of events under his/her jurisdiction to view the analysis result. **(E4/402)**
- 4.5.23.4.2 The System shall provide big data analysis on large-scale and various data sets in the System to enable users to make more-informed, data-driven decisions. Data sets include but are not limited to data from website, event webpage, social media pages and data from their previous events. **(E4/403)**
- 4.5.23.4.3 The System shall provide data analytics tools that can generate various event analysis results. The System shall allow information management staff or end users to query sales performance such as: **(E4/404)**
- (a) Event sales across all sales channels;
 - (b) Online and mobile ticket sales;
 - (c) Box office and day of event sales.
- 4.5.23.4.4 The System shall allow Ticketing Office to schedule essential reports to arrive in the in-box of the relevant ticketing management, event presenters and venue management at the required schedule. **(E4/405)**

- 4.5.23.4.5 The System shall allow Ticketing Office, event presenters and venues to view reports and financial data which include but are not limited to the following: **(E4/406)**
- (a) Access to personalised dashboards to obtain the strategic overviews at-a-glance of key data in a compact, easy-to-digest format such as bar chart, line chart and spot trends that need more detailed investigation;
 - (b) Export ticket sale data to various file formats including Microsoft Excel, csv, pdf on demand; and
 - (c) Generate the required reports based on multiple criteria predefined for the reports for analysis.
- 4.5.23.4.6 The System shall provide reports either online or batch mode. The predefined reports include, but are not limited to the following types: **(E4/407)**
- (a) Sale and market trends;
 - (b) Sale comparisons;
 - (c) Sale patterns of different events, different festivals, events of different venues and event under different categories etc.;
 - (d) Real-time sales record;
 - (e) After sales record;
 - (f) Attendant and buyer information;
 - (g) Unique view of customers that is specific to meet particular marketing needs
 - (h) Customer behaviour analysis, etc.; and
 - (i) Provide real-time statistic for consumed, on hold and remaining quota of discount tickets in any event, such as student tickets, senior tickets, etc.
- 4.5.23.4.7 The System shall possess reporting tools that allow authorised users to create customised reports and extract data on specified element in the System, filtered by different criteria. Search across multiple criteria shall be allowed including but not limited to the following: **(E4/408)**
- (a) Event and performance dates;
 - (b) Venues;
 - (c) Event categories;
 - (d) Seat capacity;
 - (e) Number of tickets sold and unsold;
 - (f) Sale amounts;
 - (g) Sales period;
 - (h) Discount types;
 - (i) Sales at different geographical locations or specific outlet or channel; and
 - (j) Sales trend on hourly basis or across multiple years.
- 4.5.23.4.8 The System shall provide reporting tools that can be easily accessed through a web-based interface in Presenter Portal, and allow authorised users to schedule, view online, print, reprint the report or export the results (data or graphics) for further

processing, or send to a designated email address. Scheduled reports can be delivered by the minute, hourly, daily, weekly, or monthly. The reporting tools shall also provide features including but not limited to the following: **(E4/409)**

- (a) Configurable report with user-defined parameters and criteria;
- (b) Save frequently-used analysis reports for easy access;
- (c) Instant creation of a variety of graphs, charts and geographic heat maps, tabular form, summary and matrix type;
- (d) Allow download to client computers; and
- (e) Able to save in formats commonly used (e.g. Comma-separated value (CSV), HTML, Extensible Markup Language (XML), Microsoft Excel, Microsoft Word and Portable Document Format (PDF)) and can be generated repeatedly.

4.5.23.4.9 A separate database server shall be provided for report generation requests to minimise system overload during report generation; and a resilient system shall be provided to increase the reliability of the System. **(E4/410)**

4.5.23.4.10 The System shall provide web-based enquiry tool in the Presenter Portal for event presenters to check ticket sale statistics for their events held in the last 24 months and upcoming events. Information available for enquiry on events shall include but not be limited to the following: **(E4/411)**

- (a) Breakdown of every price zone and every part of house, with available seats and ticket issued;
- (b) Breakdown of different performances and price zone with number of seats blocked;
- (c) Number of issued complimentary tickets;
- (d) Number of issued consignment tickets; and
- (e) Number of tickets sold.

4.5.23.4.11 The System shall provide user-defined user roles which will define what a particular group will have access right including access to performances or bundles, on-sale and off-sale date and time, price types, hold types, etc. Data entry fields available in the System can be turned on or off for a particular user role to preserve date integrity. **(E4/412)**

4.5.23.4.12 The reports under BI shall not contain personal information or reflect the consumer behaviour of individual customer. **(E4/413)**

4.5.23.4.13 The System shall provide the following reporting features: **(E4/414)**

- (a) Sales Analysis Report
 - It shows the event presenter's sales trend for a specified period – monthly, quarterly, yearly or any time frame that is significant for business. It provides support to streamline all sales opportunities by improving sales cycle. This helps event presenters to identify market opportunity, predict sales volume and profit by analysing historical sales data.
- (b) Marketing Analysis Report
 - It helps to discover new marketing opportunities and improve marketing performance. It provides indication of marketing performance based on

various parameters like region and channels. It also focuses on campaign planning and execution, product analysis.

(c) Service Analysis Report

- It provides the insight about customer satisfaction, quality of service and areas of improvement in service. It finds out opportunities to cross sell or up sell event tickets.

(d) Channel Analysis Report

- It helps event presenters to understand customers' behaviour across channels like email, phone call, social media or face to face interaction. This kind of knowledge can be used to interact with customers more effectively and efficiently.
- The analysis may be:
 - Which channel customers used to purchase the ticket?
 - What time did most customers purchase ticket on each channel?

4.5.24 **Miscellaneous Services**

4.5.24.1 Functions to Support Effective Communication

4.5.24.1.1 The System shall provide push or email notifications to let customers know last-minute changes of events. **(E4/415)**

4.5.24.1.2 The System shall provide function to broadcast message to all sales units. **(E4/416)**

4.5.24.2 Other Features

4.5.24.2.1 The System shall assign printers to different workstations (whether at the outlets or at the Ticketing Office) through software control. **(E4/417)**

4.5.24.2.2 The System shall provide data export tools to extract event data in standard format for printing of the LCSD URB TIX Monthly Programme Pamphlet (UMPP). The Contractor shall obtain a printed copy of UMPP from any of the URB TIX outlets or Ticketing Office for their own design of this function. The existing format layout will be subject to changes. **(E4/418)**

4.5.24.2.3 The System shall send emails to ticket buyers before the performance day to remind them to attend the show and to collect their pre-paid tickets from collection points if not yet collected. **(E4/419)**

4.5.24.2.4 The System shall collect Internet and mobile app customers' consent on transfer of their email addresses to event presenters and send the collected email addresses in a safe manner to respective event presenters for e-marketing purpose. **(E4/420)**

4.5.25 **Parallel Run Requirement**

4.5.25.1 The Contractor shall submit a parallel run plan for approval by the Government at least three weeks before the parallel run of the System. **(E4/421)**

4.5.25.2 The parallel run shall be performed at least one month or such longer time as the Government may request. The parallel run shall be performed after the System has become Ready for Use and has been launched into production mode. Under

the parallel run, the Contractor shall launch the System in production mode for performing online ticketing service transactions at the System website for certain events designated by the Government, performing ticketing selling and counter ticketing service at outlets to be designated by the Government and the telephone ticketing service at the telephone call centre for these same designated events. In the course or parallel run, users will repeat their operations done in the existing system in the new System using the new workstations in production environment. Following tasks shall be supported during parallel run period: **(E4/422)**

- (a) Selected outlets' staff will complete a real-life ticket purchase transaction for a designated event using the predecessor system and then input the same counter booking transaction into the System.
- (b) Selected telephone booking staff at the telephone centre will complete a real-life ticket purchase transaction for a designated event using the predecessor system and then inform Contractor's staff to input the same telephone booking transaction into the System.
- (c) Ticketing Office staff will complete ticket purchase transaction via the Internet and mobile ticketing services for a designated event by using both the predecessor system and the System.

4.5.25.3 The System shall generate reports to cross check results with those from the predecessor system and the parallel run is only taken to have been successfully completed if the results match. **(E4/423)**

4.5.26 **System Cutover Requirement**

4.5.26.1 The Contractor shall propose a system cutover plan that requires less service disruption in order to minimise impact on the ticketing operation and services. **(E4/424)**

4.5.26.2 The Contractor shall submit a cutover plan for approval by the Government at least four weeks before the rollout of the System as specified in the Implementation Plan. **(E4/425)**

4.5.26.3 The live cutover from the existing URBTIX to the new System shall be completed with NO service downtime during outlets' operating hours. **(E4/426)**

4.5.26.4 In case of failure in launching the new System, the Contractor shall provide and implement a fallback plan for the live cutover to ensure a smooth and quick changeover from the new System back to the existing URBTIX. **(E4/427)**

4.5.26.5 Around the end of the Contract Period or when the Contract is to be terminated for whatever reason, the Contractor shall co-operate with the Government's next Contractor to ensure smooth migration of the data and services. **(E4/428)**

4.5.27 **Additional Features of the Ticketing System and Operation Services**

4.5.27.1 When considering additional features of the Ticketing System and Operation Services, the proposed solutions shall also address the following concerns: **(E4/429)**

- (a) The capability of technological improvements and new channels in handling the complexity of events on sale through the System efficiently and effectively.
- (b) User friendliness of the technologies for the majority of the public.

- (c) The receptivity of the majority of the public to the automated channels/new features.
- (d) Security of ticket sale transaction effected by credit card, UnionPay card and other Electronic Payment Means.
- (e) Security of network among outlets, Ticketing Office, Information Technology Office and Contractor's office.
- (f) The System shall be designed in such a way that the whole ticketing service will not be affected by a failure or malfunction of a single component, activity, function or ticketing channel.

5. WORKLOAD SPECIFICATIONS

5.1 Tenderers' Responsibilities

5.1.1 Tenderers shall propose hardware, software, cloud services and other facilities for each system environment based on the workload requirements specified in this section. **(E5/1)**

5.1.2 Tenderers shall perform the sizing calculation for the proposed hardware, software, cloud services, network and communication lines for the System, and submit the sizing results in Schedule 21 – Other Information of Part V. **(E5/2)**

5.2 General Description

5.2.1 Tenderers are required to propose a System that can handle the **peak hourly workload and popular performance workload** in the production environment. **(E5/3)**

5.2.2 The System shall be scalable to handle increasing workload and increasing computing resources to cope with sudden surge in transactions during sales of very popular events. The proposed System and the hosting platform service (as defined in Section 1.2.7(b) of this Part shall provide scalable capacity on-demand. **(E5/4)**

5.2.3 The capacity of the Ticketing System and Operation Services including the number of workstations, ticket printers, server, data communication equipment and cables, etc. must be able to cope with a workload of sale transactions of at least 500,000 tickets daily, sale transactions of 200,000 tickets hourly in the peak hour, and be able to handle at least sale transactions for 3,000 events and 12,000 performances at any instance. **(E5/5)**

5.2.4 The System shall handle online update and retrieval of ticket sale transactions for at least 3,000 events and 12,000 performances from about 60 existing venue facilities and over 70 ad hoc venues plus additional future venues, and an inventory of more than 7,000,000 seats. Each event will have 10 standard prices and up to 30 discount types. Tenderers shall propose a System that can easily be expandable to handle higher workload of processing sale transactions than that specified in this section. **(E5/6)**

5.2.5 The bulk of the transaction load is made up of ticket selling, enquiries, ticket selling and collection through self-service ticketing kiosks and POS, Internet, mobile app, telephone bookings and telephone reservation (for wheelchair seats and wheelchair platform only), ticket cancellation and refund, ticket return and exchange, event and performance setup, report generation and system-wide enquiry processes. In the first day ticket sale of very popular events, the peak rates occur in almost all sales channels for 6 hours from 10:00 to 16:00.

5.2.6 On a typical first day of a very popular event, the System shall handle at least 50,000 online ticket sale transactions with 200,000 or more tickets on that day. In a typical year with many very popular events on sale, the System shall handle over 1,000,000 online ticket sale transactions in that year. There are around 10-12 very popular events in a year. The System shall keep all the transaction records and journals of the past 36 months online for instant retrieval and email direct marketing. **(E5/7)**

- 5.2.7 The System shall be able to handle simultaneous operation of 160 online workstations, 120 online ticket printers, 60 report printers and 90 self-service ticketing kiosks. **(E5/8)**
- 5.2.8 The System shall have the capacity to handle not less than 3,000 concurrent sessions for Internet and mobile ticket purchase transactions. The System shall also automatically scale up to 100,000 concurrent sessions within 10 minutes during peak of ticket sale of very popular events and at the same time allocate not less than 1,000 concurrent sessions for other normal events with an advance notice mentioned in Section 5.4.3.4. The number of concurrent sessions to be opened up for the Internet and mobile ticketing service shall be configurable subject to operational conditions. **(E5/9)**
- 5.2.9 The largest number of ticket put on sale for a single event was 800,000 tickets. The largest seating capacity of a marked seat event was 50,000 seats per performance. The system proposed must be able to meet no less than this level of service. **(E5/10)**
- 5.2.10 Report generation shall also be considered in estimation of the system loading so that transaction loading via public sales channel will not impose impact on report generation or vice versa. **(E5/11)**
- 5.2.11 All data created or collected from the System shall be retained and kept in safe place during the whole Contract Period and these data must be able to be retrieved for use when needed. **(E5/12)**
- 5.3 **Hardware Sizing**
- 5.3.1 The System must be demonstrably operational and be able to meet the requirement specified in these Project Specifications. Tenderers are requested to propose a System with a detailed list of the following items in Schedule 3 – Specifications of Part V – Contract Schedules (whether in the form of physical hardware items and/or cloud services): **(E5/13)**
- (a) Main Memory Requirement
 - Operating System RAM
 - DBMS RAM
 - RAM per DBMS user times Number of Concurrent Users
 - Communication Software
 - Tools
 - System Buffer
 - Others
 - (b) Disk Storage Requirement
 - Disk storage for DBMS data and index
 - Operating System software
 - DBMS software
 - Swap space
 - System overhead
 - Cushion

- System and application logs for troubleshooting and tracing of security incidents (at least one year)
- Version control of application and configuration
- Snapshot and necessary disk backup
- Others

(c) CPU Sizing

(d) High Availability

(e) Others

5.4 Ticketing System and Operation Services - Outlets and Equipment

5.4.1 A table showing the location of the existing URB TIX outlets and offices is at Annex A. The following table further provides a distribution of the workstations and some related equipment in those outlets and offices to support the daily operation of URB TIX which are to be supplied by the Contractor throughout the Operation Period.

Location of Outlets or Offices	Minimum No. of Workstations	Minimum No. of Ticket Printers	Minimum No. of Report Printers
<i>(A) URB TIX outlets</i>			
<i>LCSD's outlets and venue users</i>			
Hong Kong Cultural Centre	5	5	1
Hong Kong Coliseum	3	3	1
Ngau Chi Wan Civic Centre	1	1	1
Queen Elizabeth Stadium	2	2	1
Hong Kong City Hall	3	3	1
Sheung Wan Civic Centre	1	1	1
Sai Wan Ho Civic Centre	1	1	1
Ko Shan Theatre	1	1	1
Ko Shan Theatre (New Wing)	1	1	1
Sha Tin Town Hall	2	2	1
Tsuen Wan Town Hall	1	1	1
Tuen Mun Town Hall	1	1	1
Kwai Tsing Theatre	2	2	1
Tai Po Civic Centre	1	1	1
North District Town Hall	1	1	1
Yuen Long Theatre	1	1	1
Hong Kong Space Museum	3	3	1
Hong Kong Film Archive	1	1	1
Yau Ma Tei Theatre	1	1	1
Hong Kong Museum of Art*	3	3	1
Hong Kong Museum of History*	3	3	1
Hong Kong Science Museum*	5	5	2
Hong Kong Heritage Museum*	3	3	1
Hong Kong Museum of Coastal Defence*	1	1	1
Dr Sun Yat-sen Museum*	1	1	1
<i>URB TIX ticketing agent outlets</i>			
Tom Lee Music – Wan Chai Branch	1	1	0
Tom Lee Music – Tsim Sha Tsui Branch	1	1	0

Location of Outlets or Offices	Minimum No. of Workstations	Minimum No. of Ticket Printers	Minimum No. of Report Printers
Parsons Music – Yau Tong Branch	1	1	0
<i>Other outlets at non-LCSD venues</i>			
Hong Kong Arts Centre	2	2	1
HKICC Lee Shau Kee School of Creativity	1	1	1
Youth Square	1	1	1
Tai Kwun	2	2	1
<i>Subtotal</i>	<i>57</i>	<i>57</i>	<i>30</i>
<i>(B) Non-counter offices</i>			
Telephone booking and call centre	15	2	2
Hong Kong Cultural Centre, Enquiry Counter	1	0	0
Ticketing Office – Event Setup and Enquiry Level 9, Administration Building, Hong Kong Cultural Centre	6	0	1
Ticketing Office – Staging Room Level 6, Administration Building, Hong Kong Cultural Centre	6	5	1
Ticketing Office – Consignment Team Level 9, Administration Building, Hong Kong Cultural Centre	5	3	0
Ticketing Office – Event Setup and Enquiry Level 6, Administration Building, Hong Kong Cultural Centre	7	0	1
Information Technology Office – Computer Room and Office	2	1	0
<i>Subtotal</i>	<i>42</i>	<i>11</i>	<i>5</i>
Temporary outlets and offices with locations to be decided from time to time	41	32	15
Total	140	100	50

* Non-existing URB TIX outlets or offices

5.4.2 **Number of Outlets and Additional Outlets**

5.4.2.1

Apart from the ticketing outlets and offices set out in Section 5.4.1 above and Part III of Annex E to this Part, there may be additional outlets with the future opening of new LCSD venues or through LCSD's co-operation with the ticketing agents. Tenderers shall be prepared to provide and install a minimum of 140 workstations with QR code readers and card reading devices, 80 customer-oriented display terminals, 30 display terminals with KVM switch for disabled customers, 100 ticket printers, 50 report printers and 70 self-service ticketing kiosks at the various outlets and/or offices with the location to be confirmed from time to time. Tenderers shall also be prepared at their own costs to further expand the provision to a maximum of 160 workstations with QR code readers and reading devices for electronic payments, 85 customer-oriented display terminals, 120 ticket printers, 60 report printers and 90 self-service ticketing kiosks with reading devices for electronic payments depending on the buying habit of customers and the increase in ticketing channels on top of those specified in Section 5.4.1 above or otherwise upon the request of the Government. Tenderers shall be responsible for the provision and

installation of the equipment with data lines. The above number of terminal equipment shall be just for counter sale at outlets and is not intended for handling the concurrent sessions for Internet and mobile app users. **(E5/14)**

5.4.3 **Number of Concurrent Internet and Mobile App Sessions**

5.4.3.1 A minimum of 3,000 concurrent sessions on the online platform and on the mobile app platform shall be required to be achieved by the System for browsing, enquiry and purchasing transactions on these platforms by default (“concurrent sessions”). **(E5/15)**

5.4.3.2 The number of the Internet and mobile app concurrent sessions shall be expandable any time to more than 100,000 if there is a very popular event on sale. **(E5/16)**

5.4.3.3 The demands for access to the System may vary depending on the type of events on sales. Some events may increase the demands for access substantially. As the demand for number of concurrent sessions may vary depending on events, the System shall allow, within 10 minutes, incremental increase of number of concurrent sessions to handle the varying demands beyond the standard usage of 3,000 concurrent sessions up to the following levels: **(E5/17)**

- (a) 20,000 concurrent sessions;
- (b) 50,000 concurrent sessions; and
- (c) 100,000 concurrent sessions.

5.4.3.4 The Contractor shall ensure the System can handle the great demands for concurrent sessions as specified in Section 5.4.3.3 with 3 working days’ advance notice. **(E5/18)**

5.5 **Data Storage for the Ticketing System and Operation Services**

5.5.1 According to the existing day to day operation, normally, there are about 2,000 active performances kept in URBTIX at the same time. The records of the past performances are usually kept in the System for at least 12 months. The data in relation to past performances may need to be conveniently retrieved as and when required. In the case of having special events such as some festival events, the number of active performances kept in the System would be over 2,500.

5.5.2 There are over 50 existing venue facilities using URBTIX. Some of the large venues would have more than one seating configuration. There may be additional venues and seating configurations in due course, including opening of new venues by the Government or its ticketing agents. The existing venue facilities and their corresponding seating capacity information are listed below:

Venue Facilities	Maximum Seating Capacity	No. of Seating Configuration
Hong Kong Coliseum Arena	12,666	3
Queen Elizabeth Stadium Arena	3,526	5
Space Museum Exhibition Hall	2,400	2
Space Museum Stanley Ho Space Theatre	272	1
Space Museum Lecture Hall	193	1
Hong Kong Cultural Centre Concert Hall	2,027	1
Hong Kong Cultural Centre Grand Theatre	1,762	2
Hong Kong Cultural Centre Studio Theatre	520	4

Venue Facilities	Maximum Seating Capacity	No. of Seating Configuration
Hong Kong City Hall Concert Hall	1,482	1
Hong Kong City Hall Theatre	477	1
Hong Kong City Hall Recital Hall	113	1
Tsuen Wan Town Hall Auditorium	1,466	1
Tsuen Wan Town Hall CA Hall	300	1
Sha Tin Town Hall Auditorium	1,442	1
Sha Tin Town Hall CA Hall	300	1
Tuen Mun Town Hall Auditorium	1,422	1
Tuen Mun Town Hall CA Hall	300	1
Ko Shan Theatre Theatre	1,037	1
Ko Shan Theatre (New Wing) Auditorium	596	1
Yuen Long Theatre Auditorium	923	1
Kwai Tsing Theatre Auditorium	903	1
Kwai Tsing Theatre Black Box Theatre	200	1
Kwai Tsing Theatre Lecture Room	98	1
Tai Po Civic Centre Auditorium	760	2
Tai Po Civic Centre Black Box Theatre	149	1
Youth Square Y-Theatre	643	1
Youth Square Y-Studio	224	1
Sheung Wan Civic Centre Theatre	494	1
Sheung Wan Civic Centre Lecture Hall	152	1
North District Town Hall Auditorium	486	1
Sai Wan Ho Civic Centre Theatre	483	1
Sai Wan Ho Civic Centre CA Hall	110	1
Hong Kong Arts Centre Shouson Theatre	441	1
Hong Kong Arts Centre Louis Koo Cinema	195	1
Hong Kong Arts Centre McAulay Studio	100	1
HKICC Lee Shau Kee School of Creativity Multi-Media Theatre	408	1
Ngau Chi Wan Civic Centre Theatre	356	1
Ngau Chi Wan Civic Centre CA Hall	150	1
Science Museum Lecture Hall	299	1
Hong Kong Film Archive Cinema	139	1
Yau Ma Tei Theatre Theatre	302	1
Tai Kwun JC Cube	203	1
Tai Kwun F Hall Studio	200	1
Total	40,719	55

5.5.3

There are other venues using URBTIX on ad hoc basis with marked seat or free seating configurations. The estimated maximum seating capacity and number of seating configuration are listed below:

Venues	Maximum Seating Capacity	No. of seating Configuration
Marked seats	40 – 100	24
	Over 100 – 200	28
	Over 200 – 500	19
	Over 500 – 1,000	4
	Over 1,000 – 2,000	5
	Over 2,000 – 3,000	1
	Over 3,000 – 40,500	12

Venues	Maximum Seating Capacity	No. of seating Configuration
Free seating	1,000,000	Not applicable
Total	1,110,500	93

5.5.4 **Future Expansion**

- 5.5.4.1 The figures in the above table show the capacity of normal seating configurations only. The actual data storage depends very much on the number of events and number of performances attached to each seating configuration.
- 5.5.4.2 It is estimated that by introducing new channels of ticketing, the total seating capacity required in the fifth year would be up to 10 million with additional venues.
- 5.5.5 To cope with the existing and future expansions on the seating capacity as mentioned above, the System shall provide sufficient disk storage space, including but not limited to the storage requirements for database, document images, data files, staging areas, indexes, archiving logs, temporary table-spaces, audit trails, database replication and resilience. **(E5/19)**
- 5.5.6 The System shall provide sufficient disk storage space to support Redundant Array of Independent Disk (RAID) configuration for all environments. **(E5/20)**
- 5.5.7 The System shall provide sufficient disk storage space for restoration of at least two complete database images for ad-hoc database recovery or diagnosis purposes. **(E5/21)**
- 5.5.8 Data housekeeping shall be performed by the Contractor at least yearly. The retention policy shall be designed by the Contractor and confirmed by the Government according to the requirements of the application system and shall be flexible to cope with the change to retention requirement. **(E5/22)**

6. SYSTEM PERFORMANCE SPECIFICATIONS

6.1 Tenderers' Responsibilities and Contractor's Commitment

- 6.1.1 Tenderers are invited to propose solutions with system performance better than the basic requirement (to the nearest second unless otherwise specified) with elaboration on how to achieve the committed performance in Schedule 12 – Performance Criteria of Part V.
- 6.1.2 The System shall be able to meet the workload specified in these Project Specifications. **(E6/1)**
- 6.1.3 The System shall have the serviceability level of at least 99% for each Given Period. The details are specified in Schedule 13 – Reliability Specifications of Part V. **(E6/2)**
- 6.1.4 Where Tenderers propose system response times better than the system response time specified in this Section 6, Tenderers shall state, in Table 12.1 of Schedule 12 – Performance Criteria of Part V, the committed system response times (to the nearest one tenth of a second unless otherwise specified). In the absence of any proposal, it shall be deemed that the Tenderer will commit to the system response time set out below. **(E6/3)**

6.2 General Requirements

- 6.2.1 All measurement of the system performance of the relevant activities as specified in this section including for the purpose of the relevant System Acceptance Tests shall relate to the System as integrated in the manner required for the production environment. During the System Acceptance Tests of the System, the system performance of the relevant activities as specified in the section will be measured when the Load Test, Reliability Test and User Acceptance Test are conducted. **(E6/4)**
- 6.2.2 The elapsed time, defined in this section shall include the processing time for all the required functions and the delay of all round-trip data transmission on all relevant networks. **(E6/5)**
- 6.2.3 The System shall not exceed the system response time requirements as stated in Section 6.3 of this Part for the peak hourly workload as one of the criteria for passing the System Acceptance Tests and also throughout the Maintenance Period. **(E6/6)**
- 6.2.4 Without prejudice to the generality of the above, at least 95% of the system activities of each of the type as mentioned in Section 6.3.5 of this Part must not exceed the system response time in respect of each Given Period and during the Load Test, Reliability Tests and User Acceptance Tests and also throughout the System Nursing Period and the Maintenance Period. **(E6/7)**

6.3 Performance and Response Time Requirements

- 6.3.1 Unless otherwise expressly permitted in this Section 6, the System shall meet the response time requirements regardless of the workload of the System during the relevant System Acceptance Tests and throughout the Contract Period. **(E6/8)**

- 6.3.2 The response time for a transaction is defined as the total time between an operator completing the entry of an application transaction or enquiry and the completion of the transaction or enquiry with displays and with the workstation ready to accept data for the next transaction or enquiry.
- 6.3.3 The highest number of tickets sold in the first hour of the first sale day was about 36,000. The highest total number of tickets sold recorded in one single day was about 300,000. The System must be able to handle no less than this level of traffic, with the response time as defined in the below sections. **(E6/9)**
- 6.3.4 The System shall be capable of issuing at least 200,000 tickets per hour with no more than 160 workstations, 120 ticket printers, 60 report printers, 90 self-service ticketing kiosks during 3,000 concurrent sessions via the Internet and mobile and has the function to automatically scale up to 100,000 concurrent sessions within 10 minutes or scaled up at predetermined time in anticipation of ticket sale of very popular events. The System shall scale down automatically when the traffic of very popular event reduces. The System shall be easily expandable to cope with future expansion as estimated in Section 5 – Workload Specifications. **(E6/10)**
- 6.3.5 The assumptions with regard to the measurement of response times are that 95% of the activities comprise finding performances, offering seats, buying or reserving seats, and issuing tickets. Complex or multiple transaction commands (for example, report generation, and subscription or series bookings) are excluded in the measurement. Under these conditions, the relevant transaction through the operation of the POS terminal, or through the online platform, or through the mobile app platform, or through the telephone ticketing or enquiry service (unless otherwise specified) must be able to comply with all of the following response time during each Given Period: **(E6/11)**
- (a) a response time of less than 4 seconds for 95% of the transactions of using a ticketing printer at an outlet printing the first paper ticket (or the first of more than one ticket being bought) from the time of pressing the button signifying confirmation of the purchase through a POS workstation at the outlet;
 - (b) a response time of less than 4 seconds for 95% of the transactions of displaying each subsequent page of online booking or enquiry functions using the online platform or mobile app platform;
 - (c) a response time of less than 6 seconds for 95% of the transactions of event search and retrieval on the online platform or mobile app platform;
 - (d) a response time of less than 5 seconds for 95% of the transactions of best available seat calculation and offering;
 - (e) a response time of less than 7 seconds for 95% of the transactions of payment and discount calculation and offering;
 - (f) a response time of less than 4 seconds for 95% of the transactions of switching of functions on the menu bar;
 - (g) a response time of less than 4 seconds for 95% of the transactions of simple online transaction retrieval or updating that requires access to 1 to 3 tables in database;
 - (h) a response time of less than 20 seconds for 95% of the transactions of complex online transaction retrieval or updating that requires access to 4 or more tables in database;

- (i) a response time of less than 10 seconds for 95% of the transactions of simple online report generation (e.g. routine operation report) for terminals at the Ticketing Office and outlets;
- (j) a response time of less than 20 seconds for 95% of the transactions of complex online report generation (e.g. analysis report) for terminals at the Ticketing Office; and
- (k) satisfy the daily workload as specified in Section 5 – Workload Specifications of this Part.

6.3.6 The System shall start the hot-standby server automatically within 5 minutes when the primary server fails to perform. **(E6/12)**

6.3.7 All batch jobs, including scheduled and ad hoc, shall be executed at agreed time slots and completed within agreed time limit specified in the SA&D report. Batch jobs shall be executed with no performance impact to the online services of the System and according to schedule. Such batch jobs include, but are not limited to the following: **(E6/13)**

- (a) Generation of reports;
- (b) Publish events and performance information to the System;
- (c) Data interface between the System and other computer systems;
- (d) Incremental and/or full backup of data; and
- (e) Other system maintenance and housekeeping jobs.

6.3.8 All night batch jobs shall be executed and completed within 9 hours from 10:00pm to 7:00am (Hong Kong Time) every day. **(E6/14)**

7. LOCATION AND SITE SPECIFICATIONS

7.1 Tenderers' Responsibilities

7.1.1 Tenderers shall submit in Schedule 9 – Location and Site Specifications of Part V – Contract Schedules the site environmental requirements for the setup of different environments for the System in the data centres for housing physical items of hardware. **(E7/1)**

7.1.2 Tenderers shall submit in Schedule 9 – Location and Site Specifications of Part V – Contract Schedules the site environmental requirements for the proposed Contractor Supplied Hardware at the Government Locations covering the ticketing outlets, the Ticketing Office and the Information Technology Office as listed in Section 5.4.1 of this Part and Part III of Annex E to this Part. **(E7/2)**

7.1.2.1 Tenderers shall also include other information which is relevant to the site preparation and fitting-out requirements for the proposed equipment. **(E7/3)**

7.2 Location Information

7.2.1 General Requirements

7.2.1.1 The Private Cloud platform provided by the Contractor or its sub-contractor shall be built up with brand new servers, storage, network equipment and software which shall be dedicated for the exclusive use of the provision of the Operation Services throughout the Operation Period. **(E7/4)**

7.2.1.2 The pre-existing Contractor Supplied Public Cloud shall provide the Cloud Services to form part of the System to provide the Operation Services. **(E7/5)**

7.2.1.3 Each cloud platform (regardless of whether it is a Public Cloud or a Private Cloud) shall be located at a physical hosting location which fulfils all security and physical requirements as a Data Centre specified in Section 7.2.2. **(E7/6)**

7.2.1.4 The data centre premises to be provided shall comprise facilities dedicated for the relevant Cloud Platform located at such premises including the secure data centres operated by service provider(s), and provides scalable and flexible computing resources for hosting the System on such Cloud Platform. **(E7/7)**

7.2.1.5 Each Cloud Platform to be made available (including the Private Cloud) shall enable convenient and on-demand network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. **(E7/8)**

7.2.1.6 Each Cloud Platform shall be adequately supported by data centre infrastructure, server, hardware, network resources, software and administration facilities. The Contractor shall provide services supported by external service providers covering services including but not limited to additional security management service for IDPS, WAF, anti-DDOS and VPN, and Threat Detection or Incident Management. **(E7/9)**

7.2.1.7 The Cloud Services to be provided by the Public Cloud and the Private Cloud as a dedicated platform shall support the technical requirements in relation to IT security,

data security (e.g. encryption), data protection (e.g. restricted) data privacy, portability, business continuity capability, service level, system capacity and expansibility, network bandwidth and resilience as set out in this Part. **(E7/10)**

7.2.2 **Data Centre Requirement**

7.2.2.1 The Contractor Supplied Public Cloud shall be located in at least two data centres, and the Contractor Supplied Private Cloud shall be located in at least two data centres for hosting equipment and providing Cloud Services on demand through provisioning (collectively, “Data Centres”). All the Data Centres shall have spare capacity in power, cooling and space to cater for the current and forecasted workload requirements as provided in Section 5 of this Part. **(E7/11)**

7.2.2.2 Critical factors and requirements of each Data Centre shall include at least the following: **(E7/12)**

- (a) The Data Centre of Contractor Supplied Private Cloud shall be located in Hong Kong;
- (b) The Data Centre shall have dual power feeds;
- (c) Primary Data Centre and Secondary Data Centre for the Contractor Supplied Public Cloud and those for the Contractor Supplied Private Cloud shall be located at least two (2) kilometres apart;
- (d) Data circuits can be installed in the Data Centre of Hong Kong by a majority of telecommunication vendors in Hong Kong;
- (e) Redundant power supplies connect to multiple power feeds;
- (f) Cooling and humidity controls to provide continuous environmental controls; and
- (g) Environmental monitoring system shall be in place to provide real time monitoring on temperature and relative humidity.

7.2.2.3 Each Data Centre shall be staffed with an experienced array of Data Centre professionals who provide all Data Centre services, management, monitoring and control on a 24 × 7 × 365 per year basis. **(E7/13)**

7.2.2.4 Each Data Centre for the Contractor Supplied Private Cloud shall comply with the following requirements: **(E7/14)**

- (a) Network
 - Premium Internet access with direct connectivity to Mainland China and Hong Kong Internet Exchange (HKIX)
 - Global IPv6 and IPv4 dual stack network ready
- (b) Fire Protection
 - Two-hour fire rated separate for each data centre zone
 - Independent fire suppression and control systems including:
 - i. VESDA System (Very Early Smoke Detection Apparatus)
 - ii. FM200 Gas Suppression System (Fire not contained by portable extinguisher)
 - Portable fire extinguishers presented at easily accessible locations
- (c) Electrical

- 24 hours basis air conditioning system
- Periodic health-check for UPS system, batteries checkup, diesel and power distribution units.
- Diesel Generator can start operating upon power outage.

(d) Cooling System

- The Cooling system shall avoid Single Point of Failure.
- Temperature: $21^{\circ}\text{C} \pm 3^{\circ}\text{C}$
- Humidity: $50\% \pm 10\%$

(e) Water Detection System

- The Data Centre shall have facility to detect air-conditioning water leakage, condensation, and natural water and ground water leakage.

7.2.3 **Workstations, Ticket Printers, Report Printers and Other Associated Equipment**

7.2.3.1 The terminal equipment for the Ticketing System and Operation Services shall be located at various outlets as specified in Section 5.4 – Ticketing System and Operation Services - Outlets and Equipment of this Part. In addition, the Government may also construct new sites and/or add additional workstations in different locations not exceeding the maximum numbers allowed under Section 5.4.2 – Number of Outlets and Additional Outlets of this Part. The Contractor shall be responsible for the setting up of terminal equipment and dataline for additional or new outlets (including temporary outlets), offices and sites as and when required. **(E7/15)**

7.3 **Site Environment Requirements**

7.3.1 The site environment requirements to be specified by the Tenderer in Schedule 9 of Part V – Contract Schedules for all components of the System regardless of whether located in a Government Location or otherwise shall include but not limited to the following where applicable and to be specified by the Tenderer in Schedule 9 of Part V: **(E7/16)**

7.3.1.1 **Electrical Requirements**

- (a) Specification of mains supply voltage, number of phases and frequency required and the permissible variations that may be tolerated without affecting the reliable performance of the equipment;
- (b) An estimation of the power factor and the total amount of electrical power, single-phase or three-phase, in kilowatt which the Government will be required to provide from the mains supply;
- (c) Particulars of the earthing and/or power monitoring requirements;
- (d) Requirement of stabiliser, voltage conversion, frequency conversion, and/or uninterruptible power supply equipment;
- (e) Specifications and number of power points required;
- (f) For the equipment that are supposed to work in normal office environment, they shall be able to operate reliably under the normal office power supply of AC 200 - 240V with 13 Amp type socket connection; and

- (g) The Contractor shall ensure that all hardware items that require AC power supply shall possess the Declaration of Conformity Certificate for deployment of electrical appliances in Hong Kong and shall be bundled with fused power cords.

7.3.1.2 Ventilation, Cooling and Air Conditioning Requirements

- (a) A statement of filtration requirements of the upper and lower limits of room temperature and humidity and as far as possible the maximum rates of change for the continuing reliable operation of the equipment, and of any relaxation that may be permitted in those limits when the equipment is not in use;
- (b) An estimate of heat dissipation from each piece of equipment and the corresponding air flow arrangements and cooling requirements; and
- (c) A statement of the safeguard to prevent damage to any part of the equipment owing to the failure of the air conditioning, cooling or ventilation plant.

7.3.1.3 Accommodation Requirements (where applicable)

- (a) A rack cabinet layout plan for all equipment;
- (b) The total weight, size and floor loading of the various items of equipment in assembled form and also in dismantled form for delivery and installation;
- (c) Floor areas required to accommodate all equipment in the data centres with detailed breakdown;
- (d) The ceiling height required for various equipment;
- (e) Whether or not the equipment will include motor or generator set and, if so, the space required for them and for any associated control and monitoring equipment; and
- (f) Whether or not the equipment will include electrical storage batteries and the space required for such batteries and for any associated charging equipment.

7.3.1.4 Signal Cable Requirements

- 7.3.1.4.1 A specification of the type, number, length, earthing requirement and connectors at both ends of signal cables shall be provided for the proposed equipment.

7.3.1.5 Uninterruptible Power Supply (UPS) Requirements

- 7.3.1.5.1 The UPS requirements of critical components shall be stated.

8. DATA CONVERSION AND MIGRATION SPECIFICATIONS

8.1 Tenderers' Responsibilities and Contractor's Commitment

8.1.1 Tenderers shall propose in Schedule 3 – Specifications of Part V – Contract Schedules the proposed data conversion and migration approach that satisfies all essential requirements specified in these Project Specifications. **(E8/1)**

8.1.2 Unless they are Custom Programs, Tenderers shall propose in Schedule 1 – Hardware of Part V – Contract Schedules all the hardware items and supplementary hardware accessories and their quantities for the data conversion and migration. The Contractor Supplied Hardware shall comply with all requirements set out in the Overall Specifications including those specified in this section. **(E8/2)**

8.1.3 Tenderers shall propose in Schedule 2 – Software of Part V – Contract Schedules all the software items and their quantities of the software licences required for the data conversion and migration. **(E8/3)**

8.2 Data Conversion and Migration Requirements

8.2.1 The Contractor shall perform all activities associated with the data conversion and system migration, which include at least, but are not limited to: **(E8/4)**

- (a) Formulation of the data conversion approaches and strategies including a data conversion and migration plan for the Government's approval;
- (b) Design of the conversion requirements, training requirements and documentation for the Government to understand the migration processes;
- (c) Construction of the data conversion programs and testing approaches;
- (d) Perform necessary rehearsals;
- (e) Perform data conversion;
- (f) Proof of data integrity after conversion; and
- (g) Roll out to production.

8.2.2 On a typical day, the URBTIX system sells over 400 events, comprising 2,000 performances held at 60 venue facilities with a total capacity of over 100,000 seats and ad hoc performance venues with a total capacity over 1,000,000 seats. Normally, URBTIX holds 12 months of performance records, including past (past event held for 12 months after end of event), current and future performances. On average the System stores 2,000 active performances in the computer. The data including all setup and configuration files such as events setup files, seat templates, ticket templates etc. have to be converted into the new System. The Contractor shall propose a mechanism for the data conversion in the data conversion and migration plan to cater for the data in the URBTIX system. **(E8/5)**

8.2.3 As at November 2019, there are around 1.2 million URBTIX active members registered in the existing system. All active URBTIX member data must be migrated to the new System. After migration, the Contractor shall send out one-off marketing emails to the registered members to introduce new services of the new System. **(E8/6)**

- 8.2.4 On average, the System handles about 1,000,000 transactional sales records each year. Regular data migration and conversion service will also be required for the CRM and BI and Reporting modules of the System. Sales and all other related data have to be converted on a regular basis for use in CRM and BI and Reporting modules. **(E8/7)**
- 8.2.5 The Contractor shall be responsible for the overall planning and coordination of data conversion and migration of data from the existing URBTIX to the new System, as well as to the CRM and BI and Reporting modules of the System. The Contractor shall be responsible for the design and provision of the data conversion services for converting all the data required by the System to fulfil the objectives and requirements as stated in these Project Specifications. **(E8/8)**
- 8.2.6 The Contractor shall be responsible for designing, implementing and conducting database and files conversion to migrate all production data from the existing URBTIX to the new System, as well as to the CRM and BI and Reporting modules of the System. A full rehearsal for migration of all production data shall be conducted prior to the live cutover and programs shall be developed for verification of data integrity. **(E8/9)**
- 8.2.7 The Contractor shall be responsible for carrying out the data conversion and migration services for the System. The Contractor shall also work with other project teams and contractors of the Government to ensure a smooth data conversion and migration exercise. **(E8/10)**
- 8.2.8 The Contractor shall ensure that there is smooth changeover during the data conversion and migration process, and shall plan and implement the data conversion and migration tasks in such a way that there shall be minimal impact to the existing systems and the operation of Government. The Contractor shall provide the detailed data conversion and migration plan for LCSD's approval prior to the commencement of the data conversion and migration. **(E8/11)**
- 8.2.9 As part of the data conversion and migration services to be provided, the Contractor shall be responsible for performing the following activities: **(E8/12)**
- (a) Study, explore and examine the source data and their data structure;
 - (b) Formulate data extraction, conversion and migration plan including proposed approach and strategy;
 - (c) Analyse and define extraction, conversion and migration rules and logic, conduct training and develop documentation for the Government to understand the conversion and migration processes;
 - (d) Develop and configure data conversion and migration programs, including extracting data from the source systems and/or files and perform testing;
 - (e) Formulate the trial conversion and migration plan and perform necessary dress rehearsals;
 - (f) Perform data conversion and migration; and
 - (g) Rollout to production.
- 8.2.10 The Contractor shall ensure the data conversion and migration is 100% accurate and complete, and shall provide tools and assistance to the Government for performing data verification. The Contractor shall also provide free-of-charge

service to rectify any error due to data conversion before proceeding to production rollout. **(E8/13)**

8.2.11 The Contractor shall ensure the data conversion and migration services meeting the security and data privacy requirements of the Government as specified in Section 9 – Data Privacy Specifications and Section 12 – Security Requirements of this Part. **(E8/14)**

8.2.12 The Contractor shall provide detailed data conversion and migration plan, specifications and system rollout specifications for Government’s approval prior to the commencement of the data conversion and migration process. The data conversion and migration plan and specifications shall include at least, but not be limited to, the following information: **(E8/15)**

- (a) List of database and files to be converted and/or migrated;
- (b) Plan, schedule and description of each activity to be performed;
- (c) Conversion rules and logic, mapping between the existing and the new data structure;
- (d) Cut-of arrangement and data-entry in the existing systems;
- (e) Exception case and error handling procedures;
- (f) Deliverables for audit trail and data reconciliation;
- (g) An analysis of the comprehensiveness and limitation of conversion tools to be used;
- (h) Details of the testing for data conversion and migration including dress rehearsals;
- (i) Equipment to be provided by the Contractor;
- (j) Man-power resources to be provided by the Contractor for performing data conversion and migration;
- (k) Resources required from the Government for supporting the conversion and migration;
- (l) Any contingency incorporated; and
- (m) Any other information that the Contractor may consider necessary.

8.2.13 The Contractor shall comply with the following during the conversion and migration process: **(E8/16)**

- (a) Ensure there shall be minimal interruption to the existing production services and computer systems;
- (b) Devise procedures to ensure the integrity and reconciliation of data before and after conversion;
- (c) Make available proof of data integrity and reconciliation after completion of conversion and migration;
- (d) Make available logs and Deliverables for audit trail;
- (e) Ensure there shall be minimum manual intervention by means of comprehensive conversion rule and logic, especially minimise the user effort in re-entering data for new system setup and validating the converted data;

- (f) Devise error handling and exception case handling; and
 - (g) Devise data mapping from the existing data structure to the new data structure.
- 8.2.14 The Contractor shall also address the approach including incremental synchronisation on handling data conversion and migration for incremental change of online and offline data. **(E8/17)**
- 8.2.15 The Contractor shall produce project Deliverables for data conversion, which include, but are not limited to: **(E8/18)**
- (a) Data conversion plan and procedures;
 - (b) Data conversion specification;
 - (c) Database and file specification;
 - (d) System test plan, specification and results;
 - (e) Dumped data files;
 - (f) Rehearsal plan;
 - (g) System fallback and recovery plan;
 - (h) Computer operations procedures; and
 - (i) Any other Deliverables that the Contractor may see fit.
- 8.2.16 In conjunction with the data conversion and migration plan and rollout plan, the Contractor shall provide the corresponding fallback and recovery procedures and a contingency plan if the exercise cannot be completed within the schedule successfully. The Contractor shall provide fallback services for the execution of the fallback plan to ensure a smooth and quick changeover from the new System back to the existing URB TIX. The following points shall be addressed in the fallback plan: **(E8/19)**
- (a) Identify types of problem (with severity level graded) which may lead to partial fallback or total fallback;
 - (b) Devise decision tables to help classify each type of problem;
 - (c) Identify functions for supporting the fallback situation and estimate the effort required; and
 - (d) Identify all tasks, personnel, hardware and software required in different fallback situations and activities.
- 8.2.17 The Contractor shall set up the suitable hardware, equipment, software, agents and tools upon approval by the Government for performing the data conversion and migration at no additional cost to the Government. The Contractor shall ensure that the data conversion hardware, equipment, software, tools and programs are tested thoroughly and perform at least two dress-rehearsal exercises. **(E8/20)**
- 8.2.18 The data conversion and migration process may need to be conducted after office hour if necessary.
- 8.2.19 The Contractor shall perform verification on the converted and migrated data; and submit verification reports to prove the correctness, completeness and compatibility in the System before proceeding to System Acceptance Test and User Acceptance Test, and after completing the data conversion and migration. **(E8/21)**

- 8.2.20 The Contractor shall fine tune the entire data conversion and migration process such that the System Cutover is smooth and could be completed in the timeframe agreed by the Government. **(E8/22)**
- 8.2.21 The Contractor is also required to set up all the existing seating configurations in the new System. **(E8/23)**
- 8.2.22 Around the end of the Contract Period or when the Contract is to be terminated for whatever reason, the Contractor shall co-operate with the Government's next Contractor to ensure smooth migration of the data and services. **(E8/24)**

9. DATA PRIVACY SPECIFICATIONS

9.1 General Requirements

9.1.1 Privacy requirements are specified in the Personal Data (Privacy) Ordinance, Chapter 486 of the Laws of Hong Kong (PDPO), and the Government is subject to its provisions.

9.1.2 Without prejudice the generality of the above privacy requirements, the System shall be designed in a privacy-sensitive manner and privacy enhancing technology shall be used to prevent identity theft and to protect the data privacy of the individual. **(E9/1)**

9.1.3 Tenderers shall provide in Schedule 21 – Other Information of Part V – Contract Schedules detailed description on the privacy provision for the System. Tenderers shall also propose additional services to enhance data privacy for Government’s consideration. **(E9/2)**

9.1.4 All applicable laws and regulations concerning data privacy shall be observed and adhered to by the Contractor throughout the process of implementation of the system and the provision of the System Support and Maintenance Services thereafter. The requirements of the foresaid laws and regulations including the PDPO shall be borne in mind and complied with in the design of the system and performance of the Services. **(E9/3)**

9.2 Data Privacy

9.2.1 The Contractor shall comply with the following data protection principles and measures: **(E9/4)**

- (a) protection of data in the System by means of system access controls that are well-tested and with different levels of authority and audit trails, etc.;
- (b) the collection, storage, use, transmission and disclosure of data shall comply fully with the PDPO and all other applicable laws and regulations; and
- (c) strong enforcement of access controls on sensitive data by encryption of the data, in the System and during transmission across networks. Even if encrypted data are intercepted by an unauthorised person, they will be in the form of a set of meaningless characters and numbers.

9.2.2 The Contractor and Contractor Personnel shall strictly comply with the PDPO and all applicable laws and regulations during and after the Implementation Period and during the Maintenance Period, including but not limited to the following: **(E9/5)**

- (a) the Contractor and Contractor Personnel shall not disclose or use personal data in its possession for a purpose other than that for which the Contractor is assigned to carry out;
- (b) the Contractor and Contractor Personnel shall protect those personal data by complying with the data protection principles of the PDPO and all other applicable laws and regulations; and
- (c) the Contractor and Contractor Personnel shall return all records containing the personal data to the Government when they are no longer required for the purpose for which the Contractor is assigned to carry out.

9.3 Privacy Impact Assessment (PIA)

- 9.3.1 The Contractor shall acquire the services of a trusted independent third party to carry out PIAs at various Stages of the project and provide assistance to the third party contractor in the conduct of these PIAs. The stages shall include: **(E9/6)**
- (a) Before completion of the SA&D stage; and
 - (b) Before production rollout.
- 9.3.2 The Contractor shall assist the Government Representative to conduct the PIAs should the Government wish to appoint its own contractor to conduct the PIAs. **(E9/7)**
- 9.3.3 In conducting the assessment and audit, the independent third party consultant shall make reference to the PDPO and other applicable laws and regulations, prevailing guidelines and recommendations from the Office of the Privacy Commissioner for Personal Data, and prevailing industry and international practices. **(E9/8)**
- 9.3.4 The PIA shall provide information on the privacy implications of the System and comments based on the proposed system and technical design, on whether personal data privacy concerns and issues have been adequately addressed and if not, make recommendations on how these concerns and issues can be addressed. Compliance audit shall be conducted to review the System and to ascertain whether the recommendations made in PIAs are addressed satisfactorily. **(E9/9)**
- 9.3.5 The Contractor shall review their design and planning and make necessary arrangements to cope with the outcome from these PIAs. **(E9/10)**

10. HARDWARE SPECIFICATIONS

10.1 Tenderers' Responsibilities and Contractor's Commitment

- 10.1.1 Tenderers shall propose in Schedule 1 – Hardware of Part V – Contract Schedules all hardware, hardware accessories and cloud services required to be comprised in the System to meet the requirements set out in the Tender Documents. **(E10/1)**
- 10.1.2 Whenever it is so specified, the specifications and quantities of hardware components as specified in this section are the minimum requirements and are subject to review after the Contract award. They are essential requirements which Tenderers shall adhere to when making proposals in the Schedules of Part V – Contract Schedules and in other parts of their tenders. Tenderers shall exercise their own judgment to determine if higher specifications, and/or some other additional specifications, and/or higher quantities are necessary to ensure that the System will comply with all of the essential requirements notwithstanding the minimum requirements set out herein. If so, Tenderers shall propose hardware with higher quantities or higher specifications or some other additional specifications according to their expertise and the detailed sizing calculations based on their proposed solution. **(E10/2)**
- 10.1.3 Tenderers shall propose comprehensive hardware and system configurations for the System in production environment to meet the requirements in this Part. Tenderers shall offer the necessary items of Hardware and Software for setting up the non-production environments. The entire System and all Hardware and Software and the cost of the Implementation Services and System Support and Maintenance shall be provided by the Contractor at its own cost. The Government will not pay any amount in or towards contribution of such cost. The hardware and software for setting up the System in all environments shall be proposed in Schedules 1 and 2 of Part V. All these non-production environments must be retained after the production roll out and may not be redeployed for setting up the production environment. Tenderers shall ensure the proposed hardware and system configurations fully support a sound, flexible, reliable, efficient and scalable solution. Tenderers shall include detailed specifications of the proposed hardware in Table 3.1 of Schedule 3 – Specifications of Part V – Contract Schedules and in other parts of the tender. Information submitted shall be sufficiently detailed to substantiate that the products offered meet or exceed the essential requirements. **(E10/3)**
- 10.1.4 Tenderers' proposed Contractor Supplied Hardware shall adhere to any industry standards which that hardware is required to comply. In addition, where applicable, Tenderers shall describe other standards and the extent of conformance which any of its proposed hardware comply in Table 3.1 of Schedule 3 – Specifications of Part V. **(E10/4)**
- 10.1.5 Tenderers shall propose and explain the overall system architecture in Schedule 4 – Technical Proposal and System Configuration of Part V. Tenderers shall provide sizing calculation in a sizing report to support the proposed capacity of Hardware in Schedule 21 – Other Information of Part V. **(E10/5)**
- 10.1.6 Tenderers' proposed products shall be already available for purchase as off-the-shelf products in the market prior to the Tender Closing Date. They shall be prevailing versions and must not be models or versions which have been de-

supported by the manufacturer as at the Tender Closing Date, or have been announced to be de-supported by the manufacturer and such de-supporting to be effective within 5 years from the Tender Closing Date and the announcement has been made prior to the Tender Closing Date. **(E10/6)**

- 10.1.7 Tenderers' proposed Contractor Supplied Hardware shall not have any embedded expiry dates (i.e. dates by which the hardware is set to cease function automatically). If there is any licence control mechanism adopted in the Contractor Supplied Hardware, such mechanism shall not cause any interruption to the System under all circumstances. Regardless, the Government shall be the absolute beneficial owner of all Contractor Supplied Hardware and the Government will not accept any control over its usage of the Contractor Supplied Hardware under any circumstances whatsoever including due to any lapse of time or the arrival of any expiry date. The Contractor shall be responsible for removing any control which may be triggered under such control mechanism. The Government will not pay any fee for such removal. **(E10/7)**
- 10.1.8 Tenderers' proposed Contractor Supplied Hardware shall support upgrade path(s) that can incrementally enhance the computing resources including but not limited to processing power and storage capacity in the manner mentioned in Section 4.5.13.17.1 of this Part. **(E10/8)**
- 10.1.9 When implementing the System, the Contractor shall adhere to its proposal in the Schedules of Part V – Contract Schedules including Schedule 1 – Hardware of Part V, and all Mandatory Contractor Supplied Hardware and their quantities must be compliant with its proposals in the Schedules, and all essential requirements set out in these Project Specifications including the minimum quantities as specified in Annex E to this Part, subject to any modification as approved or stipulated by the Government in the SA&D stage. However, if any item of Contractor Supplied Hardware proposed by the Contractor in Schedule 1 of Part V – Contract Schedules is non-compliant with any of the Overall Specifications, the Contractor shall still supply such replacement and compliant hardware at its own cost. **(E10/9)**
- 10.1.10 If any other hardware or any extra quantity of hardware already proposed in Schedule 1 of Part V – Contract Schedules is subsequently found to be necessary to ensure the System complies with the Overall Specifications, Reliability Levels and Performance Criteria (regardless of whether the original proposed quantity complies with the minimum requirements set out in this Part), but has not been proposed by the Contractor during the tendering stage, the Contractor shall still supply such other hardware and/or extra quantity at its own cost. **(E10/10)**
- 10.1.11 In addition to the stated features, if considered necessary or appropriate, Tenderers should include optional hardware and features in the proposal that may be applicable to the further Government's overall objective.
- 10.1.12 Tenderers shall be required to submit detailed plan to achieve seamless migration from the existing URBTIX to the new System. **(E10/11)**
- 10.1.13 Tenderers shall provide all required consumables and replacement parts including printer toner or ink, tickets, print head and backup media for all proposed hardware from initial installation to live rollout of the System. **(E10/12)**

- 10.1.14 The Contractor shall provide in the SA&D Report threshold values for various system parameters (including but not limited to CPU, memory, disk I/O, paging and bandwidth usage). If the average utilisation of any system parameters reaches the threshold values in an hour and this incident occurs for 2 consecutive days, it would indicate a bottleneck on the System, and the Contractor shall conduct the capacity planning thereafter to address the root cause of the bottleneck and provide technical solution to rectify the situation. The threshold value for average CPU utilisation shall not be higher than 85%. **(E10/13)**
- 10.1.15 Tenderers should consider proposing components supporting green management including but not limited to the following areas. Tenderers should indicate in Schedule 22 – Desirable Green Features of Part V – Contract Schedules if their proposed hardware items comply with any desirable green features.
- (a) Use energy-efficient devices, such as servers with multi-core chips;
 - (b) Deploy high-density server architecture such as blade server to save power consumption for its facilities sharing feature;
 - (c) Deploy server with build-in power management feature and enable this feature to automatically manage the power on and off schedule;
 - (d) Configure idle servers and storage to hibernate at off-peak times if the feature is available;
 - (e) Deploy disk drives with larger capacity to reduce overall power consumption by reducing the number of disk drives required; and
 - (f) Deploy consolidation of servers, storage and applications to simplify the IT infrastructure to reduce overall power consumption.
- 10.1.16 In relation to the goods that are governed by the Product Eco-responsibility Ordinance (Chapter 603 of the Laws of Hong Kong) (the “regulated electrical equipment”), the Contractor shall provide (i) an appropriate recycling label, issued by the Environmental Protection Department, for each number of the regulated electrical equipment delivered; and (ii) a receipt with prescribed wording about the recycling levies. **(E10/14)**
- 10.2 **Cloud Services Requirements**
- 10.2.1 The Contractor shall provide a solution for the provision of dedicated application and system services for the Cloud Services of the Public Cloud Platform, including but not be limited to: **(E10/15)**
- (a) Protection of the System from DDoS and malware such as Ransomware through cloud services.
 - (b) Instant and scheduled dynamic scalability of web, app and mobile access platform for public access to the System.
 - (c) Data update in the Contractor Supplied Public Cloud from primary to secondary data centres shall be nearly real time.
 - (d) Internet DMZ shall be located in Public Cloud Service data centre for, e.g. download of updated security patches of software, signature and definition files of endpoint protection.

(e) Outgoing email relay service provided by cloud service provider.

10.2.2 The web platform of the System shall be hosted in the Contractor Supplied Public Cloud platform while transactional data and data that involve classified information shall be hosted either in the Contractor Supplied Private Cloud using on-demand provisioning of cloud services with no additional charge to the Government. The infrastructure of the Contractor Supplied Private Cloud shall be provisioned for exclusive use by the Government. **(E10/16)**

10.2.3 The Contractor Supplied Public Cloud Services shall include but not be limited to the following setup measures: **(E10/17)**

- (a) Basic build of the server room comprising the rack, network infrastructure, servers and storage (dedicated if any), backup devices, Operating System (OS), security features, and software configuration of the devices in different environments (e.g. DMZ for production and DR) to make it operational and ready to accept the System.
- (b) Be a secure and reliable 24 x 7 (24 hours a day and 7 days a week) non-stop service.
- (c) Built-in with the resilience that the switch-over operation be performed in an automatic manner and be transparent to the Government.
- (d) Built-in with the business continuity capability and be resided in minimum of two different geographic sites to avoid service outage during disaster situations.
- (e) Provide usage management capability where service usage can be monitored, controlled and/ or reported.
- (f) Provide plans, certifications and audit reports which meet industry standards of security compliance.
- (g) Shall possess at least the following valid security compliance certifications or equivalent by the cloud service provider:
 - ISO/IEC 27001; and
 - ISO/IEC 27017.

10.2.4 The Contractor Supplied Cloud Services to be provided by the Public Cloud and Private Cloud shall include but not be limited to the following implementation and technical measures: **(E10/18)**

- (a) Be designed for business use and be interoperable and compatible with the hardware, software and networking devices provided by the Contractor.
- (b) Comply with the Government Interoperability Framework.
(Detailed description of the Government Interoperability Framework can be found at the Government web site – https://www.ogcio.gov.hk/en/our_work/infrastructure/e_government/if/interoperability_framework.html)
- (c) Built-in with the capability that no user data loss or loss of user data access after service disruption.
- (d) Provide rapid and elastic service provisioning and de-provisioning, such that the service being provisioned or de-provisioned often appear to be unlimited in any quantity at any time.

- (e) Provide virtual private network or firewall to perform logical separation from other tenants.
- (f) Provide dedicated support resources to the Government in relation to the provisioning of the cloud services.
- (g) Provide cloud services including but not limited to Infrastructure as a service (“IaaS”) and Platform as a service (“PaaS”).
- (h) Provide disaster recovery solution to the hosted web and app platform.
- (i) Support the use of Transport Layer Security (TLS) to establish secured sessions with web clients wherever necessary. The System shall be ready for 2048 bit SHA256 e-cert or better.
- (j) Support IPv6 protocol.
- (k) Able to detect failed web server instances and automatically redeploy new instances to replace. The newly deployed instances shall have the same public IP addresses of failed instances.
- (l) Able to route all traffic of web servers to maintenance page server during maintenance period.

10.2.5 Notwithstanding anything herein to the contrary, on request by the Government from time to time during the Operation Period, the Contractor Supplied Cloud Services from each of the Public Cloud and Private Cloud shall include but not be limited to the following additional services at no additional charge to the Government or any other person: **(E10/19)**

- (a) Support the Hong Kong Supplementary Character Set (HKSCS) published by the Government.
- (b) Support the ISO 10646 standard and the HKSCS coded in the ISO 10646 standard.

(Detailed description of ISO 10646 and HKSCS can be found at the Government web site - https://www.ogcio.gov.hk/en/business/tech_promotion/ccli/index.htm)
- (c) Support provisioning of practically scalable storage, network bandwidth, computing power and memory.
- (d) Have high availability, load-balancing, and auto-scaling feature for the cloud services.
- (e) Provide documented procedures, Application Programming Interfaces (APIs) or other electronic means for the Government Representatives to export or extract their corresponding user data any time.
- (f) Have the capability for the Government Representatives to perform the corresponding user data migration, and data destruction upon expiry, completion or termination of the Contract, or requested by the Government.
- (g) Provide regular backup, test on recovery and resilience.
- (h) Provide regular security review activities, e.g. log, privileges, data access, account, etc.
- (i) Provide Internet service monitoring for the following events with alerts triggered.

- The URL is found unavailable; or
- Turnaround time of the URL response is over a pre-defined threshold value.

10.2.6 The Contractor Supplied Public Cloud Services shall include but not be limited to the following technical measures: **(E10/20)**

- (a) Being hosted by a primary data centre in Hong Kong;
- (b) Provide geographic redundancy with data centre located inside or outside Hong Kong.
- (c) Guarantee network connectivity from load balancer to the Internet for the specified workload capacity under normal and peak loading in Section 5 of this Part.
- (d) The Anti-DDoS service shall support network layer, application layer, and various types of hybrid DDoS attacks.
- (e) The Anti-DDoS cleansing process shall be fully automated in attack detection, discovery, response, and defence, without any manual configuration of defence policy by users.
- (f) The Anti-DDoS service shall be in Software as a service (SaaS) model (i.e. cloud-based security service), which does not require any deployment and configuration of hardware devices.
- (g) Provide managed Web Application Firewall (WAF) including security protection consulting, 7x24 monitoring and support, incident responses, and reporting service.
- (h) WAF shall support customisation rules and anti-bot protection.
- (i) WAF shall be able to learn SQL context to prevent SQL injection attacks.

10.2.7 The Contractor shall produce the following performance figures for the regular monitoring of the utilisation in reports: **(E10/21)**

- (a) Visitor count;
- (b) CPU utilisation;
- (c) Memory utilisation;
- (d) Network utilisation; and
- (e) Comprehensive statistics and detailed log files for the load balancer with application firewall shall be available. Regular reports shall be produced based on those statistics, such as:
 - Service activity;
 - Security alerts; and
 - Rule set changes.

10.2.8 The Contractor Supplied Cloud Services from each of the Private Cloud and Public Cloud shall include but not be limited to the following major functions: **(E10/22)**

- (a) The load balancers with web application firewall feature shall meet the following requirements:
 - Regularly updated baseline protection rules

- Configurable alarms (email, HTTP POST, log file) when defined events occur
 - What-if analysis: run new rule sets in “detection” mode alongside existing “protection” rule sets
 - Full configuration auditing and rollback
 - Role separation and delegated authority for multiple application owners
 - Interface for administrator to set up and fine-tune security policies
 - Algorithms that can suggest rules and validation for form parameters based on site traffic
- (b) Act as a web tier for web service and mobile app service.
- (c) Have scaling capability to automatically adjust computing resources based on the volume of user requests.
- (d) Able to configure scheduled tasks to add computing resources in predictable peak periods (e.g. 10:00 a.m. on the first day ticket sale of very popular event).
- (e) Provide token mechanism for congestion control. Only users with tokens can be allowed to enter the core system to enquire information and purchase tickets. The number of tokens shall be configurable.
- (f) Get nearly real-time event, performance and seat availability information from the core system, and make the information available to the general public.
- (g) Provide robust SMTP relay service to deliver email notification to all patrons for communication with features not being identified as spams and being blocked.
- (h) Allow to download software patches and malware signature and definition files update from Internet and accessible by servers in the core system.
- (i) Set up VPN tunnels at the cloud service provided for support staff to access servers of the core system for fire fighting, routine monitoring, support and etc.
- (j) Set up VPN tunnels at the cloud service provided for all outlets and offices to connect to the core system.
- (k) Has the capability to protect the web application from common web exploits that could affect application availability, compromise security, or consume excessive resources.
- (l) The point-to-point ME links or better technology connecting between the primary data centre of the Contractor Supplied Public Cloud services and the Contractor Supplied Private Cloud services shall be able to switch to the secondary data centre of the Contractor Supplied Private Cloud services instantly during service interruption of the primary data centre of the Contractor Supplied Private Cloud services without any service interruption, service degrade and configuration change on the System.
- (m) The Contractor shall provide dedicated outgoing email solution for the email notification to the public. Tenderers may refer to Section 4 – Functional Requirements of this Part for the business requirements and functional specification of the System in relation to e-notification. The solution shall follow the security requirements of Internet mail exchange from OGCIO of the Government, including but not limited to:

- Simple Mail Transfer Protocol over Transport Layer Security (SMTP over TLS) Protocol
- Sender Policy Framework (SPF) Protocol
- Domain Keys Identified Mail (DKIM) Protocol
- Automated delivery control mechanism

(n) General Security Requirements mentioned in Section 12.2 shall be followed.

10.2.9 The Contractor shall provide Internet connections and other essential resources (such as public IP addresses), so that the System running on the Contractor Supplied Public Cloud can be accessed by the general public via the Internet. **(E10/23)**

10.2.10 The Contractor Supplied Private Cloud and Public Cloud shall provide security and service monitoring facilities including but not limited to dashboard and APIs for the Contractor to monitor the overall security and service status of Contractor Supplied Public Cloud. **(E10/24)**

10.2.11 The resources on the Contractor Supplied Public Cloud shall be used in an elastic and flexible manner. **(E10/25)**

10.2.12 The Contractor shall provide relevant certifications or reports (e.g. certifications, business continuity plan, disaster recovery plan, audit reports and test plan as detailed above) which meet industry standards for auditing from the cloud service provider if cloud services provider does not allow clients to directly conduct onsite activities to perform security review, equipment checking and monitoring tasks. **(E10/26)**

10.3 **Hardware Configuration**

10.3.1 The System shall be easily expandable at least 2 times of the original capacity, maintaining full compatibility with the proposed system software and application software, to accommodate the future increase in capacity and to cater for unexpected increase in capacity beyond the requirements of the Workload Specifications. **(E10/27)**

10.3.2 The System shall be expandable without any significant or radical equipment change, to cater for additional functions. **(E10/28)**

10.4 **General Hardware Requirements**

10.4.1 All physical hardware items proposed as the Contractor Supplied Hardware shall be brand new, latest models, as at the original tender closing date, and fully supported in Hong Kong. “End of sale” equipment announced by the manufacturer shall not be used. **(E10/29)**

10.4.2 All supplied hardware shall be bundled with necessary device drivers for the system platform in which it is to be installed, cables, connectors and related accessories. **(E10/30)**

10.4.3 The Contractor Supplied Hardware shall adhere to Government standards of IT security policies and guidelines as specified in Annex D to this Part and industry standards in order to ensure maximum interoperability. **(E10/31)**

- 10.4.4 All servers and network equipment to be supplied shall implement Simple Network Management Protocol (SNMP) management, and be capable of sending alerts to a centralised system and network management system. **(E10/32)**
- 10.4.5 The supplied hardware to be placed in data centre shall be rack-mountable with rack mount kit. **(E10/33)**
- 10.4.6 The Contractor shall provide replacement of hardware throughout the Contract Period when the hardware reaches the vendors' support end date. **(E10/34)**
- 10.4.7 The Contractor shall be responsible for all the necessary cabling for the System. **(E10/35)**
- 10.4.8 The Contractor shall provide enhanced Category-6 or above unshielded twisted pair (UTP) cables or optical fibre cables for horizontal cabling within the same floor. **(E10/36)**
- 10.4.9 All equipment shall be fully supported in Hong Kong. **(E10/37)**
- 10.4.10 The workstation equipment shall not require special handling or environmental treatment from the LCSD for satisfactory operation. Therefore, humidity, temperature, air purity, and power requirements shall not exceed those found in a normal office in Hong Kong. Workstation equipment requiring special environmental handling, or the provisions of power differing from that just described, shall not be proposed. **(E10/38)**
- 10.4.11 The Contractor shall provide all the necessary cables, accessories and connectors to connect all the proposed servers. **(E10/39)**
- 10.4.12 The proposed physical servers shall include the basic Input and Output devices such as DVD-ROM to load and install the associated system software. **(E10/40)**
- 10.5 **Hardware in the Data Centre**
- 10.5.1 The hardware that is used to build up the existing cloud infrastructure in each of the data centres for the Contractor Supplied Public Cloud and the hardware to be installed at each of the data centres for the Contractor Supplied Private Cloud shall comply with the requirements in this Section 10.5. **(E10/41)**
- 10.5.2 **Server Infrastructure**
- 10.5.2.1 A reliable and high-performance virtualised server infrastructure, which shall run on server farms or clusters which are capable of creating multiple virtualised server instances inside, shall be provided. Functions shall be designed and implemented under a multi-tiered architecture (e.g. an application tier for business logic processing, and a database tier for storing of application and system data) with load sharing and dispatch capability among the virtualised server instances of the server farms or clusters. A common pool of resources shall be available for efficient sharing and flexible dynamic allocation to handle the actual workload by using the virtualisation technology. **(E10/42)**
- 10.5.2.2 High density servers with large storage capacity shall be provided with virtualisation features to facilitate multiple virtualised server instances partitioning, which can support high performance, reliability and stability. The proposed

physical servers shall be set up to support local resilience design for hosting various server instances for database, application and other middleware. **(E10/43)**

10.5.2.3 High density server with storage capacity shall be provided for the non-production environments with similar local resilience design to support server components mainly for tiers of database, application and other middleware. **(E10/44)**

10.5.2.4 Necessary quantities of high density servers with storage capacity and high-end grade servers with the following features shall be provided, in order to set up sufficient server instances to be formed within the proposed virtualised server infrastructure: **(E10/45)**

- (a) Built-in redundancy hypervisors across multiple physical servers providing high level of security and reliability to control the provisioning of computing resources to the server instances;
- (b) Hardware redundancy on major server instances, including redundant network interfaces, redundant power supplies and disk level resilience, to provide higher resilience;
- (c) Large growth capability to facilitate capacity upgrade for high scalability; and
- (d) Local resilience of clustering.

10.5.2.5 The virtualised server infrastructure shall host multiple operating systems on the hypervisor as Virtual Machines (VMs). Virtualised server resources shall be able to allocate to any VM instances without any service interruption. **(E10/46)**

10.5.2.6 The virtualised server instances, or VM, shall have the following features: **(E10/47)**

- (a) Each VM shall have its own operating system, and the level or type of the operating system shall be independent of the operating systems running in other VMs;
- (b) Failure of the operating system (OS) and applications inside a VM shall not affect the normal operation of other VMs;
- (c) VMs shall be dynamically created, modified and deleted with no interruption to other existing VMs;
- (d) Power-on and activate, power-off and deactivate, reboot and maintenance of individual VM shall not affect other VMs;
- (e) Other than resource allocation, migration of a VM from one physical server to another can also be achieved by some new mobility feature such as VM mobility function to ease regular maintenance or resource scale-up purpose; and
- (f) Clustering of VM instances shall be achieved by VM clustering over multiple physical servers for maintaining high availability of IT services on hardware level. OS level and application level resilience can be considered for further improvement of application availability.

10.5.2.7 For the virtualised server infrastructure, VMs are required to be created for development and testing of the proposed System. The proposed physical servers shall have sufficient capacity of processor cores, memory, I/O adapters and the capability to create the required number of VMs to meet this requirement. **(E10/48)**

- 10.5.2.8 In addition, high level of security management for the server infrastructure shall be provided because server instances for both production and non-production environments are co-existed. I/O adapters and data access connecting to the production environment shall always be segregated from those connecting to non-production environments, and vice versa. **(E10/49)**
- 10.5.2.9 Each components of database, application, or any necessary middleware shall be hosted in a separate or shared virtualised server instance as a VM with certain amount of computing resources such as CPU and memory being allocated, according to proposed design with consideration of factors including but not limited to the required serviceability level, better performance, ease of maintenance. These resources shall be able to dynamically allocate to any VM without any service interruption through the hypervisor(s). The Contractor shall provide necessary system management solution and consoles to manage the virtualised server infrastructure. **(E10/50)**
- 10.5.2.10 Necessary equipment shall be provided to effectively implement the high availability (HA), local resilience and site resilience requirements, and with applicable load balancing features to distribute the actual transaction workload among cooperating VMs within a server farm or cluster. The proposed local resilience solution shall also cater for the physical server failure scenario, in order to sustain the production service in case one of the physical servers in a local resilience configuration fails. **(E10/51)**
- 10.5.2.11 For some applications and middleware that cannot deliver reliable performance on virtualised environment, the Contractor shall provide dedicated physical servers to install those proposed applications and middleware. **(E10/52)**
- 10.5.2.12 All VMs within the server farm(s) and dedicated servers shall support SNMP and capable of sending alerts to the centralised system and network management system for notifications and centralised monitoring. **(E10/53)**
- 10.5.2.13 The System shall implement latest server virtualisation technology such as VMWare, Hyper-V, Linux KVM etc., in order to provide better portability, expandability and availability to meet fluctuating and unpredictable business demands rapidly. **(E10/54)**
- 10.5.3 **Core Servers**
- 10.5.3.1 Tenderers shall propose one of the following type of server for core servers including but not limited to public web servers, application servers and database servers: **(E10/55)**
- (a) cloud and operate as virtual servers; or
 - (b) physical servers that enable virtualisation operate as virtual servers; or
 - (c) physical servers.
- 10.5.3.2 The server shall enable server virtualisation with different operating systems such as commercial UNIX, Linux or Windows operating system or equivalent that can support large number of concurrent users with high performance and are scalable. **(E10/56)**

- 10.5.3.3 The server shall enable network and system management from a central location using SNMP protocol. **(E10/57)**
- 10.5.3.4 The server shall provide data protection such as disk level resilience. **(E10/58)**
- 10.5.3.5 The server shall integrate with high availability operation. **(E10/59)**
- 10.5.3.6 The server in the Contractor Supplied Private Cloud shall use error checking and correction (ECC) DDR4 memory or better technology. **(E10/60)**
- 10.5.3.7 The server provided in the Contractor Supplied Private Cloud shall have at least four (4) 10 Gigabit ports or better and one (1) Gigabit Ethernet port, such as application, backup, failover, management, etc. Additional ports shall be provided if required. **(E10/61)**
- 10.5.3.8 The server shall implement online system backup without disrupting the normal operation and services. **(E10/62)**
- 10.5.3.9 The server shall provide the configuration of a redundant system with redundant disks, power supplies, fans, etc. to avoid single point of failure. **(E10/63)**
- 10.5.3.10 Console access shall be provided for all the proposed servers. **(E10/64)**
- 10.5.3.11 The proposed servers shall provide server virtualisation solution. **(E10/65)**
- 10.5.3.12 Anti-malware software shall be installed. **(E10/66)**
- 10.5.4 **LAN Servers**
- 10.5.4.1 LAN servers shall be provided for supporting various virtualised servers with particular services including system management, email server, log, anti-malware, etc. **(E10/67)**
- 10.5.4.2 The server shall support commercial server operating system such as Windows or commercial Linux or equivalent. **(E10/68)**
- 10.5.4.3 The server shall enable network and system management from a central location using SNMP protocol. **(E10/69)**
- 10.5.4.4 The server shall provide data protection such as disk level resilience. **(E10/70)**
- 10.5.4.5 The server shall integrate high availability operation. **(E10/71)**
- 10.5.4.6 The server in the Contractor Supplied Private Cloud shall use error checking and correction (ECC) DDR4 memory or better technology. **(E10/72)**
- 10.5.4.7 The server provided in the Contractor Supplied Private Cloud shall have at least four (4) 10 Gigabit ports or better and one (1) Gigabit Ethernet port, such as application, backup, failover, management, etc. Additional ports shall be provided if required. **(E10/73)**
- 10.5.4.8 The server shall implement online system backup without disrupting the normal operation and services. **(E10/74)**

- 10.5.4.9 The server shall provide the configuration of a redundant system with redundant storage, power supplies, fans, etc. to avoid single point of failure. **(E10/75)**
- 10.5.4.10 Console access shall be provided for all the proposed servers. **(E10/76)**
- 10.5.4.11 The proposed servers shall provide server virtualisation solution. **(E10/77)**
- 10.5.4.12 Anti-malware software shall be installed. **(E10/78)**
- 10.5.4.13 The disk array unit of the LAN server in the Contractor Supplied Private Cloud shall be equipped with hardware interface supporting SAS or better technology. The speed of each SAS hard disk of the disk array unit shall be at least 15,000 rpm or better. **(E10/79)**
- 10.5.5 **Storage System**
- 10.5.5.1 Storage system shall be used to provide dedicated storage for storing production database at the data centres. **(E10/80)**
- 10.5.5.2 The storage system in the Contractor Supplied Private Cloud shall be equipped with hardware interface supporting dual SAS, SSD, fibre channel or better technology. The speed of each hard disk of the disk array unit shall be at least 15,000 rpm or better. **(E10/81)**
- 10.5.5.3 The storage system shall provide physical disk level resilience. Sufficient spare disk space shall be provided so that disk maintenance tasks can be performed instantly, e.g. data rebuilding when hard disk failure is detected. **(E10/82)**
- 10.5.5.4 The storage system shall provide hot plugging of failed disk units, power supplies and fans, with replacements without stopping operations. **(E10/83)**
- 10.5.5.5 The storage system shall provide dual components to prevent single point of failure. **(E10/84)**
- 10.5.5.6 The storage system shall provide connections to multiple system units (hosts). **(E10/85)**
- 10.5.5.7 The storage system shall allow available physical storage resources to be reallocated among servers as needed. **(E10/86)**
- 10.5.5.8 The storage system shall carve up storage from the resource pool that can be shared to heterogeneous server environments, including but not limited to Windows and Linux. **(E10/87)**
- 10.5.5.9 The storage system shall have all classified data stored in data centres of the Contractor Supplied Private Cloud resided in Hong Kong. **(E10/88)**
- 10.5.5.10 The Contractor shall implement data encryption, to be performed at equipment level, to store the data for the System, which involves classified information. The encryption, decryption and key protection standard shall fully comply with the security policies, standards and guidelines of the Government. **(E10/89)**
- 10.5.5.11 The Contractor shall provide backup and restoration solution for encryption key. **(E10/90)**

10.5.6 **Hardware Security Module (HSM) and Key Management System (KMS)**

10.5.6.1 Hardware security module and key management system with sufficient software licenses for data encryption agents for running on virtual machines on the Contractor Supplied Public Cloud shall be provided for management of encryption keys. **(E10/91)**

10.5.6.2 The hardware security module to be provided by the Contractor shall support Bring-Your-Own-Encryption (BYOE) and Bring-Your-Own-Key (BYOK) for the encryption of data on the Contractor Supplied Public Cloud and for management of the encryption function and shall fulfil the following requirements: **(E10/92)**

(a) General

- Be network-attached devices;
- Comply with industrial requirements for cryptographic modules, including but not limited to NIST Federal Information processing Standards (FIPS) 140-2 Level 3 or above certified, or equivalent;
- Provide detailed audit logs for all cryptographic activities, configuration change, as well as for all unauthorised access and tamper to the system, such that audit trails of key state changes and user access could be provided;
- Support APIs, and command lines or web-based GUI for management of encryption keys and general policy management;
- Support remote access for administration and management;
- Be equipped with facilities for protection against tamper such as tamper-resistant/responsive enclosure to protect against unauthorised physical access to the system; and
- Erase all the keys contained in the HSM immediately and automatically when HSM detects tampering attempts.

(b) Cryptographic Operations

- Support asymmetric encryption algorithms including but not limited to at least RSA 2048 bits;
- Support symmetric encryption algorithms including but not limited to at least AES 256 bits;
- Support hashing algorithms including but not limited to SHA-2 or above with at least 256 bits for message digest;
- Support asymmetric algorithm for digital signing, digital signature verification, digital key wrapping and digital key unwrapping, including but not limited to at least RSA 2048 bits;
- Support true random number generation, which has been assessed to ensure the numbers generated are sufficient unpredictable; and
- Prohibit exporting clear-text keys stored in the HSM.

(c) Key Management

- Provide central management of all the encryption keys;
- Provide key management of cryptographically-enabled applications compliant with the Key Management Interoperability Protocol (KMIP)

standard of the Organisation for the Advancement of Structured Information Standards (OASIS);

- Support all the activities of the cryptographic key lifecycle management, including but not limited to key generation, key storage, key renovation, key backup, key rotation, key destruction; and
- Be able to store, securely 1,000 or more different keys in the System.

(d) Resilience and High Availability

- Have sufficient site resilience such that failure of HSM or KMS of a single site shall cause no service interruption, the service shall be taken over by HSM & KMS of another site automatically.

(e) Identity and Access Management

- Support identity-based authentication for access control according to the user roles with audit trails recorded; and
- Support multi-tenancy such that the key information stored in HSM and KMS for each tenant are isolated and each tenant can only manage and access own keys.

(f) Data Encryption Agent

- General
 - Use keys with hardware security module and key management system specified in this clause as the root of trust;
 - Support generation of detailed logs for record;
- File Encryption
 - Support at least AES 256 bits or its equivalent for symmetric encryption key length;
 - Support encryption of files, including but not limited to database files and log files hosted in the private cloud and public cloud;
 - Support access control on encrypted files such that unauthorised users (including operating system administrators), groups, processes and applications cannot access encrypted files, and authorised users, groups, processes and applications can access the files and the decryption shall be transparent to the users and applications;
 - Support “Default Deny All” policy for the access control on encrypted files; and
 - Support the key rotation for the encrypted files such that the authorised users and applications can decrypt and access the files after the change of the keys.
- Tokenisation
 - Support format preservation encryption (FPE), that is, encryption in the way that the output (ciphertext) is of the same length and in the same format as the input (plaintext), such that application data can be encrypted without changing the existing applications;

- Support vault-based or vaultless tokenisation such that a sensitive data element can be submitted with a non-sensitive token that has no extrinsic or exploitable meaning or value;
- Support partial tokenisation of data, i.e. only tokenise a part of data element; and
- Provide APIs for tokenisation.

10.5.6.3 The hardware security module shall be hosted in a secure and private data centre. **(E10/93)**

10.5.6.4 The hardware security module shall protect the cryptographic keys that support integration with the same or distinct sub-nets and share between different networks. **(E10/94)**

10.5.6.5 The hardware security module shall provide centralise management of cryptographic keys from generation, distribution, rotation, storage, termination and archival. **(E10/95)**

10.5.7 **Backup Device**

10.5.7.1 If tape backup device is proposed for backup, the following features shall be provided: **(E10/96)**

- (a) Shall have tape library, LTO drive or better technology, and be compatible with the application proposed;
- (b) Shall have SCSI or SAS for direct-attach environments and fibre channel for SAN integration or other better technology;
- (c) Shall support LTO8 technology or better; and
- (d) If a tape cartridge autoloader is proposed, it shall have hardware data compression capability in handling classified information and provide auto loading controlled by tape/ system management software and can house sufficient number of tapes for daily backup.

10.5.7.2 The backup device shall provide data encryption and exportation of encryption key in handling classified information. **(E10/97)**

10.5.7.3 Data encryption shall be able to be deployed in the backup solution and the tape backup device. **(E10/98)**

10.5.7.4 Tenderers shall propose the same backup or better facilities for the resilience and DR site servers. **(E10/99)**

10.5.8 **Cabinets, Keyboard-Video-Mouse (KVM) Switches, Cables and Accessories**

10.5.8.1 The cabinets shall accommodate the proposed servers, KVM switches, cables, accessories and other related hardware items described herein. **(E10/100)**

10.5.8.2 The cabinet shall provide at least dual power bars. Each power bar shall have adequate sockets for supporting the equipment housed in the cabinet. **(E10/101)**

10.5.8.3 The cabinet shall have low-noise fans to provide sufficient ventilation. **(E10/102)**

- 10.5.8.4 Secure lock(s) shall be provided to lock the cabinet to prevent it from tampering. **(E10/103)**
- 10.6 **Hardware in Outlets**
- 10.6.1 **Client Workstations to be set up at each of the locations as listed in Section 5.4.1 of this Part**
- 10.6.1.1 All workstations shall be either PC-based; i.e. PCs with appropriate software and hardware or thin clients of Virtual Desktop Infrastructure. **(E10/104)**
- 10.6.1.2 All workstations shall be equipped with operating system. **(E10/105)** Traditional Chinese MS Windows based platform or equivalent is preferred.
- 10.6.1.3 Tenderers who propose other operating system shall ensure that the security and/or software patches shall be free of charge and supported by the original manufacturer throughout the entire Contract Period. **(E10/106)**
- 10.6.1.4 All PC-based workstations shall possess the following features unless explicitly specified. **(E10/107)**
- (a) Energy-efficient multi-core CPU with at least Core™ i5-4570 Processor;
 - (b) A 19" or larger TFT LCD display with screen resolution of 1440 x900 pixels or better;
 - (c) At least 8 GB Random Access Memory (RAM) and support expansion to 32 GB RAM;
 - (d) At least two 512GB SSD hard disk or better and support disk mirroring;
 - (e) A DVD-ROM or better drive;
 - (f) Dimension: compact in size with dimension no larger than 38cm (H) x 18 cm (W) x 45 cm (D) and able to be placed inside the outlet's furniture;
 - (g) At least 4 USB 3.0 ports and 2 of them are in the front panel of the PC workstation;
 - (h) Bundle with security lock for preventing the LCD display from unauthorised removal;
 - (i) The proposed operating system shall possess multi-lingual display ability for at least Traditional Chinese, Simplified Chinese and English characters;
 - (j) Programmable function keys and numeric key pad;
 - (k) Chinese input methods specified below, or their latest published versions;
 - Changjie 倉頡
 - Quick 速成
 - Cantonese 廣東拼音
 - Hanyu Pinyin 漢語拼音
 - (l) Audio prompt with sound volume control;
 - (m) Built-in audio support;

- (n) Keyboard with a built-in card reader and appropriate devices to integrate with point of sale application to facilitate payment processing with credit cards, UnionPay card and other Electronic Payment Means;
- (o) Hardware components for payment shall be minimised as far as possible by adoption of multi-purpose devices;
- (p) Heavy-duty optical mouse or pointing device with scrolling function with movement resolution at 1,200 dpi or better;
- (q) Ethernet network card;
- (r) Handwriting device; and
- (s) Support attachment of a printer to print the required sales reports.

10.6.1.5 If virtual desktop infrastructure is employed, the Tenderer shall demonstrate that: **(E10/108)**

- (a) The support of functionality of the peripherals stated in the Section 10.6.1.4;
- (b) The processing power is not lower than the requirement of the Section 10.6.1.4;
- (c) Compatible with all the hardware and software of the System;
- (d) A 21” or larger TFT LCD display or better;
- (e) Dimension: compact in size with dimension no larger than 38cm (H) x 18 cm (W) x 45 cm (D) and able to be placed inside the outlet’s furniture;
- (f) At least 4 USB ports;
- (g) Bundle with security lock for preventing the LCD display from unauthorised removal;
- (h) The proposed operating system shall possess multi-lingual display ability for at least Traditional Chinese, Simplified Chinese and English characters;
- (i) Programmable function keys and numeric key pad;
- (j) All Chinese input methods specified in Section 10.6.1.4 (k), or their latest published versions;
- (k) Audio prompt with sound volume control;
- (l) Built-in audio support;
- (m) Heavy-duty optical mouse or pointing device with scrolling function with movement resolution at 1200 dpi or better; and
- (n) Network card.

10.6.2 **Ticket Printers**

10.6.2.1 Tenderers shall propose ticket printers that will be connected to the client workstations specified in Section 10.6.1 with the following features: **(E10/109)**

- (a) Support thermal printing;
- (b) Support at least 10” per second print rate;
- (c) Support ticket with width 2” – 4” or wider;
- (d) Support various ticket length;
- (e) Support auto-ticket cutting;

- (f) Support alphanumeric, barcodes, QR codes, graphics and custom fonts;
- (g) Support Wi-fi, Bluetooth and usb cable connections;
- (h) Support 220 VAC 50 Hz power supply.

10.6.3 **Report Printers**

10.6.3.1 Tenderers shall propose report printers with the following minimum configurations: **(E10/110)**

- (a) Network Laser printer
- (b) 700 MHz Processor
- (c) 256MB RAM or above
- (d) 52ppm or above (A4 size)
- (e) 1200dpi or above
- (f) Ethernet network

10.6.4 **Ticket Scanners**

10.6.4.1 Tenderers shall propose portable ticket scanner software and device for use of admission control by the venue management. The scanner shall provide the following capability to: **(E10/111)**

- (a) Read QR Code and/or 1D Barcode for entry.
- (b) Validate the ticket from server.
- (c) Manual ticket number entry function for defaced tickets.
- (d) Switching between Entry and Exit scan modes.
- (e) Scanning at the rates of no less than 100 scans per second for 1D barcode and 60 frames per second for 2D barcode.
- (f) Able to provide total admission count.
- (g) Ticket look-up function to provide additional ticket information if required such as purchaser information, previous scan time, etc.
- (h) The scanner can work on-line or off-line mode.
- (i) Support Wi-fi, Bluetooth, 4G LTE or above for Internet connection at the gate.
- (j) Store admission information (e.g. entry time) and transfer data to server for further analysis such as security control and marketing campaigns etc.

10.7 **Network Requirements**

10.7.1 **Network Architecture and Protocol**

10.7.1.1 Any local area network system in the proposal must be based on Ethernet over UTP cable. **(E10/112)**

10.7.1.2 1/10Gbps Base connections shall at least be provided for local area network for core systems. 10/100 Base-T connections shall at least be provided for the local area network in ticketing outlets. **(E10/113)**

- 10.7.1.3 All network equipment shall support IPv6 protocol. **(E10/114)**
- 10.7.1.4 The proposed network infrastructure shall possess high availability design features to guard against any single point of failure in all critical components in the System and all outlets, which at least include: **(E10/115)**
- (a) Firewalls;
 - (b) Load Balancers;
 - (c) Internet Routers and Switches;
 - (d) Network Intrusion Detection and Prevention Systems;
 - (e) Host-based Intrusion Detection and Prevention Systems;
 - (f) Web Application Firewalls;
 - (g) Anti-bot Appliance and/or Services;
 - (h) Core Routing and Switching Equipment;
 - (i) Edge Routers at outlets;
 - (j) Network Equipment for outlets and admission control; and
 - (k) Communication Lines.
- 10.7.1.5 The proposed network equipment and core data circuits shall possess resilience features. **(E10/116)**
- 10.7.1.6 Tenderers shall provide bandwidth estimation on WAN and LAN utilisation which is in line with the proposed network devices. **(E10/117)**
- 10.7.1.7 The proposed devices and solutions shall conform to TCP/IP suit or equivalent standard to ensure that any expansion of the existing network infrastructure will not be affected by the implementation of the System. **(E10/118)**
- 10.7.1.8 The System shall be backed up by an open network architecture which has been commonly adopted in the IT industry. **(E10/119)**
- 10.7.1.9 The proposed server(s) shall serve as the host(s) for supporting a network of local and remote workstation equipment and other devices. **(E10/120)**
- 10.7.1.10 All cabling work shall follow international recognised standards such as Electronic Industries Alliance (EIA) structured cabling standards. **(E10/121)**
- 10.7.1.11 Tenderers shall include a network diagram indicating the number and type of equipment, circuits and interfaces, etc. **(E10/122)**
- 10.7.1.12 The proposed network infrastructure shall enable the connection and integration of all the LCSD's internal systems specified in these Project Specifications. **(E10/123)**
- 10.7.1.13 The proposed network infrastructure shall provide proper security access control that is enforced to deny unauthorised access to and from other internal and external systems. **(E10/124)**
- 10.7.1.14 Key components, including but not limited to all network equipment in the Data Centre, in the proposed network infrastructure shall have full resilience with no

- single point of failure and leave enough network capacity to cater for future expansion. **(E10/125)**
- 10.7.1.15 The proposed network design and technology shall provide flexible bandwidth adjustment and high scalability of the Wide Area Network (WAN), which can be expanded up to two times of the proposed bandwidth specified in Schedule 3 – Specifications of Part V. **(E10/126)**
- 10.7.1.16 The proposed network design and technology for WAN service shall secure all data communication by preventing unauthorised access to the source. **(E10/127)**
- 10.7.1.17 The Contractor shall implement real time fault alert mechanism for proactive network management. **(E10/128)**
- 10.7.1.18 The proposed network infrastructure shall provide sufficient capacity to support the workloads of the System specified in Section 5 – Workload Specifications of this Part. **(E10/129)**
- 10.7.1.19 Communication between the proposed servers and remote equipment and devices shall be at a suitable speed and satisfy the requirement of the System. **(E10/130)**
- 10.7.1.20 The proposed network shall have backup data communication circuits between the various remote sites. **(E10/131)**
- 10.7.1.21 The System shall have security system and measures to block attacks from hackers from the Internet. **(E10/132)**
- 10.7.1.22 Network and system resilience shall be provided in the proposed infrastructure. For any single network devices failure, the network traffic will be rerouted to another path automatically. **(E10/133)**
- 10.7.1.23 The communication protocol shall be fully supported by the manufacturer of the equipment, and must conform to TCP/IP network protocol suite. **(E10/134)**
- 10.7.1.24 The proposed WAN service shall have availability not less than 99.95%. **(E10/135)**
- 10.7.2 **Firewalls**
- 10.7.2.1 The Contractor shall provide necessary firewalls to protect the System network from being attacked by unauthorised Internet access. Equivalent or stronger protection shall be installed for the proposed system to prevent unauthorised access. **(E10/136)**
- 10.7.2.2 The proposed firewalls shall provide high availability features for resilience without service down time to guard against single point of failure. **(E10/137)**
- 10.7.2.3 The proposed firewalls shall be physically secured and be flexible for future growth and adapt to changes of security requirements. **(E10/138)**
- 10.7.2.4 The proposed firewalls shall be properly configured for IP level filtering. **(E10/139)**
- 10.7.2.5 The proposed firewalls shall provide real-time alerts to be set up for emergency incidents. **(E10/140)**

- 10.7.2.6 The proposed firewalls shall support simultaneous Virtual Private Network (VPN) feature and tunnel for encryption and decryption of traffic with necessary throughput and high performance. **(E10/141)**
- 10.7.2.7 The proposed firewalls for Internet connection shall be configured with VPN features supporting at least two-factor authentication to ensure that all remote accesses outside the proposed network are securely encrypted. **(E10/142)**
- 10.7.2.8 The proposed firewalls shall provide network address translation (NAT) feature. **(E10/143)**
- 10.7.2.9 The proposed firewalls shall provide Virtual Local Area Network (VLAN) trunking. **(E10/144)**
- 10.7.2.10 The proposed firewalls shall provide load sharing feature. **(E10/145)**
- 10.7.2.11 The proposed firewalls shall have ability to cope up with any vulnerability by revising and upgrading with patches and bug fixes without additional cost. **(E10/146)**
- 10.7.2.12 The proposed firewalls shall detect common network attacks, recognise and verify application level content, perform protocol anomaly detection, prevent against DoS and DDoS attacks. **(E10/147)**
- 10.7.2.13 The proposed firewalls shall handle high volume of concurrent TCP sessions to defense against DoS and DDoS attacks. **(E10/148)**
- 10.7.2.14 The access to the proposed networks shall be authenticated by the firewall and formed a client-to-site VPN tunnels. The VPN shall support at least 256 bits AES encryptions and SHA-2 or AES-256 authentications algorithm. The VPN shall support IPSec NAT traversal. **(E10/149)**
- 10.7.2.15 The proposed firewalls shall provide 100/1000Base-T UTP Ports. **(E10/150)**
- 10.7.2.16 The proposed firewalls shall provide Stateful inspection, IPSec VPN, content inspection, attacks prevention and detection. **(E10/151)**
- 10.7.2.17 The proposed firewalls shall provide SNMP and alert notifications. **(E10/152)**
- 10.7.2.18 The proposed firewalls shall provide log analysis and reporting features. **(E10/153)**
- 10.7.2.19 The proposed firewall solution shall have at least two-tier firewall architecture. In this architecture, an external firewall and an internal firewall shall be used. The external firewall protects a De-Militarised Zone (DMZ). **(E10/154)**
- 10.7.2.20 DMZ is a network added between a protected internal network and an external network, and there is a firewall protecting the internal network. The proposed internal and external firewalls shall be from different manufacturers so that the firewalls will not have the same vulnerability. **(E10/155)**
- 10.7.2.21 The proposed firewall solution shall operate in active-active mode for load sharing and better utilisation. **(E10/156)**

10.7.2.22 Both proposed internal and external firewalls shall be run as independent platform to connect with separate network equipment, either Internet routers or internal core routing equipment. **(E10/157)**

10.7.3 **Load Balancers**

10.7.3.1 Tenderers shall propose global load balancers with NAT service to cloud hosting platform which accelerate web application performance and achieve optimal resource utilisation. The proposed hardware shall have at least the following essential features: **(E10/158)**

- (a) Provide high availability and scalability to web applications;
- (b) Support SSL acceleration;
- (c) Support centralised management;
- (d) Control the number of concurrent connections;
- (e) Support displaying a predefined web page if the concurrent connections exceed the pre-assigned value;
- (f) Support health monitoring for backend resources;
- (g) Support IP routing (Layer 3) capabilities;
- (h) Provide ability to defense against DoS and DDoS;
- (i) Provide dynamic distribution of traffic based on the workload of servers; and
- (j) Provide global load balancers for access to website of the System.

10.7.3.2 Tenderers shall propose components to control the number of Internet traffic to access the System and to display busy page messages for users who cannot access to the System. **(E10/159)**

10.7.4 **Web Servers**

10.7.4.1 Web server shall be confined within a DMZ which is a special network segment containing servers with access to ticketing services. Separate web servers shall be provided for Internet access services and internal backend services. **(E10/160)**

10.7.4.2 Web servers shall be installed with Host-based Intrusion Detection and Prevention System (IDPS) to monitor and block suspicious activities and unauthorised creation, deletion and modification of files. Alerts and reports from the Host-based IDPS shall be actively reviewed to identify security attacks. **(E10/161)**

10.7.5 **Management Servers**

10.7.5.1 The proposed management servers shall have the following functions and features: **(E10/162)**

- (a) Protect all servers and workstations against malware intrusion;
- (b) Update automatically to the latest definitions regularly;
- (c) Provide centralise the update source of patches and malware definition;
- (d) Provide centralised log management, monitoring and patch management;
- (e) Act as DHCP server, DNS server, NTP server;

- (f) Provide centralised management console to monitor the status and update of malware signature and definition files, and provide centralised patch installation to servers and workstations;
- (g) Alert operator once malware attack is detected; and
- (h) Provide antispysware protection.

10.7.6 **Internet Routers and Switches**

- 10.7.6.1 The proposed network device shall provide packet filtering to provide network based access control. **(E10/163)**
- 10.7.6.2 The proposed network device shall provide 10 Gigabit Ethernet technologies. **(E10/164)**
- 10.7.6.3 The proposed network device shall possess high availability features for resilience. **(E10/165)**
- 10.7.6.4 The proposed solution shall equip with high performance modular routers which support various types of module LAN/WAN interfaces. **(E10/166)**
- 10.7.6.5 The proposed routers shall provide IP routing protocols including, but not limited to, static route, OSPFv2 and BGPv4. **(E10/167)**
- 10.7.6.6 The proposed routers shall provide sufficient memory resources to learn for full Internet routes. **(E10/168)**
- 10.7.6.7 The proposed cloud network devices shall provide scaling capability on demand. **(E10/169)**

10.7.7 **Intrusion Detection and Prevention Systems (IDPS)**

- 10.7.7.1 The proposed IDPS shall detect and block suspicious intrusion and hacking activities immediately at critical system components, including but not limited to the traffic for Internet access, WAN, and web segment. Suspicious traffic from workstation(s) shall be identified by IDPS directly. The proposed IDPS shall be implemented in dedicated equipment and the proposed security solution shall include intrusion detection systems where appropriate and Tenderers shall provide a detailed description of the proposal. **(E10/170)**
- 10.7.7.2 The proposed IDPS shall possess proactive defence mechanisms which are designed to detect malicious packets within normal network traffic and stop intrusions dead, blocking the offending traffic automatically before it does any damage rather than simply raising an alert. **(E10/171)**
- 10.7.7.3 The proposed IDPS shall prevent and detect network attacks including application level attacks such as worms, Trojans and malwares, exploits of critical system vulnerabilities and DoS and DDoS attacks. **(E10/172)**
- 10.7.7.4 The proposed IDPS shall support all operating systems of physical machines and virtual machines of the System and shall be capable of protecting physical machines and virtual machines against intrusion in real-time. **(E10/173)**

- 10.7.7.5 The proposed IDPS shall provide option of log, terminate, quarantine or ignore for threats detected. **(E10/174)**
- 10.7.7.6 The proposed IDPS shall provide signature updates with update frequency at least once every month. **(E10/175)**
- 10.7.7.7 The proposed IDPS shall provide software updates. **(E10/176)**
- 10.7.7.8 The proposed IDPS shall unobtrusively monitor network traffic, automatically detect and respond to suspicious activity with the latest and fully customised signatures and responses. The distributed client-server architecture and sensors shall monitor traffic on several platforms and network environments. **(E10/177)**
- 10.7.7.9 The proposed IDPS shall provide collection and analysis of operating system and application logs for detection of suspicious behaviours and security events. **(E10/178)**
- 10.7.7.10 The proposed IDPS shall provide monitoring of critical operating system and application files, including at least directories, configuration files, registry keys and values, to detect malicious and unexpected changes. It shall also provide detection of new directory or file creation. **(E10/179)**
- 10.7.7.11 The proposed IDPS shall provide detailed threat descriptions, remediation and patch information, attacker target audit trail and reporting. **(E10/180)**
- 10.7.7.12 The proposed IDPS shall include OS based or hypervisor based bi-directional stateful firewall. **(E10/181)**
- 10.7.7.13 The proposed IDPS shall provide packet inspection on all incoming and outgoing network traffic to detect protocol deviations and firewall policy violations. **(E10/182)**
- 10.7.7.14 The proposed IDPS shall provide protection of physical machines and virtual machines against known and zero-day attacks. **(E10/183)**
- 10.7.7.15 The proposed IDPS shall provide protection against operating system vulnerabilities. **(E10/184)**
- 10.7.7.16 The proposed IDPS shall provide protection of web applications using HTTPS protocol, against web application vulnerabilities. **(E10/185)**
- 10.7.7.17 The proposed IDPS shall provide virtual patching such that physical machines and virtual machines can be protected against identified vulnerabilities before application program fixes are applied. **(E10/186)**
- 10.7.7.18 The proposed IDPS shall possess centralised management console for monitoring and reporting. **(E10/187)**
- 10.7.7.19 The proposed IDPS shall provide centralised maintenance and distribution of the followings: **(E10/188)**
 - (a) Server security profiles
 - (b) Server firewall policies

(c) Software and signature updates

10.7.7.20 The proposed IDPS shall possess high availability features such as Device Failure Detection, Link Failure Detection and Stateful Failover in order to prevent single point of failure. **(E10/189)**

10.7.7.21 The proposed IDPS shall possess signature detection such as user-defined signature and real time signature update, and also anomaly detection and DoS detection, etc. **(E10/190)**

10.7.8 **Web Application Firewalls**

10.7.8.1 Web Application Firewalls (WAF) integrated with DDoS protection shall be provided to protect the system from web application and DDoS attacks. The WAF shall provide at least the following web application attacks mitigation measures for the system: **(E10/191)**

(a) Cross-site scripting attack protection

(b) Cross-site request forgery (CSRF) attack protection

(c) Open redirect attack protection

(d) Bot defences by detecting known bot agents and frequency of requests

(e) Buffer overflow mitigation

(f) Attack evasion techniques by normalising traffic and enforcing protocol compliance

(g) DDoS Protection

- Volumetric DDoS attacks – SYN flood, TCP flood, ICMP flood, UDP flood, IGMP flood, and etc.
- Ping of Death, Smurf attack, LAND attack, fragmented packets, zero-day flood attacks, and etc.
- Application-layer DDoS attacks – HTTP flood, Slow loris, Slow POST, DNS flood, targeted attacks to exhaust backend database resources, and etc.
- Signature-based protection against any known application vulnerabilities, and etc.
- Other protections including packet-anomaly protection, out-of-state protection and connection limit protection, low-rate DoS/DDoS protection, and etc.

(h) Network Malware Prevention

- Worms and virus
- Backdoors and Trojans
- Spyware
- Phishing
- IRC Bots communications; and etc.

10.7.8.2 The proposed WAF shall provide various set of defences for the applications: **(E10/192)**

- (a) HTTP protocol conformance
 - (b) White list security with automated learning
 - (c) Black list security
 - (d) Request normalisation
 - (e) Cookie encryption, URL and form rewriting for session protection
 - (f) Client-side caching and SSL security enhancements
 - (g) Blocking by geolocation
- 10.7.8.3 The proposed WAF shall provide various commercial authentication for the administrators: **(E10/193)**
- (a) Basic
 - (b) Client SSL certificate
 - (c) Token-based authentication
- 10.7.8.4 The proposed WAF shall provide common network protocols as follows: **(E10/194)**
- (a) HTML, DHTML, XML, SOAP, JSON, AJAX
 - (b) HTTP/1.0, HTTP/1.1 and HTTP/2.0
- 10.7.9 **Anti-bot Cloud Service and/or Appliance**
- 10.7.9.1 Anti-bot cloud service and/or appliance shall be provided to safeguard the system from automate attack without imposing friction on legitimate users during first day ticket sale of very popular events. **(E10/195)**
- 10.7.9.2 The proposed anti-bot cloud service and/or appliance shall be able to identify bots by analysing network traffic, maintain a repository of information and querying for clarification of unidentified IP, Uniform Resource Locator (URL) and Domain Name System (DNS) resources, etc. and recommend action to counter against BOTs. **(E10/196)**
- 10.7.9.3 The proposed anti-bot cloud service and/or appliance shall be able to block robot traffic from the website to obtain pure human user traffic that is well-shaped and predictable. **(E10/197)**
- 10.7.9.4 The proposed anti-bot cloud service and/or appliance shall consist of Artificial Intelligence (AI) or machine learning module to collect, analyse traffic data and patterns to identify robot behaviours. **(E10/198)**
- 10.7.9.5 The degradation of traffic after enabled anti-bots for the proposed anti-bot cloud service and/or appliance shall not exceed 50% degradation. **(E10/199)**
- 10.7.9.6 The proposed anti-bot cloud service and/or appliance shall be plug and play add-on item which can be requested on demand basis (such as by event or as requested by LCSD) and integrated with the System seamlessly. **(E10/200)**
- 10.7.9.7 The proposed anti-bot cloud service and/or appliance shall be able to detect and stop suspicious abnormal network behaviour. **(E10/201)**

- 10.7.9.8 The proposed anti-bot cloud service and/or appliance shall have a centralised event collection and reporting mechanism. **(E10/202)**
- 10.7.9.9 In case the Government does not accept the anti-bot proposal, the Government may contract with third parties or carry out the work on its own regarding this part of services. Any expenditure incurred by the Government in procuring all of the foregoing shall be borne fully by the Contractor. The Contractor shall monitor the performance of the System, and identify, analyse and resolve all issues and problems and causes thereof that affect the performance or proper functioning of the System, or its integration or interface or connection with third party systems. **(E10/203)**
- 10.7.10 **Core Routing and Switching Equipment**
- 10.7.10.1 If hosting of on premises equipment is proposed, the proposed solution shall equip with high performance modular core routers and switches which support various types of module LAN/WAN interfaces to not only meet the current requirements but are also expandable to fit future requirements for the entire network backbone. **(E10/204)**
- 10.7.10.2 In general, core network equipment hosted on premises shall have at least the following essential features: **(E10/205)**
- (a) Shall be modular architecture design with high-reliability configuration such as hot swappable, redundant power supplies and fan for resilience;
 - (b) Shall provide high-density Ethernet services modules, including but not limited to Gigabit Ethernet, and 10 Gigabit Ethernet.
 - (c) Shall provide authentication mechanism for restrictive access of router configuration environment;
 - (d) Shall provide 7 x 24 non-stop operations;
 - (e) Shall provide Network Time Protocol (NTP);
 - (f) Shall provide common type of security features such as Authentication, Authorisation and Accounting, per-port data packet filtering and Log management;
 - (g) Shall provide IEEE 802.1X authentication protocol;
 - (h) Shall provide port-based and VLAN-based QoS (Quality of Service);
 - (i) Shall provide QoS (Quality of Service) configuration and traffic management including traffic classification, prioritisation, marking, shaping prioritisation and input and output policing based on TCP/IP Layer 3 and Layer 4 headers; and
 - (j) Shall provide or with roadmap to support IPv6 in addition to IPv4.
- 10.7.10.3 For core routing equipment hosted on premises, they shall have at least the following essential features: **(E10/206)**
- (a) Shall support multi-protocol routing such as among LAN to LAN, LAN to WAN and WAN to WAN;
 - (b) Shall provide Layer 3 non-stop forwarding; and

- (c) For WAN routing, the equipment shall support most common WAN technologies such as Metro Ethernet.
- 10.7.10.4 For core switching equipment hosted on premises, they shall have at least the following essential features: **(E10/207)**
- (a) Shall provide high port density for connection to other backend systems;
 - (b) Shall provide VLAN segmentation (IEEE 802.1Q VLAN encapsulation) and VLAN trunks, up to 4,096 VLANs;
 - (c) Shall provide link aggregation, routing capabilities, STP (Spanning Tree Protocol), and Virtual Router Redundancy Protocol (VRRP) or equivalent;
 - (d) Shall provide private VLAN or equivalent security features to provide security and isolation between ports on the equipment;
 - (e) Shall provide Layer 2 and Layer 3 QoS; and
 - (f) Shall provide Layer 2 non-stop bridging.
- 10.7.10.5 If hosting of on premises equipment is proposed, Tenderers shall provide technical specification of the proposed network equipment to indicate the routing and switching performance. **(E10/208)**
- 10.7.11 **Edge Routers and Ethernet Switches at Outlets**
- 10.7.11.1 The proposed solution shall have at least the following features: **(E10/209)**
- (a) Shall provide LAN and WAN connections among outlets and backend system to satisfy the project requirement;
 - (b) Shall provide authentication mechanism for restrictive access of router configuration environment;
 - (c) Shall support NTP;
 - (d) Shall support common type of security features such as authentication, authorisation and accounting, per-port data packet filtering and log management; and
 - (e) Shall support Layer 2 and Layer 3 QoS.
- 10.7.11.2 For proposed routing equipment, it shall have at least the following features: **(E10/210)**
- (a) Shall provide IP routing while all other routing and bridging functions can be disabled by the network administrator;
 - (b) For WAN routing, the equipment shall normally support most common WAN technologies such as Metro Ethernet; and
 - (c) Shall provide QoS (Quality of Service) configuration and traffic management including traffic classification, prioritisation, marking, shaping and input and output policing based on Layer 3 and Layer 4 headers.
- 10.7.11.3 For proposed switching equipment, they shall have at least the following features: **(E10/211)**
- (a) Shall provide the proposed communication and network interface for connection to PC LANs;

- (b) Shall provide 10/100Base-T Ethernet technologies with Gigabit Uplinks;
- (c) Shall provide VLAN segmentation, VLAN trunks and STP;
- (d) Shall provide secure authentication;
- (e) Shall provide IEEE 802.1X authentication protocol;
- (f) Shall provide private VLAN or equivalent security features to provide security and isolation between ports on the equipment; and
- (g) Shall provide QoS (Quality of Service) configuration and traffic management including traffic classification, prioritisation, marking, shaping and input and output policing based on Layer 2 and Layer 3 headers.

10.7.11.4 The proposed network equipment shall provide access lists for implementing packet-filtering rules to deny unauthorised access. The access lists shall consist of a sequential collection of permit-and-deny conditions that apply to packets under examination. The routers shall use the access lists to test the packets against conditions in the access lists one by one. The first match determines if the router permit or deny the passage of the packets. No match shall result in blocking of the packets. **(E10/212)**

10.7.12 **Network Equipment for Outlets and Admission Control**

10.7.12.1 The Contractor shall provide network connections among outlets and admission control system to satisfy the project requirement. **(E10/213)**

10.7.12.2 The Contractor shall provide sufficient networking equipment to support the check-in with handheld QR code readers at each venue. Sufficient network switch, router, VPN firewall, wifi access point controller, and wifi access point device shall be setup to support check-in at each entrance of the venues to ensure communication of the handheld QR code readers can communicate with the server to update the check-in. **(E10/214)**

10.7.12.3 The Contractor shall provide cabling service and all cables for setting up the network for both indoor and outdoor environment at the outlets. **(E10/215)**

10.7.13 **Communication Lines**

10.7.13.1 The Contractor shall provide at least two (2) point-to-point Metro-Ethernet (ME) links by two different service providers or better technology supporting Gigabit Ethernet for connecting production site of the Contractor Private Cloud to production site of the Contractor Supplied Public Cloud. **(E10/216)**

10.7.13.2 The Contractor shall provide at least one (1) point-to-point ME link or better technology supporting Gigabit Ethernet for connecting production site of the Contractor Private Cloud to disaster recovery site of the Contractor Supplied Public Cloud. **(E10/217)**

10.7.13.3 The Contractor shall provide at least one (1) point-to-point ME link or better technology supporting Gigabit Ethernet for connecting disaster recovery site of the Contractor Supplied Private Cloud to the production site of Contractor Supplied Public Cloud. **(E10/218)**

- 10.7.13.4 The Contractor shall provide at least one (1) point-to-point ME link or better technology supporting Gigabit Ethernet for connecting disaster recovery site of the Contractor Supplied Private Cloud to the disaster recovery site of Contractor Supplied Public Cloud. **(E10/219)**
- 10.7.13.5 The Contractor shall provide at least two (2) point-to-point ME links or better technology supporting Gigabit Ethernet for connecting production site to disaster recovery site in the Contractor Supplied Private Cloud for replication. **(E10/220)**
- 10.7.13.6 The Contractor shall provide at least two (2) point-to-point ME links or better technology supporting Gigabit Ethernet for connecting Multiprotocol Label Switching (MPLS) network to the production site of the Contractor Supplied Public or Private Cloud. **(E10/221)**
- 10.7.13.7 The Contractor shall provide data circuits for connecting each outlet to production site of the Contractor Supplied Public Cloud via MPLS or ME network. **(E10/222)**
- 10.7.13.8 The Contractor should provide data circuit(s) for connecting the payment gateway as mentioned in Section 4.5.13.14 of this Part to the production site of the Contractor Supplied Public Cloud.
- 10.7.13.9 The Contractor shall provide at least one data circuit for connecting contractor site to production site of the Contractor Supplied Private Cloud; one data circuit for connecting contractor site to disaster recovery site of the Contractor Supplied Private Cloud and one data circuit for connecting contractor site to production site of the Contractor Supplied Public Cloud. **(E10/223)**
- 10.7.13.10 The Contractor shall provide at least two data circuits connecting between LCSD Ticketing Office (6/F & 9/F) to the production site of the Contractor Supplied Public Cloud via MPLS or ME network. **(E10/224)**
- 10.7.13.11 The Contractor shall provide at least one data circuit connecting between LCSD IT Office to the production site of the Contractor Supplied Public Cloud via MPLS or ME network. **(E10/225)**
- 10.7.13.12 The Contractor shall provide other data circuits where necessary for the System. **(E10/226)**
- 10.7.13.13 The proposed WAN service shall have availability not less than 99.95%. **(E10/227)**
- 10.7.13.14 The proposed network design and technology for WAN service shall secure all data communication by preventing unauthorised access to the source. **(E10/228)**
- 10.8 **Content Delivery Network**
- 10.8.1 The Contractor shall provide a global distributed network service, e.g. content delivery network (CDN) to optimise the network efficient to deliver the web content to users. The service shall provide sufficient edge servers in point-of presence (POP) to cache the web content in different locations across the work. **(E10/229)**
- 10.8.2 The routing protocol shall use open standard which common routing device(s) can support. **(E10/230)**

- 10.8.3 Sufficient high-bandwidth shall be provided to maintain the severability and service level(s) of the System. **(E10/231)**
- 10.8.4 The CDN service shall provide multiple profiles according to the CDN profile level applied, e.g. zones and regions, i.e. different countries in different zones. **(E10/232)**
- 10.8.5 The CDN service shall provide the following key features: **(E10/233)**
- Dynamic site acceleration
 - CDN caching rules
 - HTTPS custom domain support
 - diagnostics logs
 - File compression
 - Large file optimisation
 - Geo-filtering
 - Video streaming optimisation
- 10.9 **Cabling and Consumable**
- 10.9.1 Any necessary cable, cable accessories and consumable such as backup media, printer print heads, toners, printer papers, cleaning tapes, transceivers, cassette cartridges, patch cables, cabling works, tickets, etc. shall be specified in the proposal. All these items shall be supplied by the Contractor at its own cost. **(E10/234)**

11. SOFTWARE SPECIFICATIONS

11.1 Tenderers' Responsibility and Contractor's Commitment

- 11.1.1 Apart from Custom Programs, Tenderers shall propose in Table 2.1 of Schedule 2 – Software of Part V – Contract Schedules all software required to be comprised in the System and programming tools or platform for developing all Custom Programs to meet the requirements for such System as set out in the Tender Documents. The minimum and additional quantities of software items shall be based on the corresponding hardware items proposed. The estimated software items and/or supplementary software accessories proposed shall be stated as essential items, any additional software items shall be proposed as optional items. In addition to the stated features, Tenderers shall quote any optional software and features that may be applicable to the Government's overall objectives as stated in Section 4 – Functional Specifications of this Part. **(E11/1)**
- 11.1.2 Whenever it is so specified, the specifications and quantities of software components as specified in this section are the minimum requirements and are subject to review after the Contract award. They are essential requirements which Tenderers shall adhere to when making proposals in the Schedules of Part V – Contract Schedules and in other parts of their tenders. Tenderers shall exercise their own judgment to determine if higher specifications and/or some other additional specifications and/or higher quantities are necessary to ensure that the System will comply with all of the essential requirements notwithstanding the minimum requirements set out herein. If so, Tenderers shall propose software with higher quantities or higher specifications or some other additional specifications according to their expertise and the detailed sizing calculations based on their proposed solution. **(E11/2)**
- 11.1.3 Tenderers must supply in their proposals complete product information, including technical and descriptive literature, for each proposed software item showing its compliance with the specified essential and optional features. **(E11/3)**
- 11.1.4 Tenderers shall supply in their proposals complete product information, including technical and descriptive literature in relation to the Contractor Supplied Software as offered by them. Tenderers shall include detailed specifications of these Contractor Supplied Software items in Table 3.3 of Schedule 3 – Specifications of Part V – Contract Schedules. Information submitted shall be sufficiently detailed to substantiate that the products offered meet or exceed the essential requirements set out in this Part (including the minimum quantities as specified in Annex E to this Part). Tenderers must also specify clearly each item of the Contractor Supplied Software about the version to be supplied, how long the version has been available in the market, and the installation and operational pre-requisites. Tenderers' proposed products shall be already available in the market. **(E11/4)**
- 11.1.5 Tenderers shall propose in Table 3.4 of Schedule 3 – Specifications of Part V – Contract Schedules, the software customisation features for the System to meet the requirements as specified in these Project Specifications. **(E11/5)**
- 11.1.6 Tenderers' proposed Contractor Supplied Software shall adhere to any industrial standards which that software is required to comply as stated in this Section 11. In addition, where applicable, Tenderers shall describe other standards and the extent

of conformance which any of its proposed software comply in Table 3.3 of Schedule 3 – Specifications of Part V – Contract Schedules. **(E11/6)**

11.1.7 Tenderers shall propose comprehensive hardware and system configurations for the System in production environment to meet the requirements in this part. Tenderers shall also offer the necessary items of Hardware and Software for setting up all of the non-production environments. The entire System and all Hardware and Software and the cost of the Implementation Services and System Support and Maintenance shall be provided by the Contractor at its own cost. The Government will not pay any amount in or towards contribution of such cost. The hardware and software for setting up the System in all environments shall be proposed in Schedules 1 and 2 of Part V – Contract Schedules. All these non-production environments must be retained after the production rolls out and may not be redeployed for setting up the production environment. **(E11/7)**

11.1.8 Apart from functions which are required to be or permitted to be implemented by way of Custom Programs, all Tenderers' proposed products shall be already available for purchase as off-the-shelf products in the market prior to the Tender Closing Date **and must be the latest production version (not trial version) published by the manufacturer as at the Tender Closing Date.** Furthermore, they must not be models or versions which have been de-supported by the manufacturer as at the Tender Closing Date, or have been announced to be de-supported by the manufacturer and such de-supporting to be effective within 5 years from the Tender Closing Date and the announcement has been made prior to the Tender Closing Date. **(E11/8)**

11.1.9 The Contractor Supplied Software and Custom Programs shall not have any embedded expiry dates (i.e. dates by which the software is set to cease function automatically). If there is any licence control mechanism adopted in the Contractor Supplied Software or Custom Programs, such mechanism shall not cause any interruption to the System under all circumstances. The Contractor shall be responsible for removing any control which may be triggered under such control mechanism. The Government will not pay any fee for such removal. **(E11/9)**

11.1.10 If any other software or any extra quantity of software licence already proposed in Schedule 2 of Part V – Contract Schedules is subsequently found to be necessary to ensure the System complies with the Overall Specifications, Reliability Levels and Performance Criteria, but has not been proposed by the Contractor during the tendering stage, the Contractor shall still supply such other software and/or additional quantity of software licence its own cost. **(E11/10)**

11.1.11 Tenderers' proposed Contractor Supplied Software and Custom Programs shall support upgrade path(s) that can incrementally enhance the computing resources in the manner mentioned in Section 4.5.13.17.1 of this Part without needing to change any of the Contractor Supplied Software and Custom Programs. **(E11/11)**

11.1.12 All proposed features shall be demonstrable in the acceptance testing. Failing that the software shall be deemed not acceptable. **(E11/12)**

11.1.13 All software necessary to support the stated application and functions of the System shall be described. Where applicable, software release versions shall be stated. **(E11/13)**

- 11.1.14 System software shall be supplied and fully supported by the manufacturer. **(E11/14)**
- 11.1.15 If support for a particular feature is not available from the manufacturer of the hardware, Tenderers shall include a suitable product from other suppliers. **(E11/15)**
- 11.1.16 Any third-party software must be demonstrably operating successfully on the proposed hardware. Exceptions must be individually proposed, and accepted by the Government in writing. **(E11/16)**
- 11.1.17 All software necessary to support the stated application and functions of the system must be described. Where applicable, software release versions must be stated. **(E11/17)**
- 11.2 **General Software Requirements**
- 11.2.1 Where applicable, the proposed software item shall be compatible with all of the proposed Hardware items and other proposed Software items. **(E11/18)**
- 11.2.2 The proposed software items shall not contain any malware which permits unauthorised access to disable, erase or harm the software, hardware, or data automatically. **(E11/19)**
- 11.2.3 There shall be no account and password information of database, servers, and applicable equipment hard-coded in any of the proposed software items. The Contractor shall propose user-friendly and easy-to-use utility for computer operators of the Government to manage the password in a secure way. **(E11/20)**
- 11.3 **System Software**
- 11.3.1 **General**
- 11.3.1.1 The System shall support multi-users. **(E11/21)**
- 11.3.1.2 The System shall support multi-tasking. **(E11/22)**
- 11.3.1.3 The System shall support concurrent access to the same piece of data. **(E11/23)**
- 11.3.1.4 System software shall be supplied and fully supported by the manufacturer of the proposed equipment. **(E11/24)**
- 11.3.1.5 If support for a particular feature is not available from the manufacturer of the hardware, the Contractor shall include a suitable product from other supplier. **(E11/25)**
- 11.3.1.6 Any third-party software shall be proven to be operating successfully on the proposed hardware. **(E11/26)**
- 11.3.1.7 Security hardening services shall be implemented on all the equipment as mentioned in the Software Specifications. **(E11/27)**
- 11.3.1.8 Tenderers shall propose the latest (as at the Tender Closing Date) production version of the Software offered in its Tender, including all necessary service packs or patches. **(E11/28)**

11.3.2 **Server Operating System**

11.3.2.1 Tenderers shall propose for all servers of the System (physical or virtualised) the latest (as at the Original Tender Closing Date) production version of commercial Linux, UNIX or Windows operating system or equivalent including all necessary service packs or patches. **(E11/29)**

11.3.2.2 The proposed operating system shall monitor any particular processes and collect system resource data for system performance monitoring. **(E11/30)**

11.3.2.3 The proposed operating system shall support dynamic expansion of file system across multiple hard disks without shutting down the System or bringing the System to maintenance mode. **(E11/31)**

11.3.2.4 The proposed operating system shall be protected by disk level resilience, including disk mirroring. **(E11/32)**

11.3.2.5 Network Time Protocol (NTP) shall be enabled which allows the servers to synchronise time with the centralised NTP server(s) regularly. **(E11/33)**

11.3.2.6 The proposed operating system shall be installed with anti-malware software. **(E11/34)**

11.3.3 **Database Management System**

11.3.3.1 Tenderers shall provide the Database Management System (DBMS) to reside on the Contractor Supplied Private Cloud with consideration of the security requirement of data residency and security. **(E11/35)**

11.3.3.2 The proposed DBMS database shall provide the following essential features: **(E11/36)**

- (a) Compatible with the proposed servers;
- (b) Up-to-date contention and deadlock resolution mechanism;
- (c) Roll-back and roll-forward provision for recovery at transaction level;
- (d) Point-in-time database recovery to a specified date and time;
- (e) Support online full and incremental backup;
- (f) Online performance optimisation of database, e.g. database reorganisation;
- (g) Masking sensitive data in development, test or staging environments;
- (h) Database integrity recovery after an unexpected outage such as power failure and/or server failure;
- (i) High-availability cluster;
- (j) Online backup and recovery with minimum interference to online application performance;
- (k) Parallel backup and recovery to fully utilise all backup devices, I/O channels and disk drives;
- (l) Support data encryption for backup;
- (m) Support Chinese Coding Standard ISO 10646, Hong Kong Supplementary Character Set and Simplified Chinese Character code set; and

- (n) Support encryption for data (refer to S17 which mentions the standard of data encryption:

https://www.ogcio.gov.hk/en/our_work/information_cyber_security/government).

11.4 **Application Software for the System**

11.4.1 **General**

11.4.1.1 Tenderers shall propose application software for the System which shall provide all functions and Chinese capabilities as specified in Section 4.5 of this Part. **(E11/37)**

11.4.1.2 The application software shall have a track record showing that it is compatible with the proposed hardware and operating systems. **(E11/38)**

11.4.1.3 The latest production version of the application software as at the Original Tender Closing Date shall be proposed and this proposed version shall have been made generally available for sale prior to the Tender Closing Date. **(E11/39)**

11.4.1.4 Error message and/or prompt shall be self-explanatory and shall provide the operator with the necessary information for continuation of the procedure. **(E11/40)**

11.4.2 **Java Support**

11.4.2.1 If a JavaEE compliant product is proposed by the Tenderer, the product shall comply with the following architecture: **(E11/41)**

- (a) Support deployment of the developed application on the application server;
- (b) Support JDBC;
- (c) Support Java Servlet and Java Applet;
- (d) Support Java Server Page (JSP);
- (e) Support Java Development Kit (JDK); and
- (f) Support Java Platform, Standard Edition, HTML, XML, HTTP and SSL.

11.4.2.2 If alternative product is proposed for the system implementation, the product shall specifically address the proposed architecture with similar or equivalent capability as Section 11.4.2.1 above. **(E11/42)**

11.5 **System and Network Management Software**

11.5.1 **General**

11.5.1.1 The system management software shall have the following functions and features: **(E11/43)**

- (a) offer round-the-clock management and automation to help deliver continuous uptime of business services and applications;
- (b) detect faults (in network, database, application, etc.), and provide interface to collect events from across the infrastructure in real time (not more than 5 minutes); and

- (c) enable remote site staff to be alerted on the most critical problems and even automate the isolation and resolution of those problems.

11.5.2 **Event Management**

- 11.5.2.1 The software shall support event management and be able to detect exceptions and generate alerts based on the threshold set for monitoring. **(E11/44)**

11.5.3 **Performance Monitoring**

- 11.5.3.1 The software for performance monitoring shall monitor, collect data, evaluate usage of system resources, performance of websites, servers, network equipment and enable utilisation trends to be detected, reported and graphed on the following: **(E11/45)**

- (a) Website Performance Monitoring includes but is not limited to the following:
- Website uptime and response time;
 - Availability and response time of the Domain Name Servers; and
 - Defacement checking to monitor website hack such as unauthorised addition or modification of HTML elements such as text, script, image, link, etc.
- (b) Server Monitoring includes but is not limited to the following:
- CPU usage;
 - Paging, swapping and memory utilisation;
 - Disk utilisation; and
 - Services and processes.
- (c) Network Monitoring includes is but not limited to the following:
- CPU usage;
 - Memory utilisation;
 - Buffer hit statistics; and
 - Port and interface statistical figures for network equipment.
- (d) Monitoring requirements in Contractor Supplied Public Cloud includes but is not limited to the following:
- Support real-time monitoring of system and network resources on Contractor Supplied Public Cloud.
 - Support collection of system and network performance data from Contractor Supplied Public Cloud to perform analysis.
 - Include sufficient licences for managing the Contractor Supplied Public Cloud.
 - Support AES 256 encryption for backup data stored in the Contractor Supplied Public Cloud.

- 11.5.3.2 The software shall process various events and alarms so as to indicate the appropriate errors or warning conditions. **(E11/46)**

11.5.3.3 The software shall be able to send notification alerts for critical events (e.g. website, server or network goes down) to defined persons via Email, SMS, Push notification or popular messaging apps. **(E11/47)**

11.5.3.4 The software shall provide historical view graphically. **(E11/48)**

11.5.4 **Network Management System (NMS)**

11.5.4.1 Tenderers shall propose a network management system (NMS) that can proactively manage the health and availability of all the proposed servers and network equipment. The software shall have at least the following network management features: **(E11/49)**

- (a) Shall provide the network device health checks on a regular basis; and
- (b) Shall provide fault management aiming to detect and notify faults encountered in the network.

11.5.4.2 The proposed NMS shall send a notification in several ways such as sending an SMTP Mail message, an alarm in case of critical fault encountered in the network. **(E11/50)**

11.5.4.3 The proposed NMS shall view and monitor SNMP objects on various systems and network devices that implement a SNMP agent. **(E11/51)**

11.5.4.4 The proposed NMS shall manage all network equipment over LANs (including different zones of the firewall system) and WANs. **(E11/52)**

11.5.4.5 The proposed NMS shall provide utilisation graphical report on daily, monthly and yearly basis and 5-minute average shall be shown on the daily report. **(E11/53)**

11.5.4.6 The Contractor shall provide monitoring reports in regular basis which includes: **(E11/54)**

- (a) CPU, memory and network utilisation
- (b) Available storage space
- (c) Record and corresponding supporting information for IT facilities check
- (d) Record and corresponding supporting information for rehearsals, including annual IT facilities check, annual rehearsal of data restoration, annual disaster recovery drill, annual failover and fallback, etc.

11.5.4.7 The Contractor shall provide the security access logs of network and database components and servers on-request basis which includes: **(E11/55)**

- (a) ACL of VM and Firewalls
- (b) IDS and IPS Logs
- (c) Database auditing

11.5.5 **Patch Management**

11.5.5.1 The operation software and other software in the whole of the System including those installed in the VMs inside the Contractor Supplied Public Cloud and Contractor Supplied Private Cloud, servers, network devices and workstations at the outlets and offices, (but other than the anti-malware solution as mentioned in

- Section 11.5.6.1), shall be patched at least two times a year and also on an as needed basis. **(E11/56)**
- 11.5.5.2 The system shall continue to operate and with no interruption for applying the patch by using various methods such as rolling update. **(E11/57)**
- 11.5.5.3 The Contractor shall proactively monitor information about new updates of software packages and security patches frequently. All updates shall be reviewed in order to determine whether they are relevant and applicable to the infrastructure. **(E11/58)**
- 11.5.5.4 For all patch deployment in the System, the Contractor shall monitor the progress of the deployment and conduct a post deployment review to ensure that the rollout of the update is successful and conduct health-checks to verify the system and application are functioning properly. **(E11/59)**
- 11.5.6 **Anti-malware Management**
- 11.5.6.1 The proposed anti-malware solution shall ensure the update of virus and malware signature is performed automatically and at least once a day. **(E11/60)**
- 11.5.6.2 All virtual machines shall be regularly scanned to ensure their protection from latest virus and malware. **(E11/61)**
- 11.5.6.3 Centralise management approach shall be adopted to oversee the update of virus and malware signatures. **(E11/62)**
- 11.5.6.4 The proposed solution shall provide automatic real time alert and notification if virus is detected. **(E11/63)**
- 11.5.7 **Remote Control**
- 11.5.7.1 The system management software shall provide remote power off and power on of workstations in scheduled period. **(E11/64)**

12. SECURITY REQUIREMENTS

12.1 Tenderers' Responsibilities and Contractor's Commitments

12.1.1 Tenderers shall explain precisely in Schedule 4 – Technical Proposal and System Configuration of Part V – Contract Schedules the solution to meet the security requirements for the System including the details of security features for network, hardware, system software, cloud services, application systems and data, including handling of data in Contractor Supplied Public Cloud. **(E12/1)**

12.1.2 Apart from Custom Programs, Tenderers shall propose in Schedules 1 and 2 – Hardware and Software of Part V – Contract Schedules all hardware and software required for implementing the solution to meet the security requirements for the System. **(E12/2)**

12.1.3 The proposed solution shall meet the security requirements of the hardware and software as stipulated in Sections 10 and 11 – Hardware Specifications and Software Specifications of this Part. **(E12/3)**

12.1.4 The Contractor shall conduct security planning and implement the appropriate security measures and controls for the System to meet the security requirements. **(E12/4)**

12.1.5 As the System contains personal information such as patron's name, address, email and telephone number (e.g. Registered Patrons) that are classified as RESTRICTED information, as part of the Implementation Services, and also as System Support Services, the Contractor shall ensure that the System conforms to the all of the Government security policies and guidelines as from time to time updated and published on the OGCIO websites. The existing list of IT security policies and guidelines can be found in Annex D – List of Major Government Standards and Guidelines to this Part. **(E12/5)**

12.1.6 The Contractor shall monitor closely new threats and vulnerabilities of the System, and alert the Government proactively about the status. The Contractor shall perform as soon as possible, any necessary preventive and remedial actions on the identified threats and vulnerabilities to ensure the security level. **(E12/6)**

12.1.7 The System shall provide comprehensive audit trailing and logging to ensure that sufficient details are gathered for effective detection and identification of anomalies. **(E12/7)**

12.2 General Security Requirements

12.2.1 The Contractor shall ensure the security design of the System fulfilling the general security requirements specified in Section 12.2 of this Part. **(E12/8)**

12.2.2 The principle of defense-in-depth shall be adopted. Multi-layered security mechanism shall be put in place to protect the system from potential cyber-attacks by hackers. Without limitation to the generality of the foregoing, in adherence to such principle, multiple layers of firewalls shall be adopted to protect the network such that failure of any firewall to detect abnormality will not compromise the security protection of the System. **(E12/9)**

- 12.2.3 Server operating system shall be hardened and secured to eliminate potential vulnerabilities and minimise the possibility of attack. **(E12/10)**
- 12.2.4 The principle of least privilege shall be strictly applied to all system services, accounts and operation procedures so that the risk due to the vulnerability of an individual component could be contained without affecting other components. **(E12/11)**
- 12.2.5 Intrusion detection system providing instant alerts shall be provided to monitor possible attack attempts and suspicious activities. **(E12/12)**
- 12.2.6 Personal information shall always be stored inside Hong Kong including backup copies and server and storage holding these data shall be hosted in private cloud for both Production and DR environment. **(E12/13)**
- 12.2.7 Transfer of classified data to places outside Hong Kong shall be prohibited. **(E12/14)**
- 12.2.8 Classified information and corresponding equipment storing classified information shall be kept in private cloud with encryption located in Hong Kong. System and application data with classified information including backup copies, logs, reports, etc. shall not be stored in Contractor Supplied Public Cloud services and storage. **(E12/15)**
- 12.2.9 By design, system administrators and support staff shall not be allowed to access to user data. In case there are operations requiring access to user data, authorisation via pre-defined workflow process shall be sought. **(E12/16)**
- 12.2.10 The Contractor shall ensure any information obtained in the course of delivery of the Work shall not be kept, copied, disclosed or used by the Contractor, Contractor's representatives, its employees, agents or subcontractors other than for the purpose of performance of the Work. **(E12/17)**
- 12.2.11 The Contractor shall conduct security planning and implement the appropriate security measures and controls for the system according to the security requirements and the IT security guidelines from OGCIO. Formal testing and review on the security controls shall be performed prior to implementation. If and to the extent they are insufficient in any way, the Contractor shall at its own cost provide all additional hardware, software, custom programs, solution and manpower to ensure that the System will be designed and implemented to fulfil all the security requirements specified in the Contract. **(E12/18)**
- 12.2.12 The Contractor shall ensure any information obtained in the course of the Implementation Period shall not be kept, copied, disclosed or used by the Contractor or any Contractor Personnel other than for the purpose of implementation of the System. **(E12/19)**
- 12.2.13 The Contractor shall follow the security and data access procedures and guidelines of Government to protect data confidentiality and individual privacy. **(E12/20)**
- 12.2.14 The Contractor shall ensure the proposed system meets the requirements in compliance with the security regulations and procedures of the Government. The following security policies and guidelines shall be adhered to in designing, implementing, supporting and maintaining the System. **(E12/21)**

- (a) Security Regulations [SR]
- (b) LCSD IT Security Policy
- (c) LCSD IT Security Guidelines
- (d) LCSD Information Security Incident Handling Guidelines
- (e) OGCIO Baseline IT Security Policy [S17]
- (f) OGCIO IT Security Guidelines [G3]
- (g) OGCIO Practice Guide for Security Risk Assessment & Audit
- (h) OGCIO Practice Guide for Internet Gateway Security
- (i) OGCIO Practice Guide for Website and Web Application Security
- (j) OGCIO Practice Guide for Security Controls on Virtualisation
- (k) OGCIO Practice Guide for Cloud Computing Security
- (l) OGCIO Practice Guide for the Security of Web Application Development
- (m) OGCIO Practice Guide for Information Security Incident Handling

12.2.15 The Contractor shall observe and comply with policies and guidelines above from time to time, unless and to the extent any provisions therein are inconsistent with any express requirements of the Contract or unless otherwise agreed by the Government on a case by case basis. **(E12/22)**

12.2.16 The System contains data that are classified as restricted information. The Contractor shall ensure that the System conforms to the above-mentioned policies and guidelines. **(E12/23)**

12.3 **IT Security Risk Assessment and Audit**

12.3.1 The Contractor shall acquire the services of a trusted independent third party to perform IT security risk assessment and audit before completion of the System Analysis and Design stage (based on the System Analysis and Design Report as mentioned in Section 17.3.16.2 below) and before production rollout of each phase of the System is put in production. The Contractor shall have the responsibility to remove all vulnerabilities identified in the audit with no additional charge to the Government. **(E12/24)**

12.3.2 In addition to the security risk assessment and audit required mentioned in Section 12.3.1 above, the Contractor shall regularly acquire the services of a trusted third party to perform security risk assessment and audit of the System at least once every two years as part of the System Support Services during the Contract Period. The Contractor shall have the responsibility to remove all vulnerabilities identified in the security risk assessment and audit with no additional charge to the Government. **(E12/25)**

12.3.3 The Contractor's trusted third party shall identify the security risks, associated threats and vulnerabilities of the System and recommend safeguards during the security risk assessment stage with the aim of strengthening the level of security protection of the System. Upon completion of the implementation of safeguards by the Contractor at its own expenses, the party shall carry out a security audit to review the security status of the System to ensure that all vulnerabilities discovered in the security risk assessment have been fixed and solved. **(E12/26)**

- 12.3.4 The Contractor shall provide assistance to the third party while conducting security risk assessment and audit of the System. **(E12/27)**
- 12.3.5 The security risk assessment and audit shall be complied with Government security standards. The “OGCIO Practice Guide for Security Risk Assessment & Audit” shall be taken into consideration. **(E12/28)**
- 12.3.6 The service scope of the security risk assessment and audit shall cover, but not be limited to the following areas: **(E12/29)**
- (a) Management responsibilities;
 - (b) IT security policies;
 - (c) Human resource security;
 - (d) Asset management;
 - (e) Access control;
 - (f) Cryptography;
 - (g) Physical and environmental security;
 - (h) Operations security;
 - (i) Communications security;
 - (j) System acquisition, development and maintenance (including code review);
 - (k) Outsourcing security;
 - (l) Security incident management;
 - (m) IT security aspects of business continuity management; and
 - (n) Compliance (including penetration test).

12.4 **Cloud Services Security**

- 12.4.1 The Contractor Supplied Cloud Services offered shall include but not be limited to the following security measures: **(E12/30)**
- (a) Store all user data processed by the public cloud services at data centres accredited with one or more International standards in information security management like ISO/IEC 27001 and 27017, or audited with the Statement on Standards for Attestation Engagements (SSAE) No. 16 or equivalent, where applicable.
 - (b) Enable password protection on per user, user group or role basis to protect the access to the Services with one or more of the following measures to be implemented:
 - Anti-password guessing mechanism
 - Configurable timeout period
 - Password ageing
 - (c) Have the anti-malware service enforced to protect the Government against malware, worms, Trojan horses, spyware and malicious code, etc., wherever applicable.

- (d) Ensure the anti-malware service to be run with the most appropriate or up-to-date list of signature and definition files.
- (e) Support 2-factor authentication for remote support by Contractor support and maintenance staff.

12.4.2 The cloud services offered shall include but not be limited to the following implementation measures: **(E12/31)**

- (a) Comply with the security regulations and IT security related guidelines listed in Annex D – List of Major Government Standards and Guidelines of this Part shall be followed as appropriate.
- (b) Protect the traffic between patron’s devices and the System hosted in on-premises or private cloud platform such that the Contractor or Public Cloud Services provider cannot decrypt and view the contents of the traffic during and after logging to the system by the patrons.
- (c) Protect the System hosted in on-premises or private cloud platform such that patron’s devices cannot directly connect to the System on-premises or private cloud platform. All patrons shall only access the System on-premises or private cloud platform after security checking by the Public Cloud Services.

12.4.3 On request by the Government and where applicable, the cloud services offered shall include but not be limited to the following additional implementation measures: **(E12/32)**

- (a) Be processed under an end-to-end encryption environment and/or as required by the specification on IT security.

12.4.4 The Contractor shall include but not be limited to the following implementation measures: **(E12/33)**

- (a) Not disclose any data or information relating to the cloud services to any external parties and not use those data or information for other purposes.
- (b) Report any vulnerability, its resolution and/or any workaround to the Government, if security vulnerability is reported on the cloud services.
- (c) Resolve the vulnerability as soon as technically feasible, without any charges to the Government.
- (d) Acquire at its own cost to engage a third party to perform security risk assessment and audit exercise on the cloud services offered before system launch to ensure its compliance with the prevailing government security standards.
- (e) Acquire at its own cost to engage a third party to conduct and complete the ongoing security risk assessment and audit exercises on the System for every two years in all system aspects.
- (f) The Government may appoint a third party to conduct an independent IT security risk assessment and audit. The Contractor shall co-operate with the auditor to carry out the necessary audit exercise which shall include but not be limited to site visit, documentation review, interview, etc.
- (g) Provide anti-DDoS capability to protect against DDoS attack in both network and application layer in Public Cloud Services.

- (h) Provide web application firewall services to protect against web applications in Public Cloud Services.
- (i) Provide multiple layers of protection against malware such as ransomware attack in both network and application layer.
- (j) Provide logging of IP addresses for every login to servers in primary and secondary data centres through the cloud services.

12.5 **Storage, Network and Communication Security**

12.5.1 The proposed network infrastructure shall implement stringent security measures, such as firewalls and intrusion detection and prevention systems to safeguard the core systems against any possible intrusions and attacks by external parties. The infrastructure design shall be complied with Government security standards. **(E12/34)**

12.5.2 All storage, network and communication facilities of the System shall comply with at least the following security requirements: **(E12/35)**

- (a) Internal network addresses, configurations and related system or network information shall not be publicly released;
- (b) All internal networks with connections to other Government networks or publicly accessible computer networks shall be properly protected;
- (c) Security measures shall be in place to prevent unauthorised access to the System and data;
- (d) Connections and links made to other networks shall not compromise the security protection of the other networks, and vice versa;
- (e) Anti-malware checking programs shall be installed and enabled on all servers and workstations;
- (f) Updating of the anti-malware software with up-to-date malware signature and definition files shall be performed regularly and automatically;
- (g) Network-based Intrusion Detection and Prevention System with multiple detection methods shall be implemented. Updating of pattern signature shall be performed regularly for signature-based detection method;
- (h) Host-based IDPS shall be implemented on critical servers to monitor suspicious activities;
- (i) 24 x 7 real time security monitoring service and incident escalation shall be implemented so that early actions can be taken to prevent or minimise the impact;
- (j) Routine procedures shall be established for performing backups, logging events and faults and, where appropriate, monitoring the equipment environment;
- (k) Computer media shall be controlled and physically protected;
- (l) End-to-end security shall be deployed;
- (m) Cryptographic keys shall be generated by a random process;
- (n) Where symmetric cryptographic algorithms are used, a key length of at least 256 bits for AES encryption or equivalent shall be used;

- (o) Facilities shall be provided for periodic regeneration of keys, in accordance with their usage and length;
- (p) Private asymmetric keys shall be generated in a secured environment where they shall be used, and not be transported outside of secured premises except for the purpose of backup;
- (q) Any symmetric key which is transported outside of secured premises shall be encrypted; and
- (r) Backup of secret keys (symmetric or asymmetric) shall be stored in parts which are random and equal length to the key, such that no one person can gain access to the plain-text key.

12.5.3 The wide area network (WAN) of the System shall satisfy at least the following security requirements: **(E12/36)**

- (a) Network traffic between all sites shall be encrypted;
- (b) Two-way origin authentication shall be employed on network traffic between all sites;
- (c) Data integrity shall be guaranteed for network traffic between all sites;
- (d) Replay protection shall be provided for network traffic between all sites;
- (e) Cryptographic keys shall be generated by a random process;
- (f) Where symmetric cryptographic algorithms are used, a key length of at least 256 bits shall be used;
- (g) Where asymmetric cryptographic algorithms are used, a key length of at least 2,048 bits shall be used;
- (h) Facilities shall be provided for periodic regeneration of keys, in accordance with their usage and length;
- (i) Private asymmetric keys shall be generated in the secure environment in which they will be used, and not transported outside of secured premises and only then for the purposes of backup;
- (j) Any symmetric key which is transported outside of secured premises shall be encrypted;
- (k) If backup of secret keys (symmetric or asymmetric) is necessary, the keys shall be stored in parts which are random and of equal length to the key, such that no one person can gain access to the plain-text key;
- (l) Facilities or arrangements shall be in place such that public keys can be authenticated before use; and
- (m) Diverse routing shall be employed in the WAN, such that there is no single point of failure.

12.5.4 Data storage encryption shall be provided in the storage area of servers, databases and data backup storage. Tenderers shall propose hardware based encryption mechanism with integrated key management for both disk and tape encryption (including but not limited to the backup of the encryption keys and the regeneration of keys) whilst maintaining the required performance and serviceability of the System. Tenderers shall also propose how the keys shall be managed between the Production Sites at different computer suites. **(E12/37)**

12.5.5 The Contractor shall be proactively alert about system vulnerabilities as well as threats of malware and worms. The Contractor shall closely monitor the threats as well as applicability of new vulnerabilities and the associated remedies. The Contractor shall perform the necessary actions, which include applying patches or reconfigurations to fix or remove the vulnerabilities as soon as possible. **(E12/38)**

12.6 **Workstation and Server Security**

12.6.1 The security measures for workstations and servers of the System shall include but not be limited to the following: **(E12/39)**

- (a) Anti-malware and data security software shall be installed and always enabled on all workstations, servers and related equipment;
- (b) Automatic scheduled scanning by anti-malware software shall be setup;
- (c) Automatic updating signature and definition files of the anti-malware and data security software and their control files shall be performed;
- (d) Routine procedures shall be established for performing backup, logging events and faults, and where appropriate, monitoring the equipment environment;
- (e) End-users shall be prevented from changing the system configuration on hardware, software and application;
- (f) Use of local administrator account shall be minimised for ongoing maintenance of the workstations;
- (g) Guest account and unused user accounts shall be removed or disabled;
- (h) Appropriate user accounts, authentication, and access privileges shall be defined at the operating system;
- (i) Unused system services shall be turned off and disabled;
- (j) Default configuration of software shall be avoided and modified before deployment (e.g. default port number for database);
- (k) System and security events shall be logged; and
- (l) Hardening configuration and procedures as recommended by vendors or manufacturers shall be followed.

12.7 **Data Security**

12.7.1 The data of the System shall fulfil at least the following security requirements: **(E12/40)**

- (a) Up-to-date system or network information, in particular, hardware and software list, the network diagrams, internal network addresses, and configurations shall be maintained to reflect the latest network environment for effective security control. Such information shall be appropriately classified and securely stored;
- (b) Sensitive data and cryptographic keys shall be encrypted during transmission over un-trusted communication networks by strong, common and latest encryption method;
- (c) Sensitive data shall be encrypted when being stored in physical storage by strong, common and latest encryption method;

- (d) Symmetric encryption key shall be at least 256 bits whereas asymmetric encryption key shall be at least 2,048 bits or equivalent;
- (e) For Internet communication between users and the System, HTTPS protocol and Transport Layer Security (TLS) encryption shall be employed;
- (f) For file transfer between external partner systems and the System, SFTP shall be used as the secured communication protocol;
- (g) The proposed database management system software shall have Transparent Data Encryption (TDE) or equivalent feature to support table and field level data encryption. Transparent means that encryption and decryption are performed by the database engine and client applications are completely unaware of it;
- (h) Files (such as interface files, fax images and reports) containing sensitive information shall be encrypted;
- (i) All kinds of access to sensitive data and cryptographic keys shall be strictly controlled and tracked by audit trail;
- (j) Logging procedures shall be implemented to control the access of data or cryptographic keys;
- (k) All sensitive data and cryptographic keys shall be completely erased from media before disposal or re-use. Any methods that only temporarily erases the sensitive data and cryptographic key, or can be recovered by other means, must not be used;
- (l) If the sensitive data or cryptographic keys cannot be completely erased, the media unit must be physically destroyed such that recovery of sensitive data or cryptographic keys is impossible;
- (m) Data shall normally accessible via application servers for data protection and database access shall be delegated to pre-defined connections for application use;
- (n) Any data manipulation requests shall be passed to the application server and the action shall be performed and controlled by business logic running in the application. End-users shall not have any database accounts and their database accesses are performed by and confined within the applications;
- (o) For those power-users who will need to access the database directly for specific functions, e.g. ad-hoc reports preparations, special user accounts shall be set up which are assigned read only privileges with certain database views defined to impose access controls as the record level;
- (p) The System shall only keep users' private keys in the Hardware security module(s) (HSM) of the System; and
- (q) The same security requirements shall apply to replicate, backup and archived data of the System.

12.7.2 Production data shall be accessible by data owner only. In case there are operations requiring access to user data by support staff, the data access rights shall be granted limited for completion of that particular task only. The access request shall be authorised by the data owner or authorised representatives via pre-defined workflow processes. The System shall also keep logs of all activities performed for audit purposes. **(E12/41)**

- 12.7.3 Operational tasks involving user data shall be implemented as system functions. The workflow with the necessary security control, approval, and auditing shall be enforced by the System. **(E12/42)**
- 12.7.4 The System shall support key life cycle management including key generation, key storage, key recovery, key transfer, retirement of keys by using on-premises HSM & KMS for secure Contractor Supplied Public Cloud services. **(E12/43)**
- 12.8 **Application and System Security**
- 12.8.1 All major system components, including but not limited to network switches, application delivery controllers, firewalls, hypervisors, operating systems, web servers, application servers and database servers, shall be securely configured. **(E12/44)**
- 12.8.2 The Contractor shall reference appropriate secure configuration guide published by relevant IT security organisations or vendors, or industry best practices when implementing and performing secure configuration for the System. **(E12/45)**
- 12.8.3 Separate environments shall be setup for production, development, system testing, acceptance testing and training purposes of the System to ensure and enforce a tight control and security over each environment. **(E12/46)**
- 12.8.4 Operating system hardening shall be exercised on all servers in production environments as preventive measures to reduce the vulnerabilities of operating systems. **(E12/47)**
- 12.8.5 Change control procedures shall be set up for requesting, processing, approving, implementing and deploying changes and upgrades of application and system software and hardware in production environments. **(E12/48)**
- 12.8.6 All changes and upgrades of application and system software in production environments shall be allowed to perform only with successful testing and security review results. **(E12/49)**
- 12.8.7 The system management processes shall be executed according to pre-defined workflow with strict enforcement of access control, approval and auditing. All system management activities by system support staff shall be logged. **(E12/50)**
- 12.8.8 Access to production environments shall be tightly controlled, monitored and fully logged. System developers shall not have access to data in production systems. **(E12/51)**
- 12.8.9 Password hardcode in programs shall not be permitted. **(E12/52)**
- 12.8.10 Passwords shall be encrypted when held in storage or transmitted over network. **(E12/53)**
- 12.8.11 Software version control in different environments shall be enforced. Software version control tool(s) shall be used to keep track of version changes in application programs, database schemas and job scripts. **(E12/54)**
- 12.8.12 Only authorised users shall be allowed to access application source codes. **(E12/55)**

- 12.8.13 All reports, screen layouts, media with classified information shall be clearly labelled. **(E12/56)**
- 12.8.14 The security requirements for the application shall include but not be limited to the following: **(E12/57)**
- (a) Known vulnerabilities shall be fixed;
 - (b) Field validation shall be enforced to prevent attacks including SQL injection and cross-site scripting;
 - (c) Application log with exception, error and their handling shall be provided;
 - (d) User session shall be assigned with session ID and other attributes including but not limited to user name, user role, etc.;
 - (e) User sessions which are idle for a pre-defined period shall be terminated automatically; and
 - (f) HTTPS shall always be used and all HTTP requests shall be redirected to HTTPS automatically.
- 12.8.15 Audit log shall be provided and covers at least the following items, including both successful and unsuccessful activities: **(E12/58)**
- (a) All changes in production environments;
 - (b) All user access (including read and modify) to sensitive data;
 - (c) Major or critical system's or user's activities;
 - (d) Log-in attempts;
 - (e) User session creation and termination;
 - (f) Attempts for password changes;
 - (g) Changes to user access rights;
 - (h) Access attempts to critical files;
 - (i) Use of privileged rights such as addition and deletion of user accounts;
 - (j) Modification to audit policy;
 - (k) Transaction log for database record changes shall be provided;
 - (l) Audit log shall have sufficient details for complete audit trail and tracking purposes;
 - (m) Audit log shall be protected for read only by authorised persons and shall not be modified; and
 - (n) Audit log reports shall be provided.
- 12.9 **System Access Control**
- 12.9.1 The Contractor shall implement control mechanisms to restrict users with different authority levels to access different functions, data and files of the System. **(E12/59)**
- 12.9.2 Authentication including password control shall be implemented to prevent illegal access to the System. **(E12/60)**

- 12.9.3 Access to the System shall be controlled on the basis of business requirements. **(E12/61)**
- 12.9.4 Access to system facilities shall be strictly controlled for system support staff. Accounts with limited authority shall be used for performing routine operation tasks. **(E12/62)**
- 12.9.5 The use of special or administrator privileges shall be restricted and controlled. **(E12/63)**
- 12.9.6 Features such as screen saver with password protection or automatic timeout disconnection shall be implemented to prevent unauthorised access of sensitive data displayed on workstations that are unattended for a prolonged period of time. **(E12/64)**
- 12.9.7 Users shall only be granted access to resources of the System on a need basis. No individual user shall be allowed to have any authority beyond his/her accountability. Each user shall be allowed to examine and manipulate his/her own data only. No other user's application data shall be accessible for viewing, modification or manipulation. **(E12/65)**
- 12.9.8 Connections via remote systems shall be authenticated. Access to diagnostic ports shall be securely controlled. **(E12/66)**
- 12.9.9 In the production environments, direct root sign-on shall only be allowed from the system consoled not via any network connectivity. **(E12/67)**
- 12.9.10 The System shall be monitored to ensure conformity to access policy and standards. **(E12/68)**
- 12.9.11 Strict password policy shall be documented and defined including but not be limited to password format, password length, initial assignment, password life cycle, change policy and password selection guidelines. The password shall contain a configurable minimum counts of characters, and shall contain characters from a configurable counts of the following categories as the complexity requirement: **(E12/69)**
- (a) Uppercase letters of alphabetic characters.
 - (b) Lowercase letters of alphabetic characters.
 - (c) Base 10 digits.
 - (d) Non-alphanumeric characters (e.g. \$, %, #, !)
- 12.9.12 Passwords shall be salted and not be stored in plain text in any location including parameter files and databases. **(E12/70)**
- 12.9.13 Passwords shall not be hardcoded in any proposed software, Custom Programs, databases and configuration files, etc. **(E12/71)**
- 12.9.14 There shall be formal procedures to control the granting of access rights. **(E12/72)**
- 12.9.15 Account shall be suspended when the number of invalid login attempts has exceeded the pre-defined threshold. **(E12/73)**

- 12.9.16 Active sessions or connections shall be terminated automatically when exceeded the pre-defined idle time. **(E12/74)**
- 12.9.17 Access to computer services, networked resources and data shall be granted only when necessary. **(E12/75)**
- 12.9.18 No individual user shall be allowed to have any authority beyond his/her accountability. Individual authority shall allow each user to examine and manipulate data according to his/her privileges, and forbid his/her access to other data outside his/her privileges. **(E12/76)**
- 12.9.19 Access to diagnostic ports of equipment shall be securely controlled. **(E12/77)**
- 12.9.20 The System shall be monitored to ensure conformity to access policy and standards. **(E12/78)**
- 12.9.21 The root access control shall include, but not be limited to the following: **(E12/79)**
- (a) The root access shall be strictly controlled and not to be provided to any unauthorised person; and
 - (b) In the production environment, root access shall only be allowed from authorised personnel and not be used for any system services.
- 12.9.22 The maintenance access control shall include, but not be limited to the following: **(E12/80)**
- (a) All access shall be controlled by the user account with password. The root password shall not be required for normal operation and maintenance; and
 - (b) Commands available to maintenance and operation personnel shall be tightly controlled.
- 12.10 **Audit Control**
- 12.10.1 The System shall provide both application and audit trails and system audit trails with sufficient information to support comprehensive audits of the effectiveness of the System and its compliance with security measures. **(E12/81)**
- 12.10.2 Audit control of the System shall satisfy at least the following security requirements: **(E12/82)**
- (a) The System shall provide facilities to (i) log data access transactions of users for audit trail covering all the read, write, delete, update, print, upload, download, enquiry of staff activities, no matter the transactions were successful or not, and (ii) search activities performed by a user from logon to logoff;
 - (b) The System shall keep track of all record changes by logging the before and after images of each change;
 - (c) Audit trail shall be provided for logging of the system activities, such as logging of successful and unsuccessful logon attempts, session establishment and termination, logout, activities of privileged user accounts, changes to user access rights and password changes;

- (d) Audit trail shall be enabled on the database and any changes to the database made by database administrators, schema owners or privileged database accounts and application users shall be logged in the audit trail;
- (e) Failed attempts of system access, with date, time, user account name and equipment network address, shall be reflected in regular audit trial report for the administrative user to take necessary actions;
- (f) Audit report functions shall be provided to check the activities with filtering, such as performed by a specific user, logon time, location, functions and screens accessed, and values input and values output;
- (g) Only authorised personnel shall be able to access the system logs and other audit trails via the audit report functions;
- (h) Functions shall be provided to view the before and after images of a record in a change history format;
- (i) The System shall produce transaction log reports when required. Control summary and details shall be included;
- (j) Analysis tools shall be provided for analysis of the audit trails in identifying abnormal behaviours such as excess searching of records, attempts to search data in which the users do not have the rights to access to. Audit trails of using such analysis tools shall be provided as well;
- (k) The System shall alert the administrative users by ways of proactive detection of abnormal behaviours with the pre-defined rules set by the administrative users;
- (l) Any logs kept by the System shall provide sufficient information to support comprehensive audits;
- (m) The System shall retain logs for a period commensurate with their usefulness as an audit tool. During this period, such logs shall be secured so that they cannot be accessed or altered by unauthorised users;
- (n) Access to system logs shall be controlled and logged by the system automatically;
- (o) The transaction log records shall be of both user functions level and database table fields level;
- (p) All transaction log records shall be protected so that they cannot be accessed or altered by unauthorised users. The System shall also generate an alert if the transaction log records are altered;
- (q) All transaction log records shall be retained for at least 1 year to ensure the logs can be used. The transaction log records archived in removable media shall be kept for at least 2 years; and
- (r) The System shall retain the logs in which a specified period of logs shall be kept in online storage for instant retrieval whereas the older logs shall be kept in offline storage. The System shall back up the logs in separate media or magnetic tapes other than those for system and application data.

12.11 **User Authentication and User Function Control**

12.11.1 User authentication and user function control of the System shall satisfy at least the following security requirements. The System shall provide easy-to-use facilities

to support maintenance of user groups and control of additional modification to user account and password in a convenient way. **(E12/83)**

- (a) Facilities shall be provided to allow different users to access different sets of functions according to their specified access levels. These access definitions shall be centrally controlled by means of designated user accounts;
- (b) Logical access to the applications and system utilities shall be restricted to authorised users and the type of access rights granted to them shall be governed by:
 - User Account and Password
 - User Role assigned
- (c) A user account may belong to more than one user role;
- (d) The System shall support strict password policy such as minimum password length, initial assignment, restricted words and format and password life cycle;
- (e) The System shall keep passwords in well protected and encrypted format when held in storage or when transmitted over network;
- (f) Passwords shall be hidden when being typed on screen;
- (g) The System shall force users to change passwords within a specified period of time defined by the administrative user, e.g. every 90 days or less;
- (h) The System shall support changes to users' own passwords as and when required by users;
- (i) The System shall print user information, grouped by various selections of user roles or functions; and
- (j) The System shall not hardcode any passwords in programs. Passwords shall be encrypted when being stored in at least parameter files or databases.

12.12 **Handling of Privileged Accounts**

12.12.1 The Contractor and support staff shall not keep the password of the privileged accounts. The privileged accounts shall be managed by a system with strict enforcement of access, control, approval and auditing to limit the access of privileged accounts. Support staff shall only be able to obtain these managed accounts via pre-defined workflows with proper approval. The access to these managed accounts shall be logged. **(E12/84)**

12.12.2 The password of the privileged accounts shall be reset after each authorised access or a predefined period (e.g. daily). **(E12/85)**

12.12.3 The unused privileged accounts shall be disabled where appropriate. **(E12/86)**

12.13 **Ticket Security Requirements**

12.13.1 Regarding admission tickets, Tenderers shall provide 3 different security features that can effectively safeguard against counterfeiting and alteration. **(E12/87)**

12.14 **Payment Gateway Security Requirements**

- 12.14.1 The System shall provide a payment gateway solution that could comply with the Payment Card Industry Data Security Standard (PCIDSS). **(E12/88)**

13. RELIABILITY REQUIREMENTS

13.1 Tenderers' Responsibilities and Contractor's Commitment

13.1.1 Tenderers shall explain in Schedule 4 – Technical Proposal and System Configuration of Part V – Contract Schedules how the proposed technical solution can achieve the required Reliability Levels. **(E13/1)**

13.1.2 To the extent the Tenderer commits to a higher Serviceability Level or Mean Time Between Failure than the minimum Serviceability Level and or minimum Mean Time Between Failure (MTBF), Tenderers shall specify its higher committed level(s) in Schedule 13 – Reliability Specifications of Part V. **(E13/2)**

13.2 Contractor's Obligations

13.2.1 The Contractor shall ensure that the System delivered shall be robust and be able to achieve the Reliability Levels and shall be measured in accordance with the requirements laid down therein. The Contractor shall be responsible for any modification and enhancement required as part of ongoing System Support and Maintenance Services to ensure that the System will always maintain the required reliability. **(E13/3)**

14. SYSTEM RESILIENCE AND DISASTER RECOVERY REQUIREMENTS

14.1 Tenderers' Responsibilities and Contractor's Commitment

14.1.1 Tenderers shall propose in Schedule 4 – Technical Proposal and System Configuration of Part V – Contract Schedules the overall design, configuration and provisions for system resilience and disaster recover (DR) of the System. The proposed solution shall include backup and recovery of both system and data including the proposed daily backup time and the proposed recovery time for the System. **(E14/1)**

14.1.2 Tenderers shall propose in Schedules 1 and 2 – Hardware and Software of Part V – Contract Schedules all hardware and software required for implementing the solution to meet the system resilience and disaster recovery requirements of the System. Tenderers shall propose, if necessary, any spare equipment required for the purposes of backup and resilience. **(E14/2)**

14.1.3 The Contractor shall ensure that the System complies with the resilience requirements specified in this part and other parts of these Specifications. **(E14/3)**

14.1.4 The Contractor shall provide system resilience and disaster recovery provisions for the System to safeguard services levels in case of a localised failure of system components and to ensure basic survival of vital business processes in a disaster situation for the System. **(E14/4)**

14.1.5 The Contractor shall provide disaster recovery provisions for the System to safeguard services levels in case of a localised failure of system components and to ensure basic survival of vital business processes in a disaster situation for the System. **(E14/5)**

14.2 System Resilience Requirement

14.2.1 High availability service shall be provided for the production environment of the System to minimise any possible service interruptions. **(E14/6)**

14.2.2 The proposed system design shall prevent single point of failure and there shall be no system interruption even during prevention or remedial system maintenance (scheduled or unscheduled) or installation of updates. A robust resilience design for the System must be proposed. **(E14/7)**

14.2.3 The System shall provide local resilience features in both physical and logical environments to increase system reliability and high availability with no single point of failure and protect from hardware failure including but not limit to below system components. Failure of any single component in each of the tiers can still fulfill the performance and workload requirements of the system. **(E14/8)**

14.2.4 Any one faulty hardware or software can resume service in 30 minutes or less after a failover process by switching to another standby component upon such hardware or software failure to avoid any one single point of failure. **(E14/9)**

14.2.5 The Contractor shall provide the following features in the resilience setup: **(E14/10)**
(a) no single point of failure in the resilience setup;

- (b) all resilient features shall automatically recover from failure; and
- (c) recover from failure shall be transparent to end users.

- 14.2.6 Notwithstanding any failure of any single component (hardware or software or data circuit or power supplies) located in any of the data centres, the Performance Criteria shall still be complied with. **(E14/11)**
- 14.2.7 The System shall adopt hot failover server cluster design with cluster aware application systems such that no service downtime will be required for system maintenance or upgrade in a single node of the proposed server cluster. **(E14/12)**
- 14.2.8 The failover of the System shall be divided into different levels. The proposed design shall support by site, by service, by server, and by database level failover. **(E14/13)**
- 14.2.9 The resilience design shall cover the setup of redundancy resources in at least network level, server cluster level, individual server level and storage level as follows: **(E14/14)**
- 14.2.9.1 Network Level
- 14.2.9.1.1 The network devices such as firewalls and core switches installed in production site and DR site shall be setup in fault resilient mode and with workload sharing if possible. All resilient features shall be configured to automatically recover from hardware failures and are transparent to end users. For example, security rule base and active network sessions shall be synchronised between a pair of firewalls. The backup firewall shall automatically take over services from the failed firewall. **(E14/15)**
- 14.2.9.1.2 Dual network links shall be connected to each network device and server. **(E14/16)**
- 14.2.9.1.3 The network connectivity of servers shall be designed in such a way that there is no single point of failure. **(E14/17)**
- 14.2.9.2 Server Cluster Level
- 14.2.9.2.1 The proposed servers shall provide an option to configure server clustering which is a group of independent servers running the same OS, e.g. Windows or Linux or UNIX, and working together as a single system to provide high availability of services for clients. When a failure occurs on one computer in a cluster, resources are redirected, and the workload can be redistributed to another computer in the cluster. **(E14/18)**
- 14.2.9.2.2 Server clustering shall be implemented such that the resilience server will automatically take over from the primary server, preventing their failure to cause noticeable service interruption to users. **(E14/19)**
- 14.2.9.3 The load balancing service shall be provided by load balancers. The load balancer in each server farm shall be configured for resilience purpose. In case the primary load balancer fails, the standby load balancer shall be able to take over the role. **(E14/20)**

- 14.2.9.4 The following types of server clustering methods shall be adopted for the System: **(E14/21)**
- (a) Load balancing (supporting active-active); and
 - (b) Active-standby.
- 14.2.9.5 Server clustering methods for the following types of server in the System shall be provided as follows: **(E14/22)**
- (a) For web servers – load balancing cluster shall be provided.
 - (b) For application servers – load balancing cluster or active-active cluster shall be provided.
 - (c) For database servers – active-standby cluster shall at least be provided.
- 14.2.9.5.1 Hardware level redundancy shall be implemented on each server in order to provide services in case any single component breaks down. Each individual server shall be equipped with at least the following: **(E14/23)**
- (a) mirrored hot-pluggable local hard drives to prevent disk failure;
 - (b) dual network cards for teaming with two network paths; and
 - (c) dual power supply.
- 14.2.9.6 To allow expansion, each cluster shall be able to accommodate new servers. Individual server shall be upgradeable. **(E14/24)**
- 14.2.9.7 Storage System Level
- 14.2.9.7.1 For storage system, redundant access paths connecting to server node(s) shall be provided to increase the overall availability. **(E14/25)**
- 14.2.9.7.2 The hard-disks shall be virtualised or physical with appropriate physical disk level resilience. **(E14/26)**
- 14.3 **Backup and Recovery Requirement**
- 14.3.1 Tenderers shall propose a preliminary solution for the backup and recovery of the System in Schedule 4 of Part V. **(E14/27)**
- 14.3.2 The Contractor shall provide all necessary hardware, software and Operation Services to implement the backup and recovery solution for the System in data centres. **(E14/28)**
- 14.3.3 The backup and recovery solution shall cover the backup and recovery of the System in all system environments which includes, but is not limited to the following: **(E14/29)**
- (a) VMs hosted in the Contractor Supplied Public Cloud; and
 - (b) VMs or servers in private cloud including database tier. The data can be restored at selected point of time.
- 14.3.4 The backup and recovery solution shall cover backup and recovery of both operating system (viz., operating system and application software of servers) and data (viz., system configuration, system data and application data). **(E14/30)**

- 14.3.5 The backup and recovery solution shall adopt a centralised system approach to perform all the tasks. **(E14/31)**
- 14.3.6 The Contractor shall refine the preliminary proposal set out in the Schedule 4 of Part V – Contract Schedules and provide the backup and recovery plan including different backup and recovery scenarios for the System in case of corruption. **(E14/32)**
- 14.3.7 The Contractor shall provide functions and procedures for backup and recovery of both system and data of the System. **(E14/33)**
- 14.3.8 The Contractor shall provide a complete set of backup and recovery solution which shall allow for an unattended backup procedure for all backup jobs. It is expected all recovery jobs being attended operation in order to ensure the data integrity. **(E14/34)**
- 14.3.9 The proposed system backup solution shall be capable to on-line system backup to minimise the server down time for conducting system backup image. The server system backup shall support at least Windows, Linux OS and Windows Active Directory backup. **(E14/35)**
- 14.3.10 The Contractor shall provide an integrated backup mechanism or infrastructure from the proposed storage solution (including SAN and D2D etc.) with faster communication link(s) and I/O of the media, e.g. supporting disk-to-disk, disk-to-disk-to-tape and disk-to-tape with fibre channels directly from SAN chassis or SAN switches in order to reduce the window of backup time and shorten the operation time. The solution shall be a user-centric and graphical-based interface to manage and monitor the backup and recovery processes. **(E14/36)**
- 14.3.11 All data stored in all devices shall be properly protected, e.g. mirror disk, with physical disk level resilience, backup, secondary disk and tape data, including the Contractor Supplied Public Cloud. **(E14/37)**
- 14.3.12 The backup device shall be compatible with the application proposed. **(E14/38)**
- 14.3.13 If tape backup device is proposed, the Contractor shall provide sufficient quantity of tape loader, tape backup devices and tape cartridges to perform the backup throughout the Maintenance Period. **(E14/39)**
- 14.3.14 The backup and recovery system shall adopt the online backup approach, but shall not affect the performance and the service availability of the System. **(E14/40)**
- 14.3.15 A dedicated management network segment shall be used for the backup purpose to avoid heavy traffic on the LAN. **(E14/41)**
- 14.3.16 The proposed backup and recovery tool shall provide centralised, user-friendly, easy-to-use, Window-based GUI interface to schedule and handle backup and recovery tasks or jobs, for example, the scheduled backup job shall be automatically started without waiting for the pre-set timeslot if the preceding job has been finished. **(E14/42)**
- 14.3.17 The daily backup time excluding those backup jobs that would not affect the production environment (such as tape-to-tape backup) shall not exceed 8 hours.

- The recovery time (including system and data recovery) for any server shall not exceed 4 hours. **(E14/43)**
- 14.3.18 The backup and recovery test shall be conducted regularly to minimise the drill restore need to verify the backup tape or loss of business transaction data. The loss of data in case of system image(s) failure or data corruption, the restoration shall be successfully completed within 4 hours. **(E14/44)**
- 14.3.19 The Contractor shall ensure the most up-to-date system and data images are restorable in the shortest period of time in case of system damage or data corruption. The Contractor shall conduct system or data recovery when requested by the Government. **(E14/45)**
- 14.3.20 At least two recent versions of the system backup images shall be kept. **(E14/46)**
- 14.3.21 For all changes (such as configuration changes, software upgrade) on system or application software, the Contractor shall perform full system backup before and after the changes. **(E14/47)**
- 14.3.22 Tenderers shall propose at least two copies of daily backup (one will be kept at Tenderer's office and the other one will be kept at offsite). **(E14/48)**
- 14.3.23 The backup solution shall have high availability with no single point of failure. **(E14/49)**
- 14.3.24 All backup network for virtual machine image backup and database backup shall not pass through any firewall equipment. **(E14/50)**
- 14.3.25 Simultaneous backup and restore operations shall be supported on multiple virtual machines, such as Hypervisor X and VMware. **(E14/51)**
- 14.3.26 De-duplication technology shall be supported to minimise data storage. **(E14/52)**
- 14.3.27 The Contractor shall provide online backup of data including system backup, database backup and data backup. **(E14/53)**
- 14.3.28 Selective files and folder level data backup of the virtual machines shall be provided. **(E14/54)**
- 14.3.29 All classified data stored in all backup devices shall be properly protected and encrypted with open standard, including access control and encryption, e.g. Advanced Encryption Standard (AES). **(E14/55)**
- 14.3.30 Backup of data, configuration and logs in servers, server pools and network equipment (such as firewalls and routers) in production and non-production environments shall be performed. One copy of the backup shall be kept in off-site. **(E14/56)**
- 14.4 **Disaster Recovery Requirement**
- 14.4.1 The Contractor shall maintain and ensure the DR facilities are in good working conditions in order to meet the DR requirements. **(E14/57)**

- 14.4.2 The Contractor shall specify support level in different tiers for equipment and services residing in both cloud and locally hosted environment. For the locally hosted environment, an alternative site shall be provided with a backup system configuration. During disaster recovery, the disaster recovery data centre shall be used to recover the services in the backup system configuration. **(E14/58)**
- 14.4.3 Online data synchronisation of transaction data with no more than 5 minutes delay shall be provided. **(E14/59)**
- 14.4.4 All system and application software upgrades shall be carried out in both production and DR site by the Contractor regularly such as monthly so as to maintain the data integrity. **(E14/60)**
- 14.4.5 When the production environment resumes normal again after disaster, the Contractor shall restore (including the switch over from the DR site) the System in the production site to provide normal services to users. **(E14/61)**
- 14.4.6 The Contractor shall produce a DR plan with full details sufficient for performing a complete and successful DR process which meets all the DR requirements. The DR plan shall include at least the following items: **(E14/62)**
- (a) Procedure for activating the DR process;
 - (b) Parties involved and resources required in the DR process;
 - (c) Procedures and durations required to enable or restore the equipment, data or settings in the DR site;
 - (d) Operations in the DR site;
 - (e) Service level provided; and
 - (f) Procedure to switch back to the recovered production site.
- 14.4.7 The Contractor shall conduct a successful DR drill before the production rollout of the System. **(E14/63)**
- 14.4.8 The Contractor shall conduct a successful DR drill at least once a year as part of the System Support Services and shall allow the Government representatives on site to monitor and perform the drills. During the DR drill, the Contractor shall verify the DR plan and update it if necessary. **(E14/64)**
- 14.4.9 Tenderers shall propose all the necessary hardware, software, telecommunication equipment and service: **(E14/65)**
- (a) to fully fulfill the detailed disaster recovery requirements as specified at Annex C to this Part.
 - (b) to provide at least 15 remote access sessions (either through Internet or Telnet or dial-up) to the Disaster Recovery site's servers for the normal ticketing operation functions as available to system supervisors and operators
- 14.4.10 If the Disaster Recovery service is to be provided by a third-party service provider instead of the Contractor itself, Tenderers shall propose the details in Schedule 17 – Sub-Contracts of Part V – Contract Schedules the information related to the sub-contractor. During the System development stage, the Contractor shall propose a detailed disaster recovery plan including the terms and conditions as arranged with the disaster recovery services provider where applicable. **(E14/66)**

- 14.4.11 The Contractor shall include a plan or proposal to retain or transfer the skills of their application supporting staff to support the ticketing application in case of insolvency. **(E14/67)**
- 14.4.12 **Contractor Supplied Cloud Environment**
- 14.4.12.1 The Cloud Infrastructure in the DR environment shall be located in a different Data Centre from the Primary Data Centre which houses the Cloud Infrastructure in production environment. **(E14/68)**
- 14.4.13 The cloud environment shall automatically provide disaster recovery service. **(E14/69)**
- 14.4.14 The Contractor shall provide the same capacity as the production data centre in Cloud, the same system capacity and network bandwidth need to be available. In the event of DR, the system cutover to disaster recovery data centre with no change to the service. **(E14/70)**
- 14.4.14.1 The DR environment shall provide all functions as in the production environment for delivery of Cloud Services to users and operation of ticketing services. **(E14/71)**
- 14.4.15 The Contractor shall specify the cloud solution; the architecture shall provide support of DR at alternative data centres supported locally by the cloud service provider. Disaster recovery services shall be the responsibility of the cloud service provider. The services to the System shall be unchanged. **(E14/72)**
- 14.4.16 The Contractor shall provide DR protection on all levels of the proposed solution including application as well as data using Disaster Recovery as Service (DRaaS) or equivalent technology provided by the cloud service provider for application and data reside in the cloud. **(E14/73)**
- 14.4.16.1 The DR environment shall: **(E14/74)**
- (a) provide sufficient capacity to meet the workload and to achieve the same Service Levels as required in the production environment when the DR environment is required to deliver the Services until the original production environment is recovered or a new production environment is ready to deliver the Services; and
 - (b) facilitate the conduct of DR drill at least once in each year for the System.
- 14.5 **Business Continuity Requirements**
- 14.5.1 The Contractor shall submit a business continuity plan which aims to maintain and restore business services in a timely manner following interruption to, or failure of the system. The business continuity plan shall cover the situation of complete closure of both computer suites rendering the System inoperable for a prolonged period. **(E14/75)**
- 14.5.2 The business continuity plan shall cover the procedures to maintain the core business services via manual process (e.g. paper log sheet) or alternative means. The Contractor shall consult LCSD to plan and prepare the procedures and tools to develop the business continuity plan. **(E14/76)**

- 14.5.3 The Contractor shall be responsible for reviewing the overall requirements and working out details of the solution in the business continuity plan during SA&D stage. **(E14/77)**
- 14.5.4 The business continuity plan and its updates shall be submitted to the Government for consideration and approval. **(E14/78)**

15. DELIVERY AND INSTALLATION

15.1 Tenderer's Responsibilities

15.1.1 Tenderers shall propose in Schedule 8 – Implementation Plan of Part V, the planned tasks to be completed in various stages of hardware and software installation for the implementation of the proposed System. **(E15/1)**

15.1.2 Tenderers must submit a detailed timetable showing all major tasks in various stages of hardware and software installation. **(E15/2)**

15.2 General Requirements

15.2.1 The Contractor shall deliver and install the Contractor Supplied Hardware and Software, and additionally, the Custom Programs at the Locations according to the Implementation Plan as specified in Schedule 8 – Implementation Plan of Part V. The delivery and installation of the proposed equipment shall be in accordance with the dates as set out in Section 3 – Implementation Plan of this Part. **(E15/3)**

15.2.2 The Contractor shall provide assistance, instruments, machines, expertise, labour and other facilities as may be necessary to enable the Government to inspect and test the Contractor Supplied Hardware and Software upon the completion of delivery. **(E15/4)**

15.2.3 The Contractor shall be responsible for the physical planning, delivery and installation of all Hardware and Software in such a way to ensure the proper functional order and seamless integration at the Locations so as to provide the System Ready for Use in accordance with the Implementation Plan as specified in Schedule 8 – Implementation Plan of Part V. **(E15/5)**

15.2.4 The Contractor shall take the following observations at different Stages of hardware and software installation: **(E15/6)**

- (a) There shall be minimum interruptions to existing business services and operations;
- (b) The delivery of hardware and software items shall be fulfilled within normal office hours of each Location as given in Section 5 – Workload Specifications of this Part; and
- (c) Prior arrangement and agreement shall be made with the Government regarding the delivery and installation schedule.

15.2.5 The Contractor shall be responsible for identifying and resolving all interface problems amongst its and any associated equipment and communication facilities. **(E15/7)**

15.2.6 The Contractor shall be responsible for cabling service at locations specified in Section 7 – Location and Site Specifications of this Part. Unless otherwise specified by the Government, cabling service shall be performed during outlet or office non-opening hours. **(E15/8)**

15.2.7 The Contractor shall be responsible for making good any damages to other installations caused by the Work and taking any necessary remedial actions for such damages. **(E15/9)**

16. ACCEPTANCE TEST

16.1 Tenderers' Responsibilities

16.1.1 Tenderers shall provide in Schedule 10 – Installation Test of Part V – Contract Schedules the information in relation to conducting the Installation Test for the implementation of the System. **(E16/1)**

16.1.2 Tenderers shall provide in Schedule 11 – System Acceptance Tests of Part V – Contract Schedules the information related to the carrying out of the System Acceptance Tests and the User Acceptance Tests for the implementation of the System. **(E16/2)**

16.2 The Contractor shall coordinate, conduct and successfully complete the following acceptance tests whichever applicable for each Phase of the System within the schedule as set out in the Implementation Plan and in compliance with the provisions of this Contract as stipulated in the Conditions of Contract (Part IV): **(E16/3)**

(a) Installation Test;

(b) System Acceptance Tests;

- Functional Test (comprises Unit Test, Link Test and Function Test);
- System Integration Test;
- Load Test;
- Resilience Test;
- Reliability Test;
- Disaster Recovery Test;
- Data Conversion and Migration Test; and

(c) User Acceptance Test.

16.3 The Contractor shall prepare the relevant plans and specifications for carrying out each of the aforementioned tests in accordance with Section 16.2 of this Part, and shall submit to the Government for approval at least one month prior to commencing the conduct of these parts of acceptance tests, in particular. **(E16/4)**

16.4 The Contractor shall set up the test environments that are pertinent to the conduct of different parts of tests as mentioned in Section 16.2 of this Part. **(E16/5)**

16.5 The Contractor shall provide, set up and install the suitable hardware, equipment, software, and tools upon approval by the Government for performing the Load Test at no additional cost to the Government. **(E16/6)**

16.6 The Contractor shall be responsible for generating test data to conduct the System Acceptance Tests. **(E16/7)**

16.7 The Contractor shall propose the use of testing utilities or tools to automatically generate or simulate test cases and data wherever necessary as part of the facilitation for the completion of the aforementioned acceptance tests in Section 16.2 of this Part. **(E16/8)**

- 16.8 The Contractor shall permit the Government to use the testing utilities or tools proposed in Section 16.7 of this Part during the acceptance test periods. **(E16/9)**
- 16.9 The Contractor shall provide utilities, tools or equipment to measure the performance and reliability of the System while conducting the aforementioned acceptance tests in Section 16.2 of this Part. **(E16/10)**
- 16.10 The Contractor shall provide technical support and assistance to the Government at the time of preparing and conducting the Reliability Tests and the User Acceptance Tests as mentioned in Section 16.2 of this Part. These provisions shall include, but not be limited to, the following: **(E16/11)**
- (a) Assistance shall be rendered to users for the preparation of the User Acceptance Test plans and cases. In connection with the preparation of the User Acceptance Tests cases, in particular, the Contractor shall submit test cases to LCSD by devising a range of business scenarios to be tested with their respective set of test data, test case details, expected results, test case status and so forth in consultation with users;
 - (b) Users shall be provided on-site support to build or load the required test data in the designated test environment(s);
 - (c) Demonstrations and assistance shall be given to users with regard to conducting these parts of acceptance tests, and comparing the before as well as after images of the test data involved; and
 - (d) Guidelines or instructions shall be given to users regarding the backup and recovery procedures of the test data concerned.

17. IMPLEMENTATION SERVICES

17.1 General

- 17.1.1 The Contractor shall provide comprehensive portfolio of Implementation Services, as specified in Section 17.3 of this Part. **(E17/1)**
- 17.1.2 The Contractor shall exercise all reasonable skills, care and diligence in its conduct of the Implementation Services. **(E17/2)**
- 17.1.3 The Contractor shall adopt all prevailing Government standards and guidelines in the implementation of the System. The major Government standards and guidelines currently in force are listed in Annex D – List of Major Government Standards and Guidelines to this Part. Brief descriptions of these standards and guidelines are available for reference on the website <https://www.ogcio.gov.hk>. These standards and guidelines shall be followed in the performance of the Implementation Services including the preparation and delivery of the Deliverables. **(E17/3)**
- 17.1.4 The Contractor shall submit draft Deliverables to the Government for review and comment at least two (2) weeks before formally submitting the same to the Government for acceptance. The Deliverables shall not be considered as completed unless they are accepted by the Government in writing. **(E17/4)**
- 17.1.5 The Contractor shall, through the Government Representative, keep the Government informed on all matters related to the implementation of the System within the knowledge of the Contractor and shall answer all reasonable inquiries received from the Government Representative and render progress reports once every fortnight (or at a frequency agreed by the Government Representative). Such report shall contain at least the following information and any other information as may be required by the Government Representative in writing: **(E17/5)**
- (a) Achievement to date;
 - (b) Problem areas;
 - (c) Recommended solutions;
 - (d) Works scheduled for the next period; and
 - (e) Progress against milestones and the latest forecast of schedule.
- 17.1.6 The Contractor shall attend all meetings convened by the Government Representative to which they may be invited and shall advise and assist the Government on all matters relating to the duties it has assumed under this Contract. **(E17/6)**
- 17.1.7 All the materials supplied to the Contractor by the Government for the purpose of this Contract shall remain as the property of the Government, and shall be returned to the Government in their original condition after completion of the Implementation Services. **(E17/7)**
- 17.1.8 The Contractor is required to provide hardware, software, daily operation and corresponding services for the implementation of the Ticketing System and Operation Services as specified in these Project Specifications. The Contractor

shall be fully responsible for the project control, design, program development, customisation, testing, training, installation, documentation, problem diagnosis, problem fixing and system tuning required to implement the Ticketing System and Operation Services. **(E17/8)**

17.1.9 The Contractor shall comply with all reasonable instructions of the Government or the Government Representatives in so far as they are applicable to the Implementation Services. Nothing in this paragraph shall be deemed to affect the responsibility of the Contractor in connection with the duties undertaken by it under this Contract. **(E17/9)**

17.1.10 The Contractor shall, so requested by the Government Representative, submit to him for his approval such drawings, designs, plans and other documents, matters or things prepared by it for the purposes of this Contract as he may specify or require but no such approval shall affect the responsibility of the Contractor(s) in connection with duties undertaken by it under this Contract. **(E17/10)**

17.1.11 Whilst the Government shall furnish the Contractor with all or any available and/or pertinent information, knowledge and assistance as the Contractor(s) may reasonably and properly require enabling it to perform its obligations, the Contractor acknowledges and agrees that it is responsible for implementing the System and the Operation Services on a total solution basis. **(E17/11)**

17.2 **Project Management Services**

17.2.1 Without prejudice to the Contractor's obligation to implement the System on a total solution basis, the Contractor shall provide the project management services during all the stages of implementation of the System, which include project monitoring and coordination of the implementation activities of all relevant parties including its sub-contractors, Other Contractors and in-house project teams of the Government responsible for any part of the implementation of the System in the manner as expressly specified by the Government in the Project Specifications ("In-house Team") (if any). **(E17/12)**

17.2.2 The implementation of the System shall be managed according to the project management framework as stipulated in the "Practice Guide to Project Management for IT Projects under an Outsourced Environment" published by the Office of the Government Chief Information Officer (OGCIO). The Government has established or will establish a project organisation which includes or will include at least the Project Steering Committee (PSC), the Project Assurance Team (PAT) and the Internal Project Manager (Internal PM). The Contractor shall attend PSC and PAT meetings from time to time requested by the Government. Notwithstanding anything to the contrary, the PSC, PAT and Internal PM are not to be taken as the Government Representative which can exercise the rights and powers of the Government unless the Government Representative specifies otherwise in writing. Relevant information is available for reference on the following web site: **(E17/13)**

https://www.ogcio.gov.hk/en/infrastructure/methodology/proj_mgmt/pm_practice_guide_outsourced.htm

17.2.3 The Contractor shall perform the role of Senior Technical of the PSC and perform the role of Technical Assurance Coordinator of the PAT. The Contractor shall advise and help the Government to prepare, steer and monitor the implementation

of the System throughout the Implementation Period and shall submit deliverables to PAT and PSC for comments and input. **(E17/14)**

17.2.4 The Contractor shall also perform the role of Contractor Director, Contractor Project Manager (Contractor PM) and Contractor Team Members under the project management framework according to the Practice Guide to Project Management for IT Projects under an Outsourced Environment. **(E17/15)**

17.2.5 The Contractor shall be responsible for the project management and act as a single contact point to the Government regarding all related activities of the Implementation Services. **(E17/16)**

17.2.6 The Contractor shall take the lead in co-ordinating various parties within and outside the Government for the smooth implementation of the System. **(E17/17)**

17.2.7 The Contractor shall oversee and monitor the progress of various activities throughout the Implementation Period to ensure that these activities are completed according to Implementation Plan and meeting all requirements in these Project Specifications. **(E17/18)**

17.2.8 The Contractor shall plan and schedule meetings at such time to be agreed by the Government Representative, to prepare meeting agenda, to arrange and to take notes for all the meetings with various parties. The Contractor shall coordinate working meetings as required by the Government. **(E17/19)**

17.2.9 The Contractor shall report progress, follow up all outstanding issues with all related parties, suggest solutions and resolve difficulties within a specified period of time agreed by the Government Representative throughout the Implementation Period. **(E17/20)**

17.2.10 The project manager in the Implementation Team shall oversee the preparation and submission of the Deliverables to the Government at the time specified in the Contract or as directed by the Government Representative. **(E17/21)**

17.2.11 The project manager nominated by the Contractor shall be responsible for the day-to-day project management to ensure that the Implementation Team shall complete Implementation Services and produce the Deliverables to meet the required standard of quality according to the specified schedule, within the specified resources and in compliance with the quality standard stipulated in the quality plan to be submitted by the Contractor to the Government within fourteen (14) days after the Contract Date. **(E17/22)**

17.3 **Detailed Aspects of the Implementation Services**

The Contractor shall provide the following Implementation Services: **(E17/23)**

- (a) multi-contractor coordination;
- (b) procurement, delivery and installation;
- (c) environment setup;
- (d) system analysis and design;
- (e) data conversion and migration;
- (f) integration of Hardware, Software and Custom Programs;

- (g) customisation;
- (h) Custom Programs development, installation and implementation;
- (i) site preparation;
- (j) developing interfaces with other systems;
- (k) System Acceptance Tests and User Acceptance Tests;
- (l) system performance tuning;
- (m) training;
- (n) disaster recovery;
- (o) post-implementation review;
- (p) Documentation;
- (q) security risk assessment and audit (SRAA);
- (r) privacy impact assessment (PIA);
- (s) impact analysis of System Change requests;
- (t) System Changes;
- (u) quality assurance review;
- (v) parallel run and System Cutover; and
- (w) other services.

17.3.1 **Multi-contractor Coordination**

- 17.3.1.1 During the implementation of the System, the Contractor shall be responsible for resolving all issues arising from the System and to the extent necessary, co-operate with Other Contractors and In-house Teams. These include the Contractor and Other Contractors overseeing the systems with which the System shall be integrated or interfaced or connected, and in-house project teams of the Government set up to perform specific responsibilities with regard to the implementation of the System as specified by the Government in these Project Specifications. **(E17/24)**
- 17.3.1.2 The Contractor shall co-operate with and provide all necessary information, support and assistance to the Other Contractors and In-house Teams to ensure the successful implementation of the System, and the successful implementation or maintenance of the other systems with which the System forms part of or is connected or interfaces. **(E17/25)**
- 17.3.1.3 The Government Representative shall be the final arbitrator in the event of any dispute between the Contractor, and any member of the Other Contractors and In-house Teams, and any decision made by the Government for the resolution of the dispute shall be binding on the Contractor in the absence of any manifest error (even in the case of a dispute between the Contractor and the in-house project team of the Government not exercising any monitoring role over the Contractor if the dispute concerns or relates to or arises from the co-operation or division of responsibilities between the in-house project team and the Contractor notwithstanding Clause 72 – Governing Law and Jurisdiction of Part IV). **(E17/26)**

- 17.3.1.4 The Contractor shall co-ordinate and monitor the implementation activities of all sub-contractors, contractors and suppliers for the System to ensure that their tasks will be completed according to the Implementation Plan. **(E17/27)**
- 17.3.1.5 In those situations where there are more than one contractor having equipment installed at an installation, the Contractor shall act as the co-ordinator such that all the contractors involved will co-operate fully, where appropriate or as required by the LCSD, to ensure that the required service levels are achieved. **(E17/28)**
- 17.3.1.6 The Contractor shall report to the Government if any Other Contractor fails to provide any information, support and assistance as may be necessary to enable the Contractor to perform any tasks for the implementation of the System. The Contractor shall also report to the Government if the implementation schedule of the System is affected by the poor performance of any Other Contractor. **(E17/29)**
- 17.3.2 **Procurement, Delivery and Installation**
- 17.3.2.1 The Contractor shall be responsible for procurement and installation of all the Contractor Supplied Hardware and Software at its sole cost. **(E17/30)**
- 17.3.2.2 The Contractor shall deliver and install the equipment such as workstations, ticket printers, report printers and self-service ticketing kiosks to different ticket outlets, office or locations throughout Hong Kong in accordance with the distribution as stated in Sections 5.4.1 and 5.4.2 of this Part. **(E17/31)**
- 17.3.2.3 The Contractor shall ensure the proper delivery and installation of Hardware and Software under the Contract. **(E17/32)**
- 17.3.2.4 The Contractor shall supply, deliver and install all necessary cabling, cable containment, power distribution for the installation of the System at the Locations specified by the Government. **(E17/33)**
- 17.3.2.5 The Contractor shall co-ordinate and monitor the procurement and delivery schedule, installation schedule and installation progress of hardware and software as proposed and required by the Contractor. The Contractor shall be responsible for the administration works required in the procurement procedures including liaison with contractors and the Government Representatives in relation to the procurement and installation exercise. **(E17/34)**
- 17.3.2.6 The Contractor shall be responsible for identifying and resolving all interface problems amongst its and any associated equipment and communication facilities. **(E17/35)**
- 17.3.2.7 The Contractor shall conduct necessary installation tests to acknowledge that the components supplied are in compliance with the product specifications. **(E17/36)**
- 17.3.2.8 The Contractor shall develop and monitor the site preparation, delivery schedule and installation schedule and progress. **(E17/37)**
- 17.3.2.9 The Contractor shall co-ordinate the supply and installation of all equipment and services supplied by different suppliers. **(E17/38)**
- 17.3.2.10 The Contractor shall ensure the timely delivery of items by different contractors. **(E17/39)**

17.3.2.11 The Contractor shall conduct necessary tuning for all proposed hardware items including but not limited to servers and network equipment. **(E17/40)**

17.3.3 **Environment Setup**

17.3.3.1 Apart from the System in production environment and disaster recovery environment, the Contractor shall be responsible for setting up the System in each of the following non-production environments (each a “non-production environment”): development environment, testing environment, load test environment and training environment. The Contractor shall be responsible for the delivery, supply, installation and set up each of these non-production environments. The same set of hardware and software may be used for setting up each of the non-production environment but the Contractor shall be responsible for making all necessary configuration and modification for converting the non-production environment from one to the other as and when it is needed for the relevant Implementation Services. Non-production environments shall be set up in a separate LAN segment protected by firewall and shall not degrade or weaken the required security level or compromise the security of information assets and systems processed in the production and disaster recovery environments. **(E17/41)**

17.3.3.2 For the System in production environment and disaster recovery environment, the Contractor shall be responsible for the delivery, supply and installation of all Contractor Supplied Hardware and Software in accordance with the quantities and specifications as specified in Schedule 1 – Hardware and Schedule 2 – Software of Part V – Contract Schedules (and the provisioning of the Cloud Services in the case of the Contractor Supplied Public Cloud), and the Custom Programs for setting up the System in these environments. **(E17/42)**

17.3.3.3 The Contractor shall perform the following in configuring and setting up the System, including servers, workstations, peripherals, network, Internet services environment, box offices and outlets environment (e.g. alteration of box office and outlet, data conduits, etc.), the user acceptance testing environment, the training environment and the production environment: **(E17/43)**

- (a) to perform system administration for server(s);
- (b) to configure and set up the system parameters for any DBMS, network tools and other software running on server(s);
- (c) to configure and install all related application software so that once the workstation is powered on, the corresponding application would automatically be launched; and
- (d) to set up Windows icon so that users can access the System as required.

17.3.3.4 The Contractor shall co-ordinate the implementation and on-site support with Other Contractors. **(E17/44)**

17.3.3.5 The hardware and software comprised in the non-production environments as mentioned in Section 17.3.3.1 of this Part shall be converted into maintenance environment for supporting the provision of System Support and Maintenance Services after production rollout of the System. **(E17/45)**

17.3.4 **System Analysis and Design (“SA&D stage”)**

- 17.3.4.1 The system analysis and design stage shall be conducted according to the best practices as stipulated in the “Effective Systems Analysis and Design Guide” published by OGCIO. This guide is suitable for adoption for different project natures and development approaches such as waterfall, iterative, incremental, agile software development or a combination of approaches. Relevant information is available for reference on the following web site: **(E17/46)**
- <https://www.ogcio.gov.hk/en/our_work/infrastructure/methodology/system_development/effective_guide.html>
- 17.3.4.2 The Contractor shall be responsible for ascertaining the detailed user requirements concerning the System, and preparing the detailed system analysis and design for the System. **(E17/47)**
- 17.3.4.3 The Contractor shall carry out detailed system analysis and design for the System to ensure the requirements specified in these Project Specifications are fully met by the System based on the proposed design of the System. The Contractor shall submit the detailed system analysis and design of the System to the Government for review and agreement. **(E17/48)**
- 17.3.4.4 In relation all interfaces between the System and other systems as specified in these Project Specifications, the Contractor shall determine the interface specifications in the SA&D stage and seek the agreement of the Other Contractors and In-house Teams responsible for such other systems in relation to these interface specifications. **(E17/49)**
- 17.3.4.5 The Contractor acknowledges and accepts that the specifications set out in these Project Specifications for the System including the functional specifications are high level business requirements. These high-level business requirements may be subject to further refinement and elaboration during the SA&D stage (“System Design Refinements and Elaborations”). The Contractor shall be obliged to take instructions from the Government and if required by the Government, Other Contractors and In-house Teams concerning these System Design Refinements and Elaborations. The Contractor shall propose the necessary System Design Refinements and Elaborations for the Government’s consideration to ensure that the System will achieve the objectives, Overall Specifications, Performance Criteria, and Reliability Levels. The Contractor acknowledges and accepts that it is the obligation of the Contractor to produce a detailed design for the System and to implement such System based on such detailed design which conforms with these high level requirements subject to such further System Design Refinements and Elaborations at no additional charge to the Government. **(E17/50)**
- 17.3.4.6 The Contractor shall finalise the list of components to be supplied for the System during the SA&D stage, including hardware, software and custom programs. The items shall be those stated in Schedule 1 – Hardware, Schedule 2 – Software and Schedule 3 – Specification of Part V – Contract Schedules unless the Government otherwise agrees or stipulates. In the event that the Contractor considers additional hardware or software or custom programs or additional quantity of those hardware or software or Custom Programs already proposed in the aforesaid Schedules shall be required in order to ensure that the System will comply with the Overall Specifications, Reliability Levels and Performance Criteria or otherwise to support the configuration or design of the System as determined during the SA&D stage, it shall provide the same at its own cost. **(E17/51)**

- 17.3.4.7 The Contractor shall be responsible for coordinating the overall system analysis and design activities of the System with other sub-contractors, contractors, supplier, parties and in-house development team. **(E17/52)**
- 17.3.4.8 In particular, the Contractor shall also coordinate, collect and study both internal and external system interfaces requirements with Other Contractors and In-House Team during the system analysis and design stage to ensure all system components of the System and interfaces with other systems are interoperable and compatible. **(E17/53)**
- 17.3.4.9 The Contractor shall review and refine the system design of the System during the system analysis and design stage. Major deliverables to be submitted in this stage shall include detailed design specification, process flow diagrams and other relevant documentation. **(E17/54)**
- 17.3.4.10 The Contractor shall submit the aforesaid deliverables in Section 17.3.4.9 in the system analysis and design stage to the Government Representatives for prior approval. **(E17/55)**
- 17.3.4.11 The Contractor shall be responsible for making alterations and adjustments on the submitted deliverables as requested by the Government Representatives. **(E17/56)**
- 17.3.4.12 The Contractor shall assist the Government to accept the detailed design specification and other relevant documentation produced by Other Contractors during the system analysis and design stage. **(E17/57)**
- 17.3.5 **Data Conversion and Migration**
- 17.3.5.1 The Contractor shall perform data conversion and migration test, including quality check of the converted data thoroughly prior to the actual execution of data conversion in accordance with Section 8 of this Part. **(E17/58)**
- 17.3.6 **Integration of Hardware, Software and Custom Programs**
- 17.3.6.1 At the System level, the Contractor shall be responsible for the seamless integration of all components of the System including but not limited to the Contractor Supplied Hardware and Software and Custom Programs to ensure that the System is implemented on a total solution basis which complies with the Overall Specifications, Performance Criteria and Reliability Levels. **(E17/59)**
- 17.3.6.2 The Contractor shall ensure the compatibility of all Hardware, Software and Custom Programs. **(E17/60)**
- 17.3.6.3 The Contractor shall be responsible for conducting the System Integration Test. **(E17/61)**
- 17.3.6.4 The Contractor shall coordinate with Other Contractors in rectifying problems that may arise during the integration of the hardware, software and various components of the System. **(E17/62)**
- 17.3.6.5 The Contractor shall be responsible for the interfaces between the different components of the System including software coexistence, data consistency, data integrity, system recovery, data sharing, system security, etc. **(E17/63)**

- 17.3.6.6 The Contractor shall be responsible for providing, configuring and integrating all the necessary and additional hardware and software in order to meet the requirements of the entire project. **(E17/64)**
- 17.3.6.7 The Contractor shall be responsible for the integration of the System including data consistency, data integrity, system recovery, data sharing, system security, etc. **(E17/65)**
- 17.3.6.8 The Contractor shall be responsible for the development of the interface of the System with the LCSD internal systems including RRS, CRS and MIS and other third party systems including PSI and GPRD. **(E17/66)**
- 17.3.6.9 The Contractor shall study and identify the kind or type of data (e.g. event information, performance information, outlets information, discount information, booking details, and seating plan, etc.) in the System which are suitable to disseminate to PSI portal (data.gov.hk) for free re-use for both commercial and non-commercial purposes. **(E17/67)**
- 17.3.6.10 The Contractor shall be responsible for hosting PSI datasets and corresponding specification documents provided by the System, and make sure that they are searchable and discoverable by the public through the Internet by HTTPS, with compulsory redirect HTTP to HTTPS, with no administrative restrictions. **(E17/68)**
- 17.3.6.11 The Contractor shall be responsible for hosting metadata files of PSI datasets provided by the core system, and make sure that they are searchable and discoverable by DATA.GOV.HK. **(E17/69)**
- 17.3.6.12 The Contractor shall act as the single contact point and in charge for the interface and the data replication services between the System and the LCSD internal systems including RRS, CRS, MIS, PSI and GPRDS. **(E17/70)**
- 17.3.7 **Customisation**
- 17.3.7.1 The Contractor shall perform customisation and configuration services for the Software of the System. **(E17/71)**
- 17.3.7.2 The Contractor shall perform customisation to supplement the existing functionality provided in the Software so as to meet the requirement specified in the Overall Specifications. **(E17/72)**
- 17.3.7.3 The Contractor shall be responsible for the design, program development, testing, training, installation, documentation, system tuning and quality assurance in respect of all Software incorporating all necessary customisation. **(E17/73)**
- 17.3.8 **Custom Programs Development, Installation and Implementation**
- 17.3.8.1 Unless where commercial off-the-shelf software is expressly required for any specified function of the System as stated in the Tender Documents, the Tenderer may propose Custom Program for implementing any requisite functionality of the System in Schedule 5 – Preliminary Design for the Custom Programs of Part V. Where Custom Program is expressly required for a functionality of the System, the Tenderer must propose Custom Program for implementing the functionality of the System in the same aforesaid Schedule. The Custom Program shall be developed using the version or model of programming language or platform as specified in the

- aforesaid Schedule. The version or model of programming language or platform shall be prevailing versions and must not have been de-supported by the manufacturer as at the Tender Closing Date, or have been announced to be de-supported by the manufacturer and such de-supporting to be effective within 5 years from the Tender Closing Date and the announcement has been made prior to the Tender Closing Date. **(E17/74)**
- 17.3.8.2 The Contractor shall be responsible for the project control, design, program development, testing, training, installation, documentation, version control, bug fixing, and system tuning in respect of all Custom Programs of the System. **(E17/75)**
- 17.3.8.3 The Contractor shall set up the development environment to facilitate carrying out all activities related to the Custom Programs development. **(E17/76)**
- 17.3.8.4 The Contractor shall closely work with the In-house Team with regard to the coordinated use and access of the aforementioned development environment throughout the Implementation Period. **(E17/77)**
- 17.3.8.5 The Contractor shall develop and follow system development standards, programming standards, naming conventions and other relevant system standards for system implementation and development of Custom Programs. The Contractor shall align these standards and conventions with the In-house Team. **(E17/78)**
- 17.3.8.6 The Contractor shall at its cost and at no extra charge to the Government perform code scanning for the Custom Programs and other customisation by using code scanning tools as part of the System Acceptance Tests. The code scanning tools shall perform code analysis including identification of common programming errors, architecture checking, interface analyses, and checking of code based on the standards and conventions mentioned in Section 17.3.8.5 of this Part. **(E17/79)**
- 17.3.8.7 In relation to any functional requirements specified in Section 4 of this Part where it is expressly stated that Custom Programs shall or may be developed for implementing such functional requirements, any such Custom Program to be deployed must be newly developed by the Contractor under the Contract to fulfil the relevant functional requirements. The Contractor must develop new Custom Programs to implement the functions. Regardless of whether the Custom Program is permitted or required in relation to any functional requirement, under no circumstances whatsoever will the Tenderer be permitted to offer to use, or the Contractor be permitted to use, the source code of any existing custom programs to implement any functional requirements set out in Section 4 of this Part. **(E17/80)**
- 17.3.8.8 The Contractor shall provide technical support and assistance to users in the preparation and during the conduct of the User Acceptance Tests. Utilities to generate test data with given criteria shall also be provided. **(E17/81)**
- 17.3.8.9 The Contractor(s) shall review with the Government Representatives the existing operating procedures and shall assist the Government in setting up an effective procedure which can align with functionality of the System and all related application software. **(E17/82)**
- 17.3.8.10 For the Government's information, Tenderers are requested to state the estimation of the manpower resources expected from the Government for the implementation

activities. However the Government is not obliged to comply and the non-compliance shall not constitute a ground for any delay. **(E17/83)**

17.3.8.11 Tenderers shall clearly describe their methodology in the application development, and demonstrate their proficiency in adopting the methodology, with quality assurance attribute included. The proposed project team shall provide track records with proven theoretical and practical experience in using the methodology. **(E17/84)**

17.3.9 **Site Preparation**

17.3.9.1 The Contractor shall determine the detailed site preparation, environment and resource specifications for the Locations for the Government's approval and preparation of the Locations in accordance with such specifications. If there are any additional specifications proposed by the Contractor which are in excess of those specifications set out in Schedule 9 - Location and Site Specifications, then submitted by the Contractor as part of the tender for the Contract, to the extent such excess specifications are feasible and acceptable to the Government, the Contractor shall be responsible for bearing the costs to be incurred by the Government to ensure that the Locations comply with such excess specifications (where such Locations are Government's premises or the outlets and offices as listed in Section 5.4.1 of this Part and Part III of Annex E to this Part ("Government Locations")). If the excess specifications are not feasible or acceptable to the Government, the Contractor shall propose work-around solution to address any issues arising from the non-compliance with the excess specifications to the satisfaction of the Government. **(E17/85)**

17.3.9.2 It is required that the Contractor shall perform all site preparation work for all Government Locations. **(E17/86)**

17.3.9.3 Any necessary cables, connectors, electrical equipment, cable accessories and consumables such as transceivers, cable management panel, patch cables, cabling work, metallic conduits etc. shall be provided by the Contractor. **(E17/87)**

17.3.9.4 The Contractor shall provide the necessary cabling installation, interconnection of the hardware and software to all locations. **(E17/88)**

17.3.10 **Developing Interfaces with Other Systems**

17.3.10.1 The Contractor shall design, develop and implement the interfaces to enable the System to interface with other systems as stated in these Project Specifications. In this connection, the Contractor shall seek all necessary assistance and request all necessary information from the Other Contractors and In-house Teams responsible for these other systems for the successful implementation of these interfaces. **(E17/89)**

17.3.10.2 The Contractor shall provide all necessary hardware, software and services needed for the implementation of the interfaces. **(E17/90)**

17.3.11 **System Acceptance Tests and User Acceptance Tests**

- 17.3.11.1 The Contractor shall carry out Installation Test and the System Acceptance Tests and participate in the User Acceptance Tests, to ensure that the System is Ready for Use. **(E17/91)**
- 17.3.11.2 In respect of the Installation Test and each part of the System Acceptance Tests and the User Acceptance Tests, the Contractor shall be responsible for: **(E17/92)**
- (a) developing and submitting test plans to the Government Representative for written approval which shall contain (a) the test items to be tested; and (b) the test specifications comprising (i) test procedures; (ii) test cases; (iii) test data; (iv) test environment and (v) test entry and termination criteria; and (c) expected results of the tests. All comments made by the Government Representative on the test plan shall be incorporated in order for the Government to approve the test plan.;
 - (b) preparing test scripts and test data for the tests;
 - (c) performing the test according to the approved test plans;
 - (d) providing the means to measure the performance and reliability of the System;
 - (e) evaluating test results;
 - (f) performing corrective actions and re-testing if required; and
 - (g) submitting test results and test incident reports to the Government for written approval.
- 17.3.11.3 Test incident reports for each part of the Installation Test, System Acceptance Tests and User Acceptance Tests shall be provided by the Contractor. These test incident reports shall cover all information required for a test incident report as specified or recommended in the Guidelines for Application Software Testing published on the OGCIO website from time to time including the test results with all necessary details to show whether the relevant part of the System Acceptance Tests has been passed. Every reported incident shall be fixed and with the relevant part of the System affected by such incident to be re-tested in accordance with the time schedule applicable to the relevant part of the test as stated in Clause 17 of Part IV – Conditions of Contract. **(E17/93)**
- 17.3.11.4 The Contractor shall carry out the System Acceptance Tests in the presence of the Government officers unless the Government opts not to attend as confirmed in writing. The Government officers shall also be allowed to participate in the conduct of any part of the System Acceptance Tests if the Government sees fit. **(E17/94)**
- 17.3.11.5 The Contractor shall provide statistical data on the system performance to the Government Representative to prove that the System has met the Reliability Levels and Performance Criteria. The Government may also keep its own data whether collected during Reliability Tests or otherwise. In the event of inconsistency, the Government's data shall prevail in the absence of any manifest error. **(E17/95)**
- 17.3.11.6 The Contractor shall have the primary responsibility to resolve any issue which prevents the System from passing any part of the Installation Tests or System Acceptance Tests or User Acceptance Tests. To the extent the issue is suspected to be caused by any component not supplied by the Contractor, or caused by the incompatibility between any part of the System and that other component not supplied by the Contractor, the Contractor shall directly contact the Other

Contractor which supplies such component and work together with it to resolve any issue. Unless otherwise agreed by the Government, the Contractor shall still remain responsible for resolving the issue and propose and implement a work-around solution to the satisfaction of the Government. **(E17/96)**

17.3.11.7 The Contractor shall use a problem and issue logging and tracking system (viz., a software package) to capture the problems or error events encountered in conducting all Installation Tests, System Acceptance Tests and User Acceptance Tests for logging and taking follow-up actions. **(E17/97)**

17.3.11.8 Without prejudice to the obligations of the Contractor under the Contract including this Section 17.3.11 (and all sub-sections of this Section 17.3.11), User Acceptance Tests shall be conducted by the Government with the participation of the Contractor. The Contractor shall provide all necessary assistance and support to the Government in the conduct of the User Acceptance Tests. The Contractor shall set up and make available the System in testing environment for the User Acceptance Tests. **(E17/98)**

17.3.11.9 For the User Acceptance Tests, the Government shall have the absolute discretion to determine the scope of the User Acceptance Tests, the testing criteria and procedures. The users of the System as well as the users of those systems with which the System is to interface with may also participate in the conduct of the User Acceptance Tests to raise queries and comments on the spot in relation to which the Contractor shall address and propose and implement solutions before the User Acceptance Tests are considered passed. **(E17/99)**

17.3.11.10 The Contractor shall provide application user manual to assist users in carrying out the Reliability Tests and the User Acceptance Tests. **(E17/100)**

17.3.12 **System Performance Tuning**

17.3.12.1 The Contractor shall ensure that the System complies with the Overall Specifications, Performance Criteria and Reliability Level throughout the Operation Period. If there is any issue, the Contractor shall be responsible for fixing such issue. Even if any issue concerns the interface with another system, the Contractor shall still be primarily responsible for resolving the issue to the satisfaction of the Government. **(E17/101)**

17.3.12.2 The Contractor hereby warrants that the System meets the Overall Specifications, Performance Criteria and Reliability Levels throughout the Operation Period. Without prejudice to the obligations of the Contractor, and the rights and claims of the Government in the event of any non-compliance of such warranty during the Operation Period, the Contractor shall provide all necessary hardware, software and manpower resources at its own cost and expenses to tune the System in order to achieve the Overall Specifications, Performance Criteria and Reliability Levels. **(E17/102)**

17.3.12.3 The Contractor shall warrant that the proposed host(s), server(s) and other components shall be able to support the System to meet the system performance specifications stated in Section 6. In the event that the System cannot achieve the performance specifications, the Contractor shall provide any necessary hardware, software and services to tune the system in order to achieve the workload and performance criteria specified in these Project Specifications. **(E17/103)**

- 17.3.12.4 The Contractor shall coordinate with Other Contractors and work jointly with them to resolve performance problem, if any. **(E17/104)**
- 17.3.13 **Training**
- 17.3.13.1 The Contractor shall provide the training specified in Section 19 of this Part. **(E17/105)**
- 17.3.14 **Disaster Recovery**
- 17.3.14.1 The Contractor shall provide a disaster recovery plan to the Government for consideration and approval, which shall comply with the requirements stated in Section 14 of this Part during the System development stage. **(E17/106)**
- 17.3.14.2 The Contractor shall be responsible for conducting the disaster recovery drill in accordance with the disaster recovery plan at least once prior to the production rollout of the System with the presence of the Government Representatives. **(E17/107)**
- 17.3.14.3 The Contractor(s) is required to provide disaster recovery service as more particularly described in Section 14 of this Part through the deployment of a DR site for each of the Private Cloud and the Public Cloud at a different location other than location for the production site for each such Cloud. **(E17/108)**
- 17.3.15 **Post-implementation Review**
- 17.3.15.1 The Contractor shall conduct the post-implementation review for the System after the production rollout of the System covering the following assessments: **(E17/109)**
- (a) evaluating whether or not the system objectives have been fully achieved and the problems identified have been satisfactorily solved;
 - (b) evaluating the utilisation of resources and recommend adjustments;
 - (c) evaluating the realisation of benefits, including staff cost savings and recommend adjustments;
 - (d) evaluating whether the original implementation schedule as contained in the Contractor's tender has been adhered to; and
 - (e) identifying necessary improvements to the System and recommend a course of action to implement them.
- 17.3.15.2 The post-implementation review shall be completed in accordance with the Implementation Plan. **(E17/110)**
- 17.3.16 **Documentation**
- 17.3.16.1 The Contractor shall prepare and/or supply all relevant Documentation in relation to the System and the Implementation Services to the Government. **(E17/111)**
- 17.3.16.2 The Documentation to be prepared and/or supplied by the Contractor shall include, but not be limited to, the following as specified in the second column below at the respective stages of the Implementation Plan as specified in the first column below: **(E17/112)**

Project Activities	Project Documentation and Deliverables
Project Initiation	<ol style="list-style-type: none"> 1. Project Management Plan (PMP) <ul style="list-style-type: none"> • Master Project Management Plan • Project Organisation • Work Plan • Financial Management Plan • Communication Management Plan • Risk Management Plan • Quality Management Plan • Issue Management Plan • Change Request Management Plan 2. Overall Project Plan 3. Quality Plan
System Analysis & Design	<ol style="list-style-type: none"> 4. System Analysis and Design Report <ul style="list-style-type: none"> • Management Summary • Requirements Specification <ul style="list-style-type: none"> - User Requirements - Technical Requirements • System Specifications <ul style="list-style-type: none"> - Functional Specifications - Architecture Design - System Designs • Technical System Option <ul style="list-style-type: none"> - Technical System Architecture - Implementation Plan 5. Detailed Project Plan 6. Development Standard 7. SRA Report (High-level) 8. Discussion Notes 9. Outstanding Issues List
System Development	<ol style="list-style-type: none"> 10. System Physical Design Plan 11. Site Specification and Preparation Plan 12. Disaster Recovery Plan 13. Software Modules 14. Unit Test Cases and Results
System Integration Test	<ol style="list-style-type: none"> 15. System Integration Test Plan 16. System Integration Test Specifications and Results 17. System Integration Test Tests Results Report
User Acceptance Tests	<ol style="list-style-type: none"> 18. User Acceptance Tests Plan 19. User Acceptance Tests Specifications and Results 20. User Acceptance Tests Results Report

Project Activities	Project Documentation and Deliverables
Load Test	21. Load Test Plan (including auto-scaling mechanism) 22. Specifications and Results 23. Load Test Results Report
Resilience Test	24. Resilience Test Plan and Results Report
Site Preparation	25. Site Preparation Plan 26. Specifications 27. Accepted Site Plan
User Training	28. Training Plan 29. Training Manual 30. Training Course Materials
Data conversion and migration	31. Data Conversion and Migration Plan 32. Data Conversion and Migration Specifications 33. Database and file Specifications 34. Data Conversion and Migration Software Modules 35. Data Conversion and Migration Test Cases and Results 36. Data Conversion and Migration Program Test Plan and Results 37. Verification Results Report 38. Computer Operations Procedures 39. Trial Conversion and Migration Plan 40. Converted and Migrated Data
Pre-production	41. Trial Run (Dress Rehearsal) Plan 42. System Recovery Test Plan and Results Report 43. Transaction and Response Test Plan and Results Report 44. DR Drill Test Plan & Results Report 45. Security Risk Assessment and Audit Report
System Installation and Production	46. System Installation Plan and Report 47. System Rollout Plan and Results Report 48. Reports for Data Migration and Network Migration 49. System Manual 50. Application Operation Manual 51. Application User Manual 52. Computer Operations Procedures Manual 53. Database and System Administration Manual

Project Activities	Project Documentation and Deliverables
	54. Inventory List of Hardware and Software (including Custom Programs) 55. System Installation and Migration Procedure Manual 56. Reliability Test Plan, Specifications and Results 57. Problem Determination Guide 58. Inventory List of Hardware and Software 59. SRA Report 60. SA Report
Post Implementation Review	61. Post Implementation Review Report (PIR), including: <ul style="list-style-type: none"> • System Functionality • System Performance • Project Achievement • Resource Utilisation • Productivity • Project Issue • Quality Review • Development • Project Management • Problems Encountered and experiences gained • Others 62. Quality Record of Quality Assurance Review (QAR) 63. Quality Review Results
All Stages	64. Project Progress Reports 65. Technical Exceptions Products (if any) 66. Other relevant documents (if any)

17.3.16.3 The documentation in text shall be readable, tidily formatted and modifiable by the MS Word 2010 or above or compatible file format. The Inventory List of Hardware and Software shall be readable, tidily formatted and modifiable by MS Excel 2010 or above or compatible file format. **(E17/113)**

17.3.16.4 Documentation and Deliverables produced by the Contractor shall conform to the Government's standard, such as the samples from OGCI and existing documents from the Government Representative, and shall be delivered to the Government for comment and review at least two (2) weeks before they are formally submitted to the Government for acceptance. A Deliverable shall not be considered to be completed unless the Government has accepted the same. **(E17/114)**

17.3.17 **Security Risk Assessment and Audit**

17.3.17.1 Before completion of the System Analysis and Design stage and also before the production rollout of the System, the Contractor shall perform an IT security review exercise on the System to identify the security risks, associated threats and vulnerabilities of the System and to take immediate action to mitigate such vulnerabilities to the satisfaction of the Government. **(E17/115)**

17.3.17.2 The Contractor shall be responsible for performing security reviews of the System from time to time as part of the Implementation Services. In addition, the Contractor shall be required to engage an independent third party consultant to perform an IT security risk assessment and audit exercise for the System before production rollout. The Contractor shall be required to cooperate and provide assistance with this exercise. The Contractor, its sub-contractors, their respective associates and associated persons may not bid for the services in relation to such assessment and audit exercise. The independent third party consultant will perform an IT security risk assessment for the relevant Phase of the System to identify the security risks, associated threats and vulnerabilities of the System and provide recommendations to overcome the risks. The Contractor shall be responsible for proposing and implementing solutions for the recommendations arising from the security risk assessment and audit exercise at no additional charge to the Government. The implementation of any solutions shall not be treated as System Changes. The assessment exercise includes but is not limited to risk assessment and audit of the following areas: **(E17/116)**

- (a) Management responsibilities;
- (b) IT security policies;
- (c) Human resource security;
- (d) Asset management;
- (e) Access control;
- (f) Cryptography;
- (g) Physical and environmental security;
- (h) Operations security;
- (i) Communications security;
- (j) System acquisition, development and maintenance (including code review);
- (k) Outsourcing security;
- (l) Security incident management;
- (m) IT security aspects of business continuity management; and
- (n) Compliance (including penetration test).

17.3.17.3 The security risk assessment and audit shall be performed in compliance with Government security standards by the independent third party consultant. The “Practice Guide for Security Risk Assessment & Audit” shall be taken into considerations. **(E17/117)**

17.3.18 **Privacy Impact Assessment**

17.3.18.1 The Contractor shall engage an independent third party consultant to perform privacy impact assessments for the System to (a) ascertain if data privacy protection requirements will be met throughout the implementation of the System; (b) identify the potential effects that the System may have upon personal data privacy at each stage; and (c) examine how the detrimental effects upon privacy might be mitigated at each stage. **(E17/118)**

- 17.3.18.2 In conducting the assessment, the independent third party consultant shall make reference to the Personal Data (Privacy) Ordinance (Chapter 486 of the Laws of Hong Kong) and other applicable laws and regulations, prevailing guidelines and recommendations from the Office of the Privacy Commissioner for Personal Data, and prevailing industry and international practices. **(E17/119)**
- 17.3.18.3 The Contractor shall produce in Stage 1 – Project Initiation a detailed work plan covering two (2) PIA exercises within the Implementation Period. **(E17/120)**
- 17.3.18.4 The first PIA must be conducted in Stage 2 – System Analysis and Design before the design reports are being finalised. The first PIA shall provide information on the privacy implications of the System and comments based on the proposed system and technical design, on whether personal data privacy concerns and issues have been adequately addressed. The first PIA report shall be concluded before the completion of Stage 2 – System Analysis and Design. **(E17/121)**
- 17.3.18.5 The second PIA shall be conducted in Stage 3 – System Development and concluded at least one (1) month before completion of the User Acceptance Tests. The second PIA is conducted to review the System and to ascertain if the recommendations made in the first PIA are addressed satisfactorily. **(E17/122)**
- 17.3.19 **Impact Analysis of System Change Requests**
- 17.3.19.1 For the avoidance of doubt, these sections concerning System Change request analysis and System Changes shall only apply if a proposed specification for the System is out of scope of the original specifications set out in the Contract and the Overall Specifications. Without prejudice to the generality of the foregoing, a proposed specification is not out of scope if it is a System Design Refinement and Elaboration (as defined in Section 17.3.4.2 of this Part). **(E17/123)**
- 17.3.19.2 In respect of a System Change requested by the Government any time during the Implementation Period, the Contractor shall perform impact analysis in relation to such aspects of the System as the Government may request. The Contractor shall provide an impact analysis report to the Government for consideration within seven (7) working days or such other period specified by the Government upon receipt of the Government’s request. In addition to the information required in Clause 7.2.1 of Part IV – Conditions of Contract, and such other information and assessments as the Government may request, the impact analysis report shall include an assessment of whether further extension is required in relation to any stage of the Implementation Plan or the Completion Date, and manpower for performing the System Change (in terms of number of man-days and specified roles using function point analysis or such other basis of estimation as the Government shall stipulate or approve). **(E17/124)**
- 17.3.19.3 The Contractor shall also make recommendations on the necessary network, Hardware, Software and/or Custom Programs changes for implementing the System Change in the impact analysis report (if any are required). **(E17/125)**
- 17.3.19.4 The Contractor shall not commence work on a proposed System Change unless the Government indicates its agreement and approval of the impact analysis report in respect of such System Change and a written change agreement is entered into between the parties in the manner mentioned further below (“change agreement”). The change agreement may incorporate such changes to the original request for

System Change and the impact analysis report as the parties may agree (if any). Unless otherwise stated in the change agreement, the Contractor shall implement the System Change as part of the System in accordance with the same Implementation Timetable for the System. **(E17/126)**

17.3.19.5 The Government's request for a System Change, its subsequent written acceptance of an impact analysis report containing all necessary information as required above shall constitute a change agreement unless a separate change agreement is entered into by the parties pursuant to Clause 7.3 of Part IV. **(E17/127)**

17.3.19.6 The terms and conditions governing the provision of the implementation of the System Change shall be as set out in the Contract and the change agreement, but excluding any terms and conditions which may unilaterally be imposed by the Contractor (including any standard term and condition of the Contractor) without the agreement of the Government. **(E17/128)**

17.3.19.7 In the event that the Government does not agree with the number of man-days required for performing the System Change or any part thereof or any other proposal put forward by the Contractor, the Contractor shall justify the proposal to the satisfaction of the Government, failing which the Government reserves the right to appoint another contractor or set up an in-house project team to on its own perform the System Change. Whereupon, the Contractor shall be obliged to provide all necessary assistance, support and information as from time to time requested by the Government to that other contractor or in-house project team in the implementation of the System Change at no additional charge to the Government. Reference to "Other Contractors" shall include the aforementioned other contractor and references to "In-house Team" shall include the aforementioned project team. **(E17/129)**

17.3.20 **System Changes**

17.3.20.1 As part of the Implementation Services, the Contractor shall provide sufficient manpower resources for implementing System Changes over the Implementation Period. These manpower resources may be deployed for implementing one or more System Changes any time during the Implementation Period. Under no circumstances whatsoever may the Contractor deploy the manpower resources already allocated for other part of the Implementation Services to perform the System Changes. **(E17/130)**

17.3.20.2 Upon a change agreement in relation to a System Change is constituted, all specifications of the System Change shall be treated as forming part of the Overall Specifications, and the System to be implemented by the Contractor shall comply with these Overall Specifications. All Deliverables including Documentation to be prepared and supplied shall relate to the System incorporating such System Change. **(E17/131)**

17.3.20.3 As part of the Implementation Services, the Contractor shall provide a total of at least 50 man-days to be performed by project manager, 100 man-days to be performed by lead system analyst, 240 man-days to be performed by systems analyst and 340 man-days to be performed by analyst programmer and at least 80 man-days for each of the other key roles of the Implementation Team for implementing System Changes over the Implementation Period. These man-days may be deployed for implementing one or more System Changes any time during

the Implementation Period. Under no circumstances whatsoever may the Contractor deploy the manpower resources already allocated for other part of the Implementation Services to perform the System Changes. If there are any unused man-days or any part thereof at the end of the Implementation Period, they shall be carried forward to the Maintenance Period without any limit. **(E17/132)**

17.3.21 **Quality Assurance Review**

17.3.21.1 The Contractor shall at its cost appoint an independent Quality Assurance team to carry out quality review and assurance of project deliverables. **(E17/133)**

17.3.21.2 The Contractor shall be responsible for the quality of all the deliverables and products. **(E17/134)**

17.3.21.3 The Contractor shall propose the Quality Plan in accordance with the requirements of the proposed system for monitoring the quality of system implementation. **(E17/135)**

17.3.21.4 The Contractor shall monitor the quality of the processes and products in accordance with the Quality Plan to ensure that the stated standards and procedures are conformed to and the requirements of products are met. **(E17/136)**

17.3.21.5 The Contractor shall conduct quality assurance review at the end of significant milestones of the project. **(E17/137)**

17.3.22 **Parallel Run, System Cutover**

17.3.22.1 The Contractor shall perform the parallel run and the System Cutover as part of the Implementation Services which requirements are more particularly specified in Sections 4.5.25 and 4.5.26 of this Part. **(E17/138)**

17.3.23 **Other Services**

17.3.23.1 The Contractor shall perform all other work not otherwise specified herein to ensure that the System shall be Ready for Use by the Completion Date. **(E17/139)**

17.3.23.2 The Contractor shall conduct presentation and demonstration of the recommendations and Deliverables of the System as and when required by the Government during the implementation of the System. **(E17/140)**

17.3.23.3 The Contractor shall provide advice and technical support from time to time requested by the Government in relation to the System. **(E17/141)**

17.3.23.4 The Contractor shall provide any other necessary services to facilitate the successful implementation of the System such that the System delivers its functions to meet the requirements and objectives stated in this Tender Document. **(E17/142)**

17.3.23.5 The Contractor(s) is required to provide services for the relocation of the equipment from offices of user acceptance, development and training purposes to various production sites. **(E17/143)**

17.3.23.6 The Contractor shall provide consultancy services for any operational or system related issues. **(E17/144)**

17.3.23.7 The Contractor shall provide consultancy services and usage support to the LCSD for all the proposed application software and Custom Programs of the System. **(E17/145)**

17.3.23.8 The Contractor shall furnish the LCSD with the skill related to the System to enable LCSD to perform the duties such as system administration, disaster recovery arrangement. **(E17/146)**

17.4 **Professional Staff Requirements**

17.4.1 The Contractor shall provide an Implementation Team to carry out the Implementation Services. The Implementation Team shall include at least: **(E17/147)**

- (a) one (1) project manager;
- (b) one (1) system architect;
- (c) one (1) lead systems analyst;
- (d) two (2) systems analysts;
- (e) three (3) analyst programmers;
- (f) one (1) system administrator;
- (g) one (1) database administrator; and
- (h) one (1) system engineer.

The roles of project manager, system architect, lead systems analyst are key roles of the Implementation Team (viz., “Key Roles” (in upper or lower case)). The title of these roles may be referred to in upper case or lower case. The persons filling the Key Roles are alternatively referred to as “key project staff”. No person shall perform more than one Key Role in the Implementation Team. **(E17/148)**

17.4.2 Tenderers shall propose the manpower resources to be provided for performing the Implementation Services in Table 7.3 of Schedule 7 – Contractor Personnel and Their Duties of Part V. **(E17/149)**

17.4.3 The experience and qualification of those nominees filling a Key Role in the Implementation Team shall be determined as at the Original Tender Closing Date. Otherwise, the experience and qualifications of any person from time to time replacing these nominees during the Implementation Period and of any person filling in a role which is not a Key Role shall be determined as at the date he or she proposes to join the Implementation Team (“Proposed Date of Joining”). All experience of a nominee of a key role or non-key role is counted in days and all such experience in days shall be added up and then divided by 365 days to arrive at the number of complete years (i.e. each complete year with 365 days) covered by such total period with any remainder period of experience in days which falls short of one complete year of 365 days to be ignored. **(E17/150)**

17.4.4 Throughout the Contract including this Section, “IT experience” has the same meaning given in Annex B – Assessment of Compliance with Essential Requirements and Annex C – Detailed Evaluation Criteria to Part II – the

Conditions of Tender which shall be deemed incorporated and form part of the Contract.

17.4.5 Each of the nominee(s) for a role in the Implementation Team fulfilling the minimum number for such role must on his own comply with the experience and qualification requirements for such role as stipulated in this Section 17.4.7 of this Part. Any additional nominee over and above the minimum number of nominee(s) purportedly filling a role but does not comply with the experience and qualification requirements for such role will not be taken as a person filling that role. **(E17/151)**

17.4.6 Throughout the Tender Documents and the Contract, references to “minimum number” shall mean in relation to a role in the Implementation Team as specified in Section 17.4.1 of this Part, the minimum number of persons as stated therein to be required to fill such role and repeated in the first column of Part A of Table 7.3 of Schedule 7 – Contractor Personnel and their Duties of Part V. **(E17/152)**

17.4.7 The requirements for each role including the stationing requirements, the qualification and experience requirements, and the responsibilities are set out in this Section 17.4.7 as follows: **(E17/153)**

17.4.7.1 The project manager shall work full time throughout the Implementation Period to manage, control and oversee the Implementation Services. He/She shall attend all kinds of meeting related to the Implementation Services, and be the single contact point in the Implementation Team for the Government. The project manager(s) shall possess: **(E17/154)**

- (a) a degree or above in computer science, electrical and electronic engineering, or other IT related discipline, or equivalent;
- (b) at least 11 years of IT experience including at least 6 years of experience in managing one or more project(s) which involves the provision of IT system implementation services;
- (c) at least 2 years of IT experience in managing one or more IT system(s) which involves in real-time ticketing services in last 10 years immediately before the Original Tender Closing Date and the experience shall be gained from managing a IT system which provided real-time ticketing services and had issued a minimum of 1,000,000 tickets for events held at culture, entertainment or sports venues within a continuous period of 12 months prior to the Original Tender Closing Date.

17.4.7.2 The system architect shall work full time throughout the Implementation Period and is responsible for the design and integration of technical components as proposed by the Contractor. The system architect shall oversee the overall technical and functional design and lead the development team of the System to set up the System environment. The system architect shall possess: **(E17/155)**

- (a) a degree or above in computer science or equivalent;
- (b) at least 8 years of IT experience including at least 4 years of system architecture design experience for implementing at least one or more IT system on public Cloud infrastructure with auto-provisioning capability; and

- (c) at least 4 years IT experience that covers one or more of the following areas (viz., functional and specialty experience):
- Designing and implementing system architecture for a large scale of IT system with high-availability design features
 - Defining system components and define the standards for the components to interact with one another to form a large IT system
 - Producing a design for an IT system and high level system requirements in consultation with the user
 - Resolving any problems arising during system design or implementation.
 - Generating a set of acceptance test requirements, together with the designers, test engineers, and the user, which determine that all of the high level requirements have been met.

17.4.7.3 The lead systems analyst shall work full time throughout the Implementation Period to lead other system analysts(s) to work with other Implementation Team members performing all aspects of tasks, including but not limited to, collecting user requirements, conducting system analysis and design, producing documentation, conducting System Acceptance Tests, providing support during the User Acceptance Tests and performing production rollout. The lead systems analyst shall possess: **(E17/156)**

- (a) a degree or above in computer science or equivalent;
- (b) at least 9 years IT experience;
- (c) at least 5 years IT experience in implementing one or more IT system(s) for the provision of real-time ticketing services; and
- (d) at least 5 years IT experience that covers one or more of the following areas (viz., functional and specialty experience) which period of experience may overlap with the period as required in (c) above:
- conducting analysis, design and implementation of application systems;
 - producing system specifications;
 - ensuring conformance of software packages with user requirements;
 - conducting system testing; and
 - conducting system installation and server maintenance.

17.4.7.4 All systems analysts shall work throughout the Implementation Period to perform all aspects of tasks, including but not limited to, collecting user requirements, conducting system analysis and design, producing documentation, conducting System Acceptance Tests, providing support during the User Acceptance Tests and performing production rollout. Each systems analyst shall possess: **(E17/157)**

- (a) a degree or above in computer science or equivalent;
- (b) at least 5 years IT experience including at least 3 years of experience in one or more IT system implementation projects(s); and
- (c) at least 3 years IT experience that covers one or more of the following areas (viz., functional and specialty experience):
- conducting analysis, design and implementation of application systems;

- producing system specifications;
- ensuring conformance of software packages with user requirements;
- conducting system testing; and
- conducting system installation and server maintenance.

17.4.7.5 All analyst programmers shall mainly participate in the project in the late system analysis and design stage until the end of the Implementation Period to perform all aspects of software customisation, program development and program testing. Each analyst programmer shall possess: **(E17/158)**

- (a) a degree or above in computer science or equivalent; and
- (b) at least 2 years IT experience that covers one or more of the following areas (viz., functional and specialty experience):
 - ensuring conformance of software package with user requirements;
 - coding according to program specifications using the proposed software;
 - conducting program testing and suite trials; or
 - preparation of job control procedures for both trial and production runs.

17.4.7.6 The system administrator shall work throughout the Implementation Period to oversee the design and implementation of infrastructure of the System. The system administrator shall possess: **(E17/159)**

- (a) a degree or above in computer science or electrical and electronic engineering, or equivalent;
- (b) at least 5 years of IT experience; and
- (c) at least 3 years of IT experience that covers one or more of the following areas (viz., functional and specialty experience):
 - hands-on experience in setting up and configuring various components of storage system(s) and backup infrastructure;
 - hands-on experience in setting up and configuring various components of the network infrastructure, including but not limited to, enterprise grade routers, firewalls and switches; or
 - system installation, maintenance and administration of server platform and virtualised sever infrastructure.

17.4.7.7 The database administrator shall work throughout the Implementation Period to oversee the design and implementation of database for the System, including technical database support on data analysis and modelling, database definitions and design, database performance tuning and monitoring and provision of advice to the Implementation Team. The database administrator shall possess: **(E17/160)**

- (a) a degree or above in computer science or equivalent;
- (b) at least 5 years of IT experience; and
- (c) at least 3 years of IT experience that covers database administration and design with DBMS (viz., functional and specialty experience).

17.4.7.8 The system engineer shall work throughout the Implementation Period to perform hardware and software installation, conduct site preparation, network sizing, system environment set up and testing. The system engineer shall possess: **(E17/161)**

- (a) a degree or above in computer science or equivalent; and
- (b) at least 2 years of IT experience that covers one or more of the following areas (viz., functional and specialty experience):
 - conducting site preparation planning and control, network sizing, implementation and related support services;
 - conducting system installation, configuration, integration, interface management and performance tuning; or
 - performing data modelling, data dictionary maintenance, database construction and tuning.

18. SYSTEM SUPPORT AND MAINTENANCE SERVICES

18.1 General

18.1.1 The Contractor shall maintain a local support office with sufficient number of qualified staff to form a Maintenance Team of the System, which shall be responsible for reporting to the Government regularly and carrying out the System Support and Maintenance Services. The Maintenance Team shall be accessible 24 hours a day, 7 days a week in local time to deal with any urgent matters. **(E18/1)**

18.1.2 The Contractor shall provide Maintenance Services for the Contractor Supplied Hardware and Contractor Supplied Software and provide the System Support Services to ensure that the System will continue to fully meet the Overall Specifications, Performance Criteria and Reliability Levels. **(E18/2)**

18.1.3 The Contractor shall provide technical support and assistance to the Government for installation of additional hardware and software not included in the Contract. **(E18/3)**

18.1.4 The Contractor shall provide System Support Services to ensure that the System will continue to interface with other information systems as specified in these Project Specifications and future systems which may from time to time be interfaced with the System whether through any System Change implemented by the Contractor or by the Government or by any Other Contractor or In-house Team. **(E18/4)**

18.1.5 Unless earlier terminated by the Government, the Contractor shall be obliged to provide System Support and Maintenance Services for the System from the date of the System Acceptance Certificate. **(E18/5)**

18.1.6 The provision of the System Support and Maintenance Services shall cause minimal disruption to the operation of the outlets. **(E18/6)**

18.1.7 All System Support Services under Section 18.4 shall be applicable to the Contractor Supplied Public Cloud, except for: **(E18/7)**

- (a) Performance and Capacity Management; and
- (b) LAN, Workstation and Peripheral Support.

18.2 Maintenance of Hardware

18.2.1 The Contractor shall maintain each item of the Contractor Supplied Hardware to ensure its full and proper working order and continual compliance with the Overall Specifications, Performance Criteria and Reliability Levels throughout the Contract Period. **(E18/8)**

18.2.2 The Contractor shall at its own cost and expense provide all necessary replacement units and parts to effect all Maintenance Services including all consumables. **(E18/9)**

18.2.3 The Contractor shall perform the Maintenance Services in respect of a Contractor Supplied Hardware item notwithstanding that the manufacturer or developer no longer manufactures or develops or supports such item. **(E18/10)**

- 18.2.4 Maintenance Services for the Contractor Supplied Hardware shall comprise the provision by the Contractor of the preventive maintenance and the remedial maintenance in respect of each item of the Contractor Supplied Hardware. The Contractor shall provide preventive maintenance for each item of Contractor Supplied Hardware at least once a year or such higher frequency as committed by the Contractor in Schedule 16 – Service Levels of Part V. **(E18/11)**
- 18.2.5 Preventive maintenance shall comprise: **(E18/12)**
- (a) calibration, testing and necessary adjustments, cleaning, lubrication, replacement of worn-out, defective or suspect parts or unit of any item of Contractor Supplied Hardware;
 - (b) engineering adjustments, modifications and improvements (including, but not limited to, the Contractor’s latest engineering revision and any or all reliability improvements) on each item of Contractor Supplied Hardware; and
 - (c) inspection of each item of Contractor Supplied Hardware at least twice a year or such higher frequency as committed by the Contractor in Schedule 16 – Service Levels of Part V.
- 18.2.6 Remedial maintenance for the System located at the Data Centres shall be provided on a 7 days x 24 hours basis as part of the Maintenance Services. For such parts of the System as located in the Government Locations including ticketing outlets, venues and LCSD Offices, remedial maintenance shall be provided within the applicable prime maintenance period as part of the Maintenance Services. The remedial maintenance shall be performed in compliance with the response time set out in Schedule 16 – Service Levels of Part V. Regardless of whether or not the Maintenance Team is required to be stationed at the Government premises during the normal working hours of the Maintenance Team, the Maintenance Team is required to be on stand-by outside such normal working hours (i.e. within Hong Kong and contactable through dedicated mobile or pager) in order to comply with the response time. Remedial maintenance shall comprise the following services: **(E18/13)**
- (a) upon receipt of a request for remedial maintenance in relation to Contractor Supplied Hardware located in or used at a Government Location, unless it can be done remotely, the Contractor shall despatch a suitably qualified member of the Maintenance Team to the Government Location within the response time set out in Schedule 16 – Service Levels of Part V; in the case of the System located at the Data Centres or otherwise within premises to be made available by the Contractor, upon discovery of any fault by the Contractor whether alerted by the Government or Other Contractor or otherwise;
 - (b) the carrying out by the Contractor of such testing, diagnosis, repairs, adjustments and replacement of any defective or non-functional Contractor Supplied Hardware or parts thereof as may be necessary to restore the Contractor Supplied Hardware to proper working order; and
 - (c) rectify all faults or provide a workaround solution to sustain the normal operation of the System or the normal operation of the relevant Contractor Supplied Hardware (as the case may be) within 24 hours from the time of responding by the Contractor.
- 18.2.7 For replacing any part or entire unit of an item of Contractor Supplied Hardware which becomes defective or non-functional, the Contractor shall at its own expense

provide the replacement which complies with the minimum requirements set out in the Overall Specifications, and is of the same brand and the same product line or series, and provides the same or better specifications (in terms of performance, capacity, security, reliability and other functions and features) than the parts or unit to be replaced. **(E18/14)**

18.2.8 If the assistance of any Other Contractor is necessary in order to carry out any preventive or remedial maintenance, the Contractor shall contact the Other Contractor direct and seek its assistance for the purposes of performing the preventive or remedial maintenance without prejudice to the requirement that the Contractor shall remain primarily responsible for performing the preventive and remedial maintenance. **(E18/15)**

18.2.9 In the event that the Contractor proposes to modify the Contractor Supplied Hardware: **(E18/16)**

(a) in such a way that the performance of the System will be affected, the Contractor shall request the consent of the Government to the proposed modifications. If consent is given the Contractor shall carry out the work at a time convenient to the Government; and

(b) the Contractor shall bear the cost of any such modifications.

18.2.10 In the event that the Contractor removes a Contractor Supplied Hardware item or such part thereof away from the Location for overhaul or repair, unless otherwise agreed by the Government, the Contractor shall bear all the costs, including but not limited to packing, carriage and insurance incurred in the dismantlement, removal, overhaul, repair, return and re-installation of the said item or part. **(E18/17)**

18.2.11 If workshop repair is required, the Contractor shall provide a piece of compatible loan equipment on a temporary and free of charge basis until the relevant Contractor Supplied Hardware under repair is fixed, reinstalled and functions normally on-site. **(E18/18)**

18.2.12 The Contractor shall perform the data erasure either on-site or off-site as requested by the Government. For off-site data erasure, the Contractor shall allow the representative(s) of the Government to attend to the entire process of off-site data erasure. The Contractor shall certify to the Government in writing that all data stored in such part or unit has been completely erased and shall be liable for any loss or damage caused by the possession or use of any information remaining in any part or unit of the Contractor Supplied Hardware so removed. **(E18/19)**

18.2.13 The Contractor shall uniquely identify each of the Contractor Supplied Hardware components and keep track of their latest information (e.g. hardware configuration, installation location, annual maintenance information, controlling officer's information, attached devices, installed software, IP address, and so on) for system asset management. **(E18/20)**

18.2.14 To minimise the turn-around time, the Contractor shall keep adequate stock of all necessary parts and units for exchange of faulty one(s). **(E18/21)**

18.2.15 Unless the Government otherwise instructs or agrees, the Contractor shall perform the Maintenance Services in respect of a Contractor Supplied Hardware item notwithstanding that the manufacturer or developer no longer manufactures or

develops or supports such item. Alternatively, the Contractor shall at its cost replace the obsolete item with another compatible Contractor Supplied Hardware item which complies with the minimum requirements set out in the Overall Specifications and has specifications which are no worse than the obsolete item to be replaced (in terms of performance, capacity, security, reliability and other functions and features). (E18/22)

18.2.16 If the system image of faulty equipment was corrupted, the Contractor shall restore the system image once the equipment is fixed. (E18/23)

18.2.17 The Contractor shall restore the hard disk image of a faulty workstation to its previous working state without any software problem, if software problem for a workstation is encountered. (E18/24)

18.3 **Maintenance of Software**

18.3.1 The Contractor shall maintain each item of the Contractor Supplied Software to ensure its full and proper working order and continual compliance with the Overall Specifications. (E18/25)

18.3.2 The Maintenance Services in respect of each item of the Contractor Supplied Software include upgrades and enhancements and error correction. (E18/26)

18.3.3 The Contractor shall warrant that the Contractor Supplied Software and Custom Programs will, after the issue of the System Acceptance Certificate by the Government, provide the facilities and functions set out in the Overall Specifications including these Project Specifications; and the Documentation for the Contractor Supplied Software, which shall be in English or Traditional Chinese, will provide adequate instruction to enable the Government to make proper use of such facilities and functions. (E18/27)

18.3.4 The Contractor shall perform the Maintenance Services in respect of a Contractor Supplied Software item notwithstanding that the manufacturer or developer no longer manufactures or develops or supports such item. (E18/28)

18.3.5 The Contractor must warrant that the Contractor Supplied Software and Custom Programs shall, after acceptance by the Government, provide the facilities and functions set out in the Overall Specifications when properly used on the equipment and that the software documentation, which must be in English or Chinese, will provide adequate instruction to enable the Government to make proper use of such facilities and functions. (E18/29)

18.3.6 **Upgrades and Enhancements**

18.3.6.1 In relation to each item of the Contractor Supplied Software, the Maintenance Services shall cover the supply of all patches (including security patches) fixes, hotfixes, program temporary fixes, point releases, enhancements and service packs, together with all manuals, documentation and technical literature in respect of any of the aforesaid items (viz., “patches” or “updates” as defined in Clause 8.3 of Part IV) – Conditions of Contract), from time to time issued or made available for subscription by the manufacturers or developers so long as the individual Contractor Supplied Software item remains to be manufactured or developed or supported by its original manufacturer or developer. The supply of these updates

shall be made available for installation in the relevant component of the System within one month after the date of the release by the manufacturer or developer. **(E18/30)**

18.3.7 The installation of the updates shall be performed as part of the System Support Services, and shall not be limited only to those relating to the Contractor Supplied Software, but rather in relation to all Software items in the System. **(E18/31)**

18.3.8 Unless the Government otherwise instructs or agrees, the Contractor shall perform the Maintenance Services in respect of a Contractor Supplied Software item notwithstanding that the manufacturer or developer no longer manufactures or develops or supports such item and that new updates are no longer available. Alternatively, the Contractor shall at its cost replace the obsolete item with another compatible software which complies with the minimum requirements set out in the Overall Specifications and has specifications which are no worse than the obsolete item to be replaced (in terms of performance, capacity, security, reliability and other functions and features). **(E18/32)**

18.3.9 **Error Correction**

18.3.9.1 The Contractor shall provide on-site maintenance support services on a 7 days x 24 hours basis as part of the Maintenance Services. The maintenance services shall be provided within response time as specified in Schedule 16 – Service Levels of Part V. Regardless of whether or not the Maintenance Team is required to be stationed at the Government premises during the normal working hours of the Maintenance Team, the Maintenance Team is required to be on stand-by outside such normal working hours (i.e. within Hong Kong and contactable through dedicated mobile or pager) in order to comply with the response time. **(E18/33)**

18.3.9.2 Upon receipt of notification from the Government that there is any defect or error in the Contractor Supplied Software installed in any Contractor Supplied Hardware that is used at all Locations, the Contractor shall correct such defect or error or provide a workaround solution to resume the operation of the faulty Contractor Supplied Software within the shortest reasonable time-frame after the Government's notification. **(E18/34)**

18.3.9.3 Forthwith upon such correction being completed the Contractor shall deliver to the Government appropriate amendments to the Documentation specifying the nature of the correction and providing instructions for the proper use of the corrected version of the Contractor Supplied Software. **(E18/35)**

18.4 **System Support Services**

18.4.1 The Contractor shall provide ongoing System Support Services for the System. The suite of System Support Services to be provided shall include but not limited to the following services: **(E18/36)**

- (a) Multi-contractor Co-operative Maintenance
- (b) Helpdesk Services;
- (c) Installation of Software Updates;
- (d) Problem Determination and Resolution;
- (e) Custom Program Bug Fixing;

- (f) Service Level Management;
- (g) Performance and Capacity Management;
- (h) Security Management;
- (i) Asset and Inventory Management;
- (j) Impact Analysis of System Change Requests;
- (k) System Changes;
- (l) System and Database Administration;
- (m) LAN, Workstation and Peripheral Support;
- (n) Connection with other Hardware and Software;
- (o) Disaster recovery planning and drill;
- (p) Documentation; and
- (q) Other Tasks and Duties.

18.4.2 The detailed requirements of the above services are listed at Sections 18.5 to 18.21 of this Part.

18.5 **Multi-Contractor Co-operative Maintenance**

18.5.1 To the extent necessary, the Contractor shall directly contact Other Contractors and In-house Teams for the purposes of seeking all information support and assistance from them which is necessary for performing the System Support and Maintenance Services. **(E18/37)**

18.5.2 Likewise, if any Other Contractors or In-house Team approaches the Contractor for information, support or assistance concerning the System or its interface or integration with another system, subject to obtaining the prior written consent from the Government (in the case of an outside contractor), and the Contractor having duly verified its identity, the Contractor shall provide such information, support and assistance to the Other Contractors or In-house Team (as the case may be) fully and punctually. **(E18/38)**

18.5.3 The Contractor shall report to the Government in a timely manner if any Other Contractor or In-house Team fails to provide the information support or assistance required for performing any part of the System Support and Maintenance Services. Without prejudice to the generality of the foregoing, the Contractor shall immediately report to the Government if the repair time of any part of the System is affected by any non-cooperation or lack of response from any Other Contractor or In-house Team. **(E18/39)**

18.5.4 The Government Representative shall be the final arbitrator in the event of any dispute between the Contractor, and any Other Contractor or In-house Team, and any decision made by the Government for the resolution of the dispute shall be binding on the Contractor in the absence of any manifest error (even in the case of a dispute between the Contractor and the In-house Team not exercising any monitoring role over the Contractor if the dispute concerns or relates to or arises from the division of labour or co-operation between the In-house Team and the Contractor notwithstanding Clause 72 – Governing Law and Jurisdiction of Part IV). **(E18/40)**

- 18.6 **Helpdesk Services**
- 18.6.1 The Contractor shall operate the help desk to receive and log support calls relating to all kinds of reported problems relating to the System. **(E18/41)**
- 18.6.2 The Contractor shall respond to the support calls, keep track of the progress, problems, activities and results of the calls and ensure that the calls are followed up properly with fault diagnosis and resolutions and in accordance with the Service Levels specified in Schedule 16 – Service Levels of Part V. **(E18/42)**
- 18.6.3 The Contractor shall provide monthly reports on service issues to the Government. **(E18/43)**
- 18.6.4 The support staff responding to the service calls shall be part of the Maintenance Team. The support staff shall be reachable by phone, pager, email or SMS according to the Service Levels as specified in Schedule 16 - Service Levels of Part V. In addition, the support staff shall conduct site inspections and rectifications as and when required according to the response time stipulated as part of the aforesaid Service Levels. **(E18/44)**
- 18.6.5 All necessary equipment for system diagnosis and electronic record management and reporting system shall be provided by the Contractor. **(E18/45)**
- 18.6.6 The Contractor shall provide monthly summary reports at various levels as defined by the Government for statistical analysis, long term planning and service monitoring. The summary reports shall at least contain information such as part of the System affected, number of calls, scope of services, level of impact to users, achieved service levels including time taken to solve each reported problem, follow up issues and allocation of support staff. **(E18/46)**
- 18.6.7 The helpdesk services include but are not limited to the following: **(E18/47)**
- (a) answer queries and handle problems raised by the callers and perform on-site trouble shooting, and fixing application problems, and notifying user on service interruption related to the System whenever appropriate;
 - (b) contact, co-ordinate and collaborate with relevant parties (including Other Contractors where necessary) to solve the problem in case it is still unresolved after carrying out on-site investigations, and to take appropriate follow-up actions to ensure that the problem shall be resolved within the shortest reasonable time frame;
 - (c) escalate unresolved problems to the Government;
 - (d) coordinate problem reporting and keep track of the progress by updating the latest status of resolved and unresolved problems to the Government, following up with the callers and any other concerned parties;
 - (e) send text message via SMS (short message service) to cell phones of all related parties to report every status of a particular task, incident, problem or event being handled;
 - (f) produce problem logs and statistics for inspections by the Government; and
 - (g) provide up-to-date System information such as application usage, problems and solutions or workarounds to the Government regularly.

The Contractor shall provide the helpdesk services on a 7 days from 09:30 to 21:30.

18.7 **Installation of Software Updates**

18.7.1 The obligations specified in this Section 18.7 shall apply to an update of each Software in the System. **(E18/48)**

18.7.2 The Contractor shall assess the impact on the System of any new update. **(E18/49)**

18.7.3 If the impact on the operation of the System is assessed to be acceptable and not adverse, the Contractor shall install the update after seeking the written agreement from the Government Representative. The services shall include technical services to install the update, trial and test the system software, trial and test with users, installation to the System for production. **(E18/50)**

18.7.4 In reasonable time prior to the installation of an update, the Contractor shall make available to the Government all amendments to the Software's specifications, manuals and technical literature as necessary for describing the facilities and functions of the new update. **(E18/51)**

18.7.5 Notwithstanding anything else contained herein, the Government shall not be obliged to accept or use an update if its use would result in non-compliance with the Overall Specifications, Reliability Levels or Performance Criteria, in which event the Contractor shall immediately uninstall and remove such update and reinstate the System to its original state prior to such installation. **(E18/52)**

18.7.6 Without prejudice to the obligation of the Contractor to seek the prior written consent of the Government under Section 18.7.3 of this Part VII, if a specific update requires consequential changes to the configuration, customisation and application of the System, the Contractor shall advise the Government concerning such requirement. **(E18/53)**

18.7.7 If a specific update will require consequential changes to the Custom Programs, the Contractor shall advise the Government of such requirement upon seeking the Government's agreement under Section 18.7.3 of this Part. Where the Government does agree that the installation should proceed, the Contractor shall modify and provide testing of the Custom Programs and software customisation for other Contractor Supplied Software to ensure that they can integrate with the latest version of Contractor Supplied Software after the application of the update. **(E18/54)**

18.7.8 The Contractor shall ensure that the installation of any software update to the System shall not affect the services of the System during the operating hours as specified in Section 5 – Workload Specifications of this Part. The rollout of any update shall be arranged at such time and such manner to minimise impact on user service and subject to agreement by the Government. **(E18/55)**

18.7.9 The Contractor shall upon the rollout of an update, amend and supplement all Documentation which is necessary or consequential following from an update. **(E18/56)**

18.8 **Problem Determination and Resolution**

- 18.8.1 The Contractor shall perform problem determination, resolution and analysis in relation to all problems arising from or in connection with or in relation to the System. **(E18/57)**
- 18.8.2 The Contractor shall act as the single contact point and be the problem owner responsible for problem diagnosis, reporting and resolution. The Contractor shall keep the Government informed of the progress of fault diagnosis and resolve such problems to the Government's satisfaction. **(E18/58)**
- 18.8.3 The Contractor shall act as a single coordinator to work Other Contractors to identify causes of hardware, software, Custom Programs or network problems that affect the performance or proper functioning of the System and Operation Services. **(E18/59)**
- 18.8.4 The Contractor shall carry out customisation and configuration works on all Contractor Supplied Hardware and Software to meet the requirements of the Overall Specifications. **(E18/60)**
- 18.8.5 The Contractor shall provide assistance for emergency problems at hours outside the applicable prime maintenance period (depending on the Location of the relevant part of the System) including weekends and holidays. Emergency assistance shall be limited to work in correcting problems which prevent successful operation of major functions. **(E18/61)**
- 18.8.6 Where necessary, the Contractor shall work with and seek the assistance from Other Contractors and In-house Teams to identify causes of problems including the Hardware and the Software that affect the performance or proper functioning of the System. **(E18/62)**
- 18.8.7 Unsupported responses received from Other Contractors, if any, shall be escalated to the Government Representative who will initiate appropriate actions to ensure the Other Contractors undertaking their contractual obligations. **(E18/63)**
- 18.8.8 The Contractor shall keep track of all the problems reported for the System, conduct problem diagnosis and propose appropriate remedial measures. **(E18/64)**
- 18.8.9 The Contractor shall meet with the Government Representative regularly to examine all fault investigation reports and to identify and agree on the cause of each and every fault incident and party accountable for each incident. The Government shall determine the frequency of meetings based on actual needs and the performance of the System. **(E18/65)**
- 18.8.10 The Contractor shall perform bug fixing and provide on-site support, if necessary, to solve all problems related to Hardware, Software, Custom Programs or any other components of the System within the shortest reasonable time-frame. The details of bug fixing of the Custom Programs shall refer to Section 18.9 below. **(E18/66)**
- 18.9 **Custom Program Bug Fixing**
- 18.9.1 The Contractor shall perform bug fixing and provide on-site support, if necessary, to solve all problems related to the Custom Programs in the System (including the interfaces which connect the System to other existing and future systems). **(E18/67)**

- 18.9.2 Upon request by the Government and without prejudice to the obligations of the Contractor specified in Section 18.9.1 of this Part, the Contractor shall provide information assistance and support to the Government and Other Contractors or In-house Team in relation to any interface or connection or integration issues of other systems with the System. **(E18/68)**
- 18.9.3 If the Government discovers any defect or error in the Custom Programs, the Government will send a request to the Contractor to fix the defect or error in question.
- 18.9.4 Upon such request by the Government, the Contractor shall correct such defect or error by developing a fix for the Custom Programs and prepare a revised version of the Custom Programs incorporating such fix. The fix shall be subject to the acceptance by the Government before the revised version of the Custom Programs is prepared. If the Government withholds acceptance, the Contractor shall be obliged to continue to work on the fix until it is accepted by the Government. If a fix is urgently required, the Contractor shall provide a revised version of the Custom Programs incorporating the fix within twenty-four (24) hours after the request from the Government. **(E18/69)**
- 18.9.5 Forthwith upon a fix being completed, the Contractor shall prepare the Source Codes, object codes and command codes of the fix and the revised Custom Programs incorporating the fix in hardware-readable form and install onto the Hardware together with appropriate amendments to the Project Documentation specifying the nature of the correction and providing instructions for the proper use of the revised version of the Custom Programs on the Hardware. **(E18/70)**
- 18.9.6 If and to the extent requested by the Government, the Contractor shall as soon as reasonably practicable after producing a revised version of the Custom Programs incorporating a fix, provide such additional training as shall be necessary to enable the Government to make proper use and where necessary maintenance of the revised version of the Custom Programs. **(E18/71)**
- 18.9.7 The Contractor shall seek the prior written consent of the Government if it wishes to revise or replace the Custom Programs or any part thereof. If the Government's consent is given, the Contractor's obligations under this Contract with regard to the Custom Programs shall also apply to any such new version or replacement thereof. If the Government withholds its consent, the Contractor shall continue to be obliged to provide the same Services to the existing version of the Custom Programs. **(E18/72)**
- 18.10 **Service Level Management and Incident Management**
- 18.10.1 **Service Level Management**
- 18.10.1.1 The Contractor shall prepare and update records to track the Contractor's achievement of the actual Service Levels in performing the Services as compared with the minimum Service Levels as specified in Schedule 16 – Service Levels of Part V. **(E18/73)**
- 18.10.1.2 The Contractor shall prepare and update records to track the System's compliance with the Reliability Levels in respect of each Given Period. **(E18/74)**

- 18.10.1.3 Apart from the records to be kept by the Contractor as mentioned above, the Government may keep its own records on the same subject matters. In the event of any inconsistency between the two set of records, except proper justification can be provided by the Contractor to the satisfaction of the Government, or except in the case of manifest error, the records kept by the Government shall prevail. **(E18/75)**
- 18.10.1.4 The Contractor shall produce monthly service level reports in respect of the Services it has performed during that quarterly period. The service level reports shall be precise, easy to understand, and contain useful and well-analysed information. **(E18/76)**
- 18.10.1.5 The Contractor shall monitor service levels of the System including services provided by Other Contractors and shall make recommendations to the Government Representative if necessary. **(E18/77)**
- 18.10.2 **Incident Management**
- 18.10.2.1 **Scope of Incident Management**
- 18.10.2.1.1 The Contractor shall implement stringent incident management procedures and strictly follow the requirements in the Government's incident handling and escalation procedures. **(E18/78)**
- 18.10.2.1.2 The incident management shall cover any incidents that present an unplanned interruption or a reduction in the quality of services provided by the System. **(E18/79)**
- 18.10.2.1.3 The Contractor shall take ownership for any incidents and act as the intermediary between the Government and Other Contractors. **(E18/80)**
- 18.10.2.1.4 The Contractor shall identify, investigate, coordinate, handle, report, escalate and resolve reported and detected incidents and service interruption. **(E18/81)**
- 18.10.2.1.5 The Contractor shall handle all suspected incidents and any incidents that lead to service degradation, partial service outage, and total service outage. **(E18/82)**
- 18.10.2.1.6 The Contractor shall provide frequent updates of service status following schedules given by the Government during specific periods designated by the Government. **(E18/83)**
- 18.10.2.2 **Incident Management Procedures**
- 18.10.2.2.1 The Contractor shall before commencement of the Maintenance Period develop the incident management procedures, which shall include handling, reporting, monitoring and escalation when incidents occur, classification of incidents according to severity of their service impact, restoration of service from incidents, incident investigation and identification of root causes, implementation of resolution for any identified problems, and progress monitoring of resolution implementation. The incident management procedures shall be subject to the approval of the Government. **(E18/84)**
- 18.10.2.2.2 The Contractor shall observe relevant incident handling and problem management procedures as specified in the Information Security Incident Handling Guidelines

in Annex D to this Part and make reference to relevant prevailing procedures and integrate the same into the incident management procedures for the System where appropriate. **(E18/85)**

18.10.2.2.3 The Contractor shall proactively confirm the status of service resolution with the affected users after recovery actions have been taken and the service monitoring tool reports service resumption. **(E18/86)**

18.10.2.3 Execution of Incident Management Procedures

18.10.2.3.1 The Contractor shall escalate any reported and detected incidents to the Government based on the contact list for incident reporting and escalation. The Contractor shall maintain updated contact list and procedures for incident reporting and escalation. The contact list shall include the representatives of the Government. **(E18/87)**

18.10.2.3.2 The Contractor shall provide regular and updated reports of incident status during the time the services are being resumed. **(E18/88)**

18.10.2.3.3 The Contractor shall log and record all relevant information of an incident including its description, resolution and time. **(E18/89)**

18.10.2.4 Incident Alerts

18.10.2.4.1 The Contractor shall enforce immediate alert once a service incident is detected. **(E18/90)**

18.10.2.4.2 Alert shall be raised immediately at service interruption and system failure of the System. The details will be subject to the final approved incident handling procedures. **(E18/91)**

18.10.2.4.3 The recipients of the incident alerts shall depend on the alert levels and the approved incident handling procedures, which may include members of the Maintenance Team and management representatives of the Contractor company, the In-house Team, Government Representatives responsible for the System, as well as officers or contractors of government bureaux and departments and any relevant parties. **(E18/92)**

18.10.2.4.4 The alert mechanisms shall include at no additional charge to the Government short message service (SMS), email, phone and any appropriate means that the situation warrants. **(E18/93)**

18.10.2.5 Incident Report

18.10.2.5.1 The Contractor shall provide incident reports on all service incidents, including description of the incident, the impact, time and duration of the impact and recovery, root cause, activity logs, recovery actions taken, findings, recommendations according to the time requirements specified in Service Levels. **(E18/94)**

18.10.2.5.2 The Contractor shall clear the incident report with the representatives of Government before distributing to relevant parties mentioned in the Incident Management Procedures. **(E18/95)**

18.10.2.6 Incident Investigation

- 18.10.2.6.1 The Contractor shall attend meetings including incident investigation meetings and incident review panel meetings when requested by the Government. **(E18/96)**
- 18.10.2.6.2 The Contractor shall provide copies of logs, access records, and any other pertinent information when requested by the Government. **(E18/97)**
- 18.10.2.6.3 The Contractor shall allow the Government to access the data sources and any other information upon request by the Government. **(E18/98)**
- 18.10.2.6.4 The Contractor shall implement measures recommended in incident reports, subject to the approval of the Government, to prevent similar incidents from occurring again at its own costs and expenses. **(E18/99)**

18.11 **Performance and Capacity Management**

- 18.11.1 The Contractor shall monitor the performance and capacity of the System, and maintain the performance of the System as designed. **(E18/100)**
- 18.11.2 The Contractor shall conduct capacity planning exercise for the System at least once a year to review the performance, sizing model and capacity requirement of the System, and assess the cost implications for consequential changes, if applicable. The review period of each capacity planning shall cover the next 5 years. **(E18/101)**
- 18.11.3 The Contractor shall review, plan and recommend to the Government the upgrade path of the System having regard to the system workload, data volume, and end-of-life support of the hardware and software components of the System. The Contractor shall perform impact analysis and recommend the upgrade path for the System. **(E18/102)**
- 18.11.4 The Contractor shall perform system health check upon request of the Government. **(E18/103)**
- 18.11.5 The Contractor shall perform System tuning upon request of the Government. **(E18/104)**
- 18.11.6 The Contractor shall coordinate with Other Contractors and In-house Teams in conducting the capacity planning for the System. **(E18/105)**
- 18.11.7 The Contractor shall report their findings, project the capacity requirements of the System and make recommendation for changes, if necessary, to the Government as soon as practicable in order not to affect the performance of the System. **(E18/106)**

18.12 **Security Management**

- 18.12.1 The Contractor shall perform security review for the System at least once a year. **(E18/107)**
- 18.12.2 The Contractor shall acquire the services of a trusted party to provide and complete Security Risk Assessment and Audit Services on a biennial basis to evaluate the security risks of the System, according to the prevailing security policies and guidelines from OGCI. **(E18/108)**
- 18.12.3 The Contractor's trusted third party shall identify and recommend safeguards during the security risk assessment stage with the aim of strengthening the level of

security protection of the System. The Contractor shall implement at its own expenses the recommendations suggested by the risk assessment, and propose and implement solutions in relation to the security risks identified in the assessment and audit exercise upon the request by the Government. **(E18/109)**

18.12.4 The Contractor shall proactively be on the alert about system vulnerabilities and threats of malware and worms. The Contractor shall closely monitor the threat and applicability of new vulnerabilities and the associated remedies. The Contractor shall perform necessary actions such as applying patches or reconfiguring the System to fix or remove the vulnerabilities as soon as possible. **(E18/110)**

18.12.5 The service scope of the security risk assessment and audit shall cover, but not be limited to those areas related to: **(E18/111)**

- (a) Management responsibilities;
- (b) IT security policies;
- (c) Human resource security;
- (d) Asset management;
- (e) Access control;
- (f) Cryptography;
- (g) Physical and environmental security;
- (h) Operations security;
- (i) Communications security;
- (j) System acquisition, development and maintenance (including code review);
- (k) Outsourcing security;
- (l) Security incident management;
- (m) IT security aspects of business continuity management; and
- (n) Compliance (including penetration test).

18.12.6 The Contractor shall keep abreast of latest trends concerning potential attacks on the System and shall advise the Government on the counter-measures to be taken from time to time upon the request of the Government. **(E18/112)**

18.13 **Asset and Inventory Management**

18.13.1 The Contractor shall be responsible for asset management including all Hardware and Software (including Custom Programs) of the System. The Contractor shall implement and maintain a software asset management system. **(E18/113)**

18.13.2 The Contractor shall ensure the regular update of inventory of all items of Hardware and Software (including Custom Programs), and shall conduct reviews and audits of software assets at least once a year or upon request by the Government. **(E18/114)**

18.14 **Impact Analysis of System Change Requests**

18.14.1 In respect of each System Change requested by the Government, the Contractor shall perform impact analysis in relation to such aspects of the System as the

Government may request. The Contractor shall provide an impact analysis report to the Government for consideration within seven (7) working days or such other period specified by the Government upon receipt of Government's request. In addition to the information required in Clause 7.2.2 of Part IV, and such other information and assessments as the Government may request, the impact analysis report shall include a timetable for implementing the System Change, manpower (in terms of number of man-days and specified roles using function point analysis or such other basis of estimation as the Government shall stipulate or approve), risk, priority, cost and benefits and the scope of the system acceptance tests for the System Change. **(E18/115)**

18.14.2 The Contractor shall also make recommendations on the necessary network, Hardware, Software and/or Custom Programs changes for implementing the System Change in the impact analysis report. **(E18/116)**

18.14.3 The Contractor shall not commence work on a proposed System Change unless the Government indicates its agreement and approval of the impact analysis report in respect of such System Change and a change agreement is entered into in the manner specified in Section 18.14.5 of this Part ("change agreement"). Either case, the change agreement may incorporate such changes to the original request for System Change and the impact analysis report as the parties may agree (if any). **(E18/117)**

18.14.4 The Contractor shall implement the System Change and perform all necessary work concerning such System Change in accordance with the timetable set out in the change agreement. **(E18/118)**

18.14.5 The Government's request for a System Change, its subsequent written acceptance of an impact analysis report containing all necessary information and quotations as required above shall constitute a change agreement unless a separate change agreement is entered into by the parties pursuant to Clause 7.3 of Part IV. The terms and conditions governing the provision of the implementation of the System Change shall be as set out in the Contract and the change agreement, but excluding any terms and conditions which may unilaterally be imposed by the Contractor (including any standard term and condition of the Contractor) without the agreement of the Government. **(E18/119)**

18.14.6 In the event that the Government does not agree with the quotation of the number of man-days required for performing the System Change or any part thereof or other proposal put forward by the Contractor, the Contractor shall justify the quotation or proposal to the satisfaction of the Government, failing which the Government reserves the right to appoint another contractor or set up an in-house project team to on its own to perform the System Change. Whereupon, the Contractor shall be obliged to provide all necessary assistance, support and information as from time to time requested by the Government to that other contractor or in-house project team in the implementation of the System Change at no additional charge to the Government. Reference to "Other Contractors" shall include the aforementioned other contractor and reference to "In-house Team" shall include the aforementioned project team. **(E18/120)**

18.15 **System Changes**

- 18.15.1 Subject to the change agreement in relation to a System Change, the work to be conducted by the Contractor for the implementation of the System Change shall include, without limitation, the following: **(E18/121)**
- (a) analysing and designing the changes to the System according to the requirements of the System Change request (“System Change design”);
 - (b) modifying the System according to the System Change design;
 - (c) customising the Software and/or modifying the Custom Programs, if applicable;
 - (d) conducting System Acceptance Tests and User Acceptance Tests (if any) of such scope as specified in the change agreement as well as quality assurance;
 - (e) delivering the test plans and results;
 - (f) providing all necessary support and assistance to the Government in the User Acceptance Tests in respect of the System Change;
 - (g) migrating the enhanced software components of the System from the testing environment to the production environment of the System;
 - (h) updating and supplementing all related Documentation which is necessary or consequential following from a System Change;
 - (i) monitoring system performance to ensure that the performance of the System will not be affected by the System Change;
 - (j) providing training to users on a System Change, which may include the preparation of training materials, the setting up of training environment and the conduct of training courses; and
 - (k) conducting any other tasks related to the implementation of the System Change.
- 18.15.2 In relation to the System Acceptance Tests and User Acceptance Tests, the Contractor shall perform all such tasks specified in Section 17.3.11 – System Acceptance Tests and User Acceptance Tests of this Part concerning such System Acceptance Tests and User Acceptance Tests. **(E18/122)**
- 18.15.3 The Contractor shall provide at least 20 man-days to be performed by maintenance manager; 80 man-days to be performed by systems analyst and 180 man-days to be performed by analyst programmer per annum throughout the Maintenance Period for implementing System Changes with no additional cost to the Government. If there are any unused man-days or any part thereof in a year, they shall be carried forward to the next year without any limit. Man-days originally allocated for a year may be used in a preceding year if the man-days allocated for that preceding year is not sufficient for a particular System Change, without any limit. Unless the Government otherwise agrees in the change agreement, the System Changes may not be performed by full-time members of the Maintenance Team. **(E18/123)**
- 18.15.4 The Government may only consider paying additional charges at the charging rates as specified in Table 23.5 in Schedule 23 – Price Schedule of Part V – Contract Schedules for System Changes if the system change man-days allocated for the entire Maintenance Period as specified in Section 18.15.3 has been used up.
- 18.15.5 If a System Change does not pass any of the System Acceptance Tests or User Acceptance Tests (“Unsuccessful System Change”), the Government may require the Contractor to take, and whereupon the Contractor shall take, all necessary

measures to remedy any problem to ensure passing of such tests. Alternatively, the Government may on its own or contract with another contractor for implementing the unsuccessful System Change whereupon the Contractor shall indemnify the Government on the terms set out in Clause 33 of Part IV – Conditions of Contract including all costs to be thereby incurred by the Government which are in excess of the charge payable to the Contractor for the unsuccessful System Change. In case where the man-days were provided as part of the System Support Services, such charge shall be deemed as an amount equal to the man-day rate for performing System Change as specified in Schedule 23 - Price Schedule of Part V – Contract Schedules multiplied by the number of man-days performed. Without prejudice to other rights and claims of the Government, any amount which has been paid by the Government for the unsuccessful System Change shall be immediately refunded to the Government and any amount which was originally payable shall no longer be payable. **(E18/124)**

18.15.6 Utilities shall be provided to generate test cases and data with given criteria in the user acceptance test. **(E18/125)**

18.16 **System and Database Administration**

18.16.1 The Contractor shall perform system administration tasks for the System including, but not limited to, user account management, setup as well as maintenance of housekeeping and backup jobs, monitoring of system performance, customisations, configurations and trouble-shooting of equipment, installations of tested patches and updated malware signature and definition files. **(E18/126)**

18.16.2 The Contractor shall conduct system review tasks regularly including but not limited to the following activities and results shall be provided to the Government for further consideration. **(E18/127)**

- (a) review on log, account, user privileges and data access including system and application level at least twice per year.
- (b) backup activities at least once per year.
- (c) backup restoration tests at least once per year.
- (d) end-of-life support of the hardware and software components of the System at least once per year.
- (e) A list of persons who are authorised to gain access to the Data Centres, computer rooms or other areas supporting critical activities.
- (f) Install missing updates and patches applied to the system to fix their known vulnerabilities as soon as possible after the review depending on the risk level and at the sole discretion of the LCSD.

18.16.3 The Contractor shall perform disk management, security control and batch job management. **(E18/128)**

18.16.4 The Contractor shall provide system recovery and data restoration services, and shall maintain the reliability and recoverability for the System. **(E18/129)**

18.16.5 The Contractor shall perform database administration tasks of the System including, but not limited to, database management, database software maintenance, database review and reorganisation and database tuning. **(E18/130)**

18.17 **LAN, Workstation and Peripheral Support**

18.17.1 The Contractor shall ensure the healthy working conditions of all the equipment of the System in the user offices, including workstations and their connected peripherals. **(E18/131)**

18.17.2 The Contractor shall take up system administration tasks including, but not limited to, customisation and configuration of such equipment, installation of tested patches and up-to-date malware signature and definition files. **(E18/132)**

18.17.3 The Contractor shall perform troubleshooting and co-ordination for resolving problems for such equipment. The Contractor shall provide remote software support and maintenance service for all such equipment which meets the OGCIO security requirements, e.g. access by SSL VPN. **(E18/133)**

18.17.4 The Contractor shall facilitate prompt recovery of data in such equipment due to accidents including mis-operations by users. **(E18/134)**

18.17.5 The Contractor shall perform network problem and fault resolutions, network changes and upgrades, network management and monitoring of the System. **(E18/135)**

18.17.6 The Contractor shall provide centralised monitoring of all hardware components or servers connecting to the System. **(E18/136)**

18.18 **Connection with other Hardware and Software**

18.18.1 Connections may from time to time be established among governmental systems and the System, and other computer hardware and software, which are not supplied under this Contract. The Contractor shall perform impact analysis on such connections to the System. The Contractor shall be responsible for maintaining the System in order that the connections shall not have adverse impacts on the System. The Contractor shall provide assistance to Other Contractors and In-house Teams in the connection exercises. **(E18/137)**

18.19 **Disaster Recovery Planning and Drill**

18.19.1 The Contractor shall conduct a disaster recovery drill at least once a year according to the disaster recovery plan to be agreed with the Government. The drill shall not give rise to any disruption to the operation of the System. In case of System Changes, the Contractor shall also update the disaster recovery plan to reflect any changes applied and shall conduct the updated disaster recovery drill if required by the Government. **(E18/138)**

18.19.2 Upon a disaster situation, the Contractor shall perform all such work as specified in Section 14 - System Resilience and Disaster Recovery Requirements of this Part. **(E18/139)**

18.19.3 The Contractor shall perform system and database recovery as and when required by the Government. **(E18/140)**

18.20 **Documentation**

- 18.20.1 The Contractor shall maintain up-to-date Documentation in relation to the hardware and software configuration of the System including but not limited to the parameters used for the tuning of any Hardware and Software, to facilitate subsequent maintenance. **(E18/141)**
- 18.20.2 The Contractor shall maintain and update the following Documentation as part of the System Support and Maintenance Services: **(E18/142)**
- (a) Data Manual;
 - (b) Program Manual;
 - (c) System Manual;
 - (d) Application Operation Manual;
 - (e) Application User Manual;
 - (f) Computer Operations Procedures Manual (COPM);
 - (g) Database and System Administration Manual;
 - (h) Inventory List of Hardware and Software (including Custom Programs);
 - (i) Disaster Recovery Plan;
 - (j) DR Drill Plan and Procedure; and
 - (k) System Installation and Migration Procedure Manual.
- 18.20.3 The Documentation shall be in MS Word 2010 or compatible format. The Inventory List of Hardware and Software (including Custom Programs) shall be in MS Excel 2010 or compatible format. **(E18/143)**
- 18.20.4 The Contractor shall update, amend and supplement the Documentation according to all applicable Government IT standards and guidelines published from time to time. **(E18/144)**
- 18.21 **Other Tasks and Duties**
- 18.21.1 As part of the System Support Services, the Contractor shall from time to time upon the demand of the Government ensure at least one or more members of the Maintenance Team to be on stand-by and physically stationed at a Location and be prepared to provide emergency System Support and Maintenance Services on-site at a Location. The stand-by period may be any time from 00:00 to 24:00 as required by the Government (“stand-by period”). The total hours of stand-by shall be at least 80 hours per annum of the Maintenance Period to be provided free of any additional charge by the Contractor as part of the System Support Services (“Reserved Stand-by Hours”). In the event that the Reserved Stand-by Hours for a year have not been fully consumed by the Government during that year, the remaining man-hours shall be carried over to the year(s) after for use by the Government. For the avoidance of doubt, any time spent by member(s) of the Maintenance Team (a) who is/are not required to be physically stationed at the Location(s) during a stand-by period; or (b) to perform any work outside the stand-by period; or (c) otherwise not at the request of the Government for emergency System Support and Maintenance Services, such time shall not be treated as consumption of the Reserved Stand-by Hours. **(E18/145)**

- 18.21.2 The Contractor shall perform ad hoc job requests from time to time given by the Government in relation to the System. **(E18/146)**
- 18.21.3 The Contractor shall provide all the necessary services and support for the smooth operation of the System including support for those activities carried out by Other Contractors such as power maintenance carried out by a third party. **(E18/147)**
- 18.21.4 The Contractor shall provide relocation services for uninstalling, relocating and reinstalling any part of the System from one Location to another. **(E18/148)**
- 18.21.5 The Contractor shall perform system health checks and prepare the relevant check records and reports. **(E18/149)**
- 18.21.6 The Contractor shall provide a System that can support the current requirement and continue to enhance the System to provide features and capabilities in line with the market and achieve a self-financing business model. **(E18/150)**
- 18.21.7 The Contractor shall conduct a technology review once at the end of the third year of the Operation Period and propose an upgrade plan to keep up with the latest technology development within two months. If the Government is agreeable with the proposed upgrade plan, the Contractor shall implement the upgrade within such timetable and other requirements to be agreed with the Government in a change agreement in accordance with Clause 7 of Part IV – Conditions of Contract as if it is a System Change. The Contractor shall propose the upgrade plan at no additional cost to the Government, and the Contractor shall bear all the manpower resources required to implement the upgrade without using any of the manpower resources reserved for performing the System Changes under Section 18.15.3 of this Part. Without prejudice to its other rights and powers, the Government reserves the right not to accept any upgrade plan proposed by the Contractor. **(E18/151)**
- 18.21.8 As an incentive measure, the Contractor is allowed to propose other business operation to increase the operation functions and their revenue for sustaining good performance of system operation and related software upgrades. The proposed business functions shall be subject to the written agreement between the Contractor and Government and any agreement shall be reviewed on at least an annual basis. **(E18/152)**
- 18.21.9 The Contractor shall bear all the risk incurred from these other business functions. **(E18/153)**
- 18.22 **Professional Staff Requirements**
- 18.22.1 The Contractor shall provide a Maintenance Team to carry out the System Support and Maintenance Services for the System and an Operation Team to perform the telephone, mobile and online ticketing and enquiry services and ticket collection service. Staff at the outlets shall be provided by the Government or the relevant ticketing agent operating the outlet. The Maintenance Team shall include at least one maintenance manager, two system analysts, two analyst programmers, one system support staff and one security engineer. The roles of maintenance manager and system analysts are key roles of the Maintenance Team (viz., “Key Roles” (in upper or lower case)). The title of these roles may be referred to in upper or lower case. No person shall perform more than one Key Role in the Maintenance Team.

- The maintenance manager in charge of the Maintenance Team shall be the single point of contact for the Government during the Maintenance Period. **(E18/154)**
- 18.22.2 The Operation Team shall maintain at least 15 operators working during the service hours from 10:00 a.m. - 8:00 p.m. daily and to be located at the Telephone Centre for manning the telephone ticketing and enquiry services, the reservation and the ticket verification services and the Internet and mobile ticketing and enquiry services. **(E18/155)**
- 18.22.3 The experience and qualification of each proposed member of the Maintenance Team shall be determined as at the date he or she proposes to join the Maintenance Team (“Proposed Date of Joining”). All experience of a nominee of a key role or non-key role is counted in days and all such experience in days shall be added up and then divided by 365 days to arrive at the number of complete years (i.e. each complete year with 365 days) covered by such total period with any remainder period of experience in days which falls short of one complete year of 365 days to be ignored. **(E18/156)**
- 18.22.4 Throughout the Contract including this Section 18, “IT experience” has the same meaning given in Annex B – “Assessment of Compliance with Essential Requirements” of the Conditions of Tender which shall be deemed incorporated and form part of the Contract. **(E18/157)**
- 18.22.5 Each of the nominee(s) for a role of the Maintenance Team fulfilling the minimum number for such role must on his own comply with the experience and qualification requirements for such role as stipulated in Section 18.22.7 of this Part. Any additional nominee over and above the minimum number of nominee(s) purportedly filling a role but does not comply with the experience and qualification requirements for such role will not be taken as a person filling that role. **(E18/158)**
- 18.22.6 Throughout the Tender Documents and the Contract, reference to “minimum number” shall mean in relation to a role in the Maintenance Team as specified in Section 18.22.1 of this Part, the minimum number of persons as stated therein to be required to fill such role and repeated in the first column of Part A of Table 7.5 of Schedule 7 – Contractor Personnel and their Duties of Part V.
- 18.22.7 The requirements for each role including the stationing requirements, the qualification and experience requirements, and the responsibilities are set out in this Section 18.22.7 as follows:
- 18.22.7.1 The maintenance manager shall work throughout the Maintenance Period. The maintenance manager shall possess at least 9 years of IT experience including at least 5 years of experience in project maintenance management and 3 years of IT experience relating to IT system for the provision of ticketing service in Hong Kong. The maintenance manager shall be the single contact point to conduct project tracking and control for the System, resolve project issues, apply quality control management, co-ordinate with sub-contractors, liaise with Government project team and/or other parties to provide the System and Maintenance Support Services. **(E18/159)**
- 18.22.7.2 All system analyst(s) shall work throughout the Maintenance Period. Each system analyst shall possess at least 5 years of IT experience including at least 3 years of experience performing one or more of the following activities: application design,

programming, system test, system implementation, system integration, installation, system nursing and maintenance of one more IT system(s). Each systems analyst shall have knowledge of the overall design and implementation of the System. All systems analyst(s) shall assist the maintenance manager and work with other Maintenance Team members to perform all System Support and Maintenance Services. **(E18/160)**

18.22.7.3 All analyst programmer(s) shall work throughout the Maintenance Period. Each Analyst Programmer shall possess at least 2 years of IT experience in performing one or more of the following activities: programming, system test, system integration, system nursing and maintenance in relation to one or more IT system(s). Each analyst programmer shall have knowledge of the overall design and implementation of the System. All analyst programmer(s) shall work with Maintenance Team members to perform all System Support and Maintenance Services. **(E18/161)**

18.22.7.4 All system support staff shall work throughout the Maintenance Period. Each system support staff shall possess at least 4 years of IT experience including at least 2 years of experience in configuration of IT infrastructure. Each system support staff shall have knowledge of the overall design and implementation of the System. All system support staff shall assist the maintenance manager and work with other Maintenance Team members to provide System Support and Maintenance Services on the system architecture and infrastructure. **(E18/162)**

18.22.7.5 All security engineer(s) shall work throughout the Maintenance Period. Each security engineer shall possess at least 4 years of IT experience including at least 2 years of experience in IT security. Each security engineer shall have knowledge of the overall design and implementation of the System. All security engineer(s) shall assist the maintenance manager and work with other Maintenance Team members to provide System Support and Maintenance Services on IT security. **(E18/163)**

19. TRAINING

19.1 Tenderers' Responsibilities

19.1.1 Tenderers shall provide in Schedule 18 – Training of Part V – Contract Schedules the information on free and chargeable training courses, types of training to be offered, other relevant training resources and facilities to be offered for the Government personnel. Availability of documentation and library facilities in Hong Kong shall also be stated. **(E19/1)**

19.1.2 Tenderers shall also specify the provision of the appropriate documentation in connection to system operation, operation procedures, equipment operation, etc., to facilitate the ease of reference by all level of staff. **(E19/2)**

19.1.3 Tenderers shall also submit information pertaining to other relevant technical training which can be provided to the LCSD personnel. **(E19/3)**

19.2 Training Requirement

19.2.1 The Contractor shall provide adequate training which includes technical training to the LCSD's technical support staff, and end-users for using the proposed hardware and software products, training on how to integrate the proposed software products with in-house developed applications, and operation training as a result of operation amendment after the business process reengineering. **(E19/4)**

19.2.2 The Contractor shall also provide bilingual (Traditional Chinese and English) web-based training tools for self-learning to event presenters for filling in e-forms for event setup and marking price zones, seat blocks, consignment and complimentary tickets etc. in e-seat plans. **(E19/5)**

19.2.3 The Contractor shall provide and customise different types of training facilities free of charge to the Government including, but not limited to, hardware, software, training manual, training materials, computer-based training packages and/or video-based self-study training packages for all users of the System. The Contractor shall be responsible for the ongoing maintenance, enhancement and update to the training materials. **(E19/6)**

19.2.4 The Contractor shall be required to prepare training manual and training materials in both English and Traditional Chinese for some training sessions as requested by the Government. **(E19/7)**

19.2.5 The Contractor shall be responsible for the initial setup and maintenance of the training database. **(E19/8)**

19.2.6 The Contractor shall be responsible for conducting user classroom training with hands-on computer operation for users nominated by Government prior to the actual rollout of the System. The number of participants in each computer hands-on training session shall not exceed 20 users. **(E19/9)**

19.2.7 The Contractor shall set up the training environment(s) for all training sessions, including the preparation, loading and reloading of training data. At the request of the Government Representative, the Contractor shall deliver user training at the venue provided by the Government. The Contractor shall closely coordinate with

the Government Representative in making the detailed arrangements, and shall render all necessary support in setting up the training environment(s), including the training system, training data, required facilities. **(E19/10)**

19.2.8 The Contractor shall prepare a Training Plan for the System, which shall indicate a programme of training courses for the users. The Contractor shall work closely with the Government Representative during the project to finalise the training arrangements, and submit the Training Plan for approval by the Government Representative. The Training Plan shall include, but not be limited to the following information for each course: **(E19/11)**

- (a) Training objectives;
- (b) Sequence of learning activities;
- (c) Outline and curriculum of the course;
- (d) Types of training, e.g. user classroom training with hands-on computer operation;
- (e) Category of trainee, e.g. managerial, end user;
- (f) Training mode, e.g. classroom presentation, hands-on computer assisted training, paper and pencil exercise, self-learning CD-ROM or video;
- (g) Training venue;
- (h) Resources required, e.g. equipment, workshop accommodation, CD-ROM;
- (i) Programme showing the training hours for each training course, including classroom training, together with a breakdown of the hours necessary for each main subject;
- (j) Proposed schedule and duration;
- (k) Number of participants for each class; and
- (l) Post course assessment method, if applicable.

19.2.9 The Contractor shall revise the Training Plan in accordance with the updated training requirements from the Government Representatives during the implementation of the project. The Contractor shall submit the revised Training Plan to the Government Representative for consideration and agreement. **(E19/12)**

19.2.10 The Training Plan shall be subject to change by the Government based on the actual rollout of the System. **(E19/13)**

19.2.11 As part of the System Support Services, the Contractor shall be responsible for the ongoing maintenances and enhancements of the training materials which shall include, but not be limited to the following: **(E19/14)**

- (a) Deliver refresher training to users as a result of any enhancements or changes in the System;
- (b) Set up the training environment(s) (including the preparation, loading and reloading of training data), for all training courses to be conducted, including refresher training as well as end-user classroom training with hands-on computer operation; and
- (c) Ensure the alignment of relevant training facilities with any enhancements of the System, and incorporate modifications and updates where necessary.

19.2.12 The Contractor shall recommend the training approach for new users in the future after full rollout of the System. The Contractor shall be responsible for planning, designing and developing any additional training facilities necessary to support this. **(E19/15)**

19.3 User Types and Categories

19.3.1 The following table is for the purpose of estimating the number and type of training courses required for different types of users. It does not represent the actual number of different types or categories of users that need to be trained. The Contractor shall be responsible for coordinating with the Government during the project to confirm the actual number of users, by different user types and categories, for the purpose of finalising the detailed Training Plan. **(E19/16)**

Attendees	Types of training	Number of attendees
IT Personnel (system programmer, system analyst, analyst programmer and computer operators)	<ul style="list-style-type: none"> • General system overview • Backend system administration and system operation • Ticketing system operation • Disaster recovery arrangement 	20
Outlet Managers/ Supervisors and Office Managers	<ul style="list-style-type: none"> • General system overview • Ticketing system administration • Ticketing system operation 	25
Outlets Operators and Venue Office Clerical Staff	<ul style="list-style-type: none"> • Ticketing system operation 	80
Managerial Staff of Ticketing Office	<ul style="list-style-type: none"> • General system overview • Ticketing system administration • Ticketing system operation • Event setup 	10
Office Clerical Staff of Ticketing Office	<ul style="list-style-type: none"> • Ticketing system operation 	10

20. SIZING

20.1 Tenderers' Responsibilities

- 20.1.1 Tenderers shall provide in Schedule 21 – Other Information of Part V – Contract Schedules the sizing report designed to support the Contractor Supplied Hardware and Software, the Custom Programs, communication lines of the System as well as the network bandwidth required for the System. The sizing report shall illustrate how the proposed configurations of the aforementioned system components shall allow flexible upgrade path as well as system expansion, and in every system context, shall fully meet the requirements set out in the Overall Specifications, the Performance Criteria and the Reliability Levels of this Contract. The required content of the sizing report is outlined in Annex F – Sample Sizing Report for the System. **(E20/1)**
- 20.1.2 Tenderers shall include in the sizing report the recommended threshold limits, the projected utilisation and usable spare capacity of the proposed equipment of the System, which shall be deployed at different Locations as stated in Section 7 – Location and Site Specifications of this Part. Specifically, the resource consumptions of the proposed equipment shall include, but not be limited to, central processing unit (CPU), memory (main and virtual), data channel, disk storage, massive storage, disk controller, network interface card and network bandwidth shall be considered in the sizing estimations. Recommended threshold values for CPU utilisation shall not be higher than 85% and network overhead shall not be lower than 30% respectively. The projected utilisation figures shall not be higher than those of the recommended threshold limits. **(E20/2)**
- 20.1.3 Tenderers shall include the recommended threshold limits, projected utilisation and usable spare capacity of CPU, memory, disk I/O, disk storage, LAN interface card of core servers and network equipment and other major system components. Recommended threshold values for CPU utilisation shall not be higher than 85% and network overhead shall not be lower than 30% respectively. The projected utilisation figures shall not be higher than those of the recommended threshold limits. **(E20/3)**
- 20.1.4 Tenderers shall provide in the sizing estimations the processing requirements for the proposed solutions, and shall state the additional capacity in terms of, but not be limited to, processing power in transactions per minute, memory and disk volumes built for the System. **(E20/4)**
- 20.1.5 Tenderers must ensure the sizing results are supported by descriptions on the methodologies, basic assumptions, parameters and input data used. In particular, the following factors shall be addressed by Tenderers, and they shall be supported by manufacturers' figures or benchmarks: **(E20/5)**
- (a) The method of memory management employed;
 - (b) The time and frequency required for file and database reorganisation;
 - (c) The disk storage required to implement application data structure and volume;
 - (d) The overheads shall include, but not be limited to, CPU utilisation, workspace for sorting required by the proposed software components of the System, resultant program size whether frequently used programs should be resident in

memory or not, and object code share ability imposed by the proposed application development tools; and

(e) Any other relevant information.

20.1.6 The sizing estimates shall fully meet the requirements set out in the Section 5 – Workload Specifications and Section 6 – System Performance Specifications of this Part. **(E20/6)**

20.1.7 Tenderers must pay attention in formulating the sizing estimations since sizing is an essential part of the tender evaluation. Particular emphases shall be placed on the response time and turnaround time requirements of the System as specified in Section 6 of this Part. **(E20/7)**

- ENDS -

Existing URBIX Ticketing Outlets and Offices

(as at November 2019)

No.	Outlet/Office Name	Address
1.	Ticketing Office	Level 6 & 9, Administration Building, Hong Kong Cultural Centre, 10 Salisbury Road, Tsim Sha Tsui, Kowloon
2.	Hong Kong Space Museum	10 Salisbury Road, Tsim Sha Tsui, Kowloon
3.	Hong Kong Film Archive	50 Lei King Road, Sai Wan Ho, Hong Kong
4.	Yau Ma Tei Theatre	6 Waterloo Road, Kowloon
5.	Hong Kong Cultural Centre	Auditoria Building, 10 Salisbury Road, Tsim Sha Tsui, Kowloon
6.	Hong Kong Coliseum	9 Cheong Wan Road, Hung Hom, Kowloon
7.	Ngau Chi Wan Civic Centre	2/F, 11 Clearwater Bay Road, Kowloon
8.	Queen Elizabeth Stadium	18 Oi Kwan Road, Wan Chai, Hong Kong
9.	Hong Kong City Hall	Lower Block, 5 Edinburgh Place, Central, Hong Kong
10.	Sheung Wan Civic Centre	345 Queen's Road Central, Sheung Wan, Hong Kong
11.	Sai Wan Ho Civic Centre	111 Shau Kei Wan Road, Shau Kei Wan, Hong Kong
12.	Ko Shan Theatre	77, Ko Shan Road, Hung Hom, Kowloon
13.	Sha Tin Town Hall	1 Yuen Wo Road, Shatin, New Territories
14.	Tsuen Wan Town Hall	72 Tai Ho Road, Tsuen Wan, New Territories
15.	Tuen Mun Town Hall	3 Tuen Hi Road, Tuen Mun, New Territories
16.	Kwai Tsing Theatre	12 Hing Ning Road, Kwai Chung, New Territories
17.	Tai Po Civic Centre	12 On Pong Road, Tai Po, New Territories
18.	North District Town Hall	2 Lung Wan Street, Sheung Shui, New Territories
19.	Yuen Long Theatre	9 Yuen Long Tai Yuk Road, Yuen Long, New Territories
20.	Hong Kong Arts Centre	2 Harbour Road, Wan Chai, Hong Kong
21.	HKICC Lee Shau Kee School of Creativity	135 Junction Road, Kowloon
22.	Parsons Music Yau Tong Branch	Shop 314 Domain, Level 3, 38 Ko Chiu Road, Yau Tong, Kowloon
23.	Youth Square	238 Chai Wan Road, Chai Wan, Hong Kong
24.	Tai Kwun	Visitor Centre, G/F, Block 03, Tai Kwun, 10 Hollywood Road, Central, Hong Kong
25.	Tom Lee Music Tsim Sha Tsui Branch	1-9 Cameron Lane, Tsim Sha Tsui, Kowloon
26.	Tom Lee Music Wan Chai Branch	2/F, City Centre Building, 144-149 Gloucester Road, Wan Chai, Hong Kong
27.	Call Centre	Cityline (Hong Kong) Limited, Unit F-H, 23/F, Legend Tower, 7 Shing Yip Street, Kwun Tong, Kowloon
28.	LCSD's Information Technology Office (IT Office)	Level 6 & 9, Lockhart Road Municipal Services Building, 225 Hennessy Road, Wan Chai, Hong Kong Shatin Data Centre, 6/F, Leisure and Cultural Services Headquarters, 1-3 Pai Tau Street, Sha Tin, Hong Kong

The number and locations are subject to change.

URBTIX Interface with Revenue Recording System

I. Standardised Interface

Revenue Recording System (RRS) would provide a standardised interface format to allow revenue collection source systems to submit their revenue records and bank-in records to RRS to process.

The source systems would be required to provide the following details that would be entered into the system type (SYS_TYPE), bank account (BANK_ACCOUNT) and payment class / types (PAY_CLASS / PAY_TYPE) tables:

- Source System Code
- Source System Name
- Revenue Collection Record File Name
- Bank-in File Name
- Source System Host IP Address
- Remote File Location
- RRS SFTP User Account ID
- Gross or Net used for matching and reconciliation
- Bank Account Details
- Payment Types

II. Revenue Collection Record Standardised Interface

Revenue collection source systems in general should provide revenue collection records according to the specification defined below:

Header Record

Field No	Description	Format	No. of Bytes	Position	Mandatory	Remarks
1.	Batch Reference no	Char(9)	9	1	Yes	In SYYYYMMDD format: S - Source system code, SYS_TYPE.ST_SYSTYPE YYYY - Year MM - Month DD - Day
2.	Number of records	Char(8)	8	10	Yes	Detail record count. The number of records should be left padded with '0's.
3.	Batch total	Number	16	18	Yes	Total transaction amount. Maximum 16 digits including the '+' or '-' sign which is placed at the end of the figure. The batch total should be left padded with '0's.

Detail Record

Field No	Description	Format	No. of Bytes	Position	Mandatory	Remarks
1	Collection Centre Code	Char(6)	6	1	Yes	In DDCCCC format: DD - Department code i.e. 'E4' and CCCC - Collection centre code
2	RRS No.	Char(14)	14	7	Yes	In RTYYMMDDCCCCPP: R - Prefix of fixed value T - Source system code as previously defined YY - Last two digit of year MM - Month DD - Day CCCC - last four digits of the collection centre code PP - Payment Type (use alphabet for different type of payment e.g. CA = cash)
3	User Code	Char(19)	19	21	Yes	Full length should be 19 characters. The user code should be right padded with 'blank' spaces.
4	Transaction Date	Char(8)	8	40	Yes	In YYYYYMMDD format
5	RRS Amount	Number	16	48	Yes	Maximum 16 digits including the '+' or '-' sign which is placed at the end of the figure. The RRS Amount should be left padded with '0's.
6	Brand	Char(2)	2	64		The brand name otherwise should be 2 blank spaces
7	Payment Channel	Char(2)	2	66		The payment channel otherwise should be 2 blank spaces
8	Gross Amount	Number	16	68		Maximum 16 digits including the '+' or '-' sign which is placed at the end of the figure. The gross amount should be left padded with '0's.

9	Net Amount	Number	16	84		Maximum 16 digits including the '+' or '-' sign which is placed at the end of the figure. The net amount should be left padded with '0's.
10	Transaction Fee	Number	16	100		Maximum 16 digits including the '+' or '-' sign which is placed at the end of the figure. The transaction fee should be left padded with '0's.
11	Description 1	Char(60)	60	116		Description field to store event name or Venue Name. The description 1 should be right padded with 'blank' spaces.
12	Description 2	Char(30)	30	176		Description field to store event name or Venue Name. The description 2 should be right padded with 'blank' spaces.
13	Supplementary 1	Char(30)	30	206		Supplementary 1. The supplementary 1 should be right padded with 'blank' spaces.
14	Supplementary 2	Char(30)	30	236		Supplementary 2. The supplementary 2 should be right padded with 'blank' spaces.

Notes:

1. The interface file should be generated on a daily basis.
2. The detail records should be in the order of (in ascending order)
 - Collection centre;
 - RRS number; and
 - User Code.
3. The payment type is included in the RRS No. field and with following sample value:

Payment type value	Description
CA	Cash
CQ	Cheque
XA	AE
XV	Visa
XM	MasterCard
XT	Credit Card of Citibank
XD	Diners
XT	Credit Card of Standard Chartered Bank
XS	Octopus
XJ	Jetco
XE	EPSCO

4. The header and the detail records should be presented in the interface file as the following.
 - i) No field of any record should be split in more than 1 line.
 - ii) The file format would be fixed width
 - iii) For text fields, they should be enclosed in double quotes.
 - iv) The Batch Total in the header should be equal to the total of the RRS Amount otherwise the file is rejected
 - v) The Number of records in the header should be equal to the number of detail records otherwise the file is rejected

III. Bank-in Standardised Interface

Revenue collection source systems in general should provide bank-in records according to the specification defined below:

Header Record

Field No	Description	Format	No. of Bytes	Position	Mandatory	Remarks
1.	Batch Reference no	Char(9)	9	1	Yes	In SYYYYMMDD format: S - Source system code, SYS_TYPE.ST_SYSTYPE YYYY - Year MM - Month DD - Day
2.	Number of records	Char(8)	8	10	Yes	Detail record count. The number of records should be left padded with '0's.
3.	Batch total	Number	16	18	Yes	Total transaction amount. Maximum 16 digits including the '+' or '-' sign which is placed at the end of the figure. The batch total should be left padded with '0's.

Detail Record

Field No	Description	Format	No. of Bytes	Position	Mandatory	Remarks
1	RRS No.	Char(14)	14	1	Yes	In RTYYMMDDCCCCPP: R - Prefix of fixed value T - Source system code as previously defined YY - Last two digit of year MM - Month DD - Day CCCC - last four digits of the collection centre code PP - Payment Type (use alphabet for different type of payment e.g. CA = cash)
2	RRS Amount	Number	16	15	Yes	Maximum 16 digits including the '+' or '-' sign which is placed at the end of the figure. The RRS Amount should be left padded with '0's.
3	Bank-in Date	Date	8	31	Yes	In YYYYYMMDD format
4	Bank-in Amount	Number	16	39	Yes	Maximum 16 digits including the '+' or '-' sign which is placed at the end of the figure. The Bank-in Amount should be left padded with '0's.

Notes:

1. The interface file should be generated on a daily basis.
2. The payment type is included in the RRS No. field.
3. The header and the detail records should be presented in the interface file as the following.
 - i) No field of any record should be split in more than 1 line.
 - ii) The file format would be fixed width

- iii) The Batch Total in the header should be equal to the total of the RRS amount otherwise the file is rejected
- iv) The Number of records in the header should be equal to the number of detail records otherwise the file is rejected

Disaster Recovery Requirements

1. Function Specifications

1.1 Computer processing resources

A round-the-clock non-stop computer operation service shall be provided at the disaster recovery (DR) centre and the DR site shall be accessible to the LCSD 24 hours a day, 7 days a week under Disaster situation.

The DR service provider must identify the computing resources required, in terms of central processing power, memory, disk storage, consumables (such as print heads, printer ribbons, printer forms), other peripheral, backup data circuits and data communication equipment for the computer system.

1.2 Data Communication service

The DR service provider must be capable of allowing the backup data circuits for the Ticketing System and Related Services to connect to the Location of URBTIX outlets with DR service as specified by the Contractor in Schedule 4 – Technical Proposal and System Configuration of Part V. The DR service provider shall allow the Contractor or the LCSD to disconnect/re-install such backup data circuits when required based on the prevailing tariff of the telecommunication company.

1.3 Data back-up storage service

The DR service provider must provide a secure place in the disaster recovery site to store the latest version of back-up media and initiate the loading of back-up data immediately upon receiving the disaster notification.

1.4 Technical support service

Technical support service shall be provided by the DR service provider in setting up and rehearsing the recovery procedures which include, but are not limited to the following:

- 1.4.1 set up of the proposed environment as specified by the Contractor in Schedule 4 – Technical Proposal and System Configuration of Part V;
- 1.4.2 set up of the proposed equipment, including network equipment as specified by the Contractor in Schedule 4 – Technical Proposal and System Configuration of Part V;
- 1.4.3 prepare the required restore procedure, including restore of the system software and application software using in the production environment as specified by the Contractor in Schedule 4 – Technical Proposal and System Configuration of Part V;
- 1.4.4 review of the procedures for initiating system recovery and establishment of transfer procedures;
- 1.4.5 setup of operating procedures in co-operation with the staff of the Contractor or the LCSD, and provision of technical assistance for the ongoing daily operation of the service;

- 1.4.6 perform rehearsals of the procedures with the staff of the Contractor or the LCSD;
- 1.4.7 review of effectiveness of back-up service and implementing changes if required;
- 1.4.8 prepare operation manual and relevant documentation; and
- 1.4.9 provide necessary training.

1.5 Maintenance service

Upon receiving the disaster notification from the Contractor (or from the LCSD in the event of the Contractor's liquidation or bankruptcy or failure to provide the Disaster Recovery Services), the maintenance services of the Hardware and Software in the DR site shall be ready within 4 hours.

1.6 Availability of disaster recovery facilities

Upon receiving the disaster notification from the Contractor (or from the LCSD in the event of the Contractor's liquidation or bankruptcy or failure to provide the Disaster Recovery Services), the DR site, the Ticketing System and Related Services including Hardware, Software and all required equipment shall be ready within 4 hours, including data restore and synchronisation. Online data synchronisation of transaction data with no more than 5 minutes delay shall be provided.

1.7 Security and safety measures

The DR service provider shall properly control access to the Ticketing System and Related Services, office space environment for carrying out the DR service, documentation and other related materials at all times. Access shall be restricted to authorised personnel of the DR service provider, the Contractor, staff of the LCSD and other customers of the DR service provider. When staff of the LCSD is in use of disaster recovery facility, a dedicated operation environment shall be provided. Security procedures to safeguard the interests of the LCSD in using the services shall be formulated and accepted by the LCSD.

1.8 Rehearsals

One rehearsal must be scheduled each year and each rehearsal shall allow the Contractor or the LCSD to use the DR computing facilities for no less than 4 days.

1.9 Length of Use

In the event of disaster, the DR service provider must be able to provide the Disaster Recovery Services exclusively to the Contractor or the LCSD for not less than 8 consecutive weeks provided that the LCSD is the first customer to make a claim for disaster recovery services of such resources, including in the event of the Contractor's default or liquidation. If extension on the provision of Disaster Recovery Services is still required after the said 8 consecutive weeks, the DR service provider must continue to provide the DR services exclusively to the LCSD until further notice by the LCSD.

2. Workload Specifications

2.1 The DR service provider must be able to support at least the following service level:-

(a) Terminal Support

All terminals, ticket printers, report printers at outlets
(Including the Internet & Mobile Ticketing service with a minimum of 3,000 concurrent sessions and be able to automatically scale up to 20,000 concurrent sessions during peak of hot events and at the same time be able to allocate not less than 1,000 concurrent sessions for other normal events.)

(b) Application Services Support

All application services.

(c) Batch Jobs Support

Existing periodical batch jobs running in the system for the purpose of backup, housekeeping, data reorganisation, day-end processing, report and notice printing, etc. must be performed according to the specification of the Contractor's daily operation manual which specified in Schedule 6 –Documentation of Part V.

3. System Performance Specifications

In the event of a disaster, resilience features such as backup server, shadowed memory, disk mirroring, dual bus, dual communication path, etc. are not required.

3.1 Performance Level

Degradation in performance is not allowed. The response time mentioned in Section 6 – System Performance Specifications of Part VII shall be met.

4. Reliability Specifications

4.1 The committed serviceability level for each month (“the Given Period”), when the LCSD is in use of the Disaster Recovery Service, shall be at least 98% and shall be measured at the end of the Given Period.

4.2 The committed mean time between failures for the Given Period shall be at least 150 hours and shall be measured at the end of the Given Period.

4.3 For the purpose of Initial Acceptance Tests and System Acceptance Tests, the Given Period shall be deemed to be 4 consecutive weeks.

4.4 For the ongoing supported Disaster Recovery Service, the Given Period shall be deemed to be 4 consecutive weeks or the period when the LCSD is in use of the DR services if such period is shorter than 4 consecutive weeks.

- 4.5 In the event that the Disaster Recovery Service cannot achieve the committed serviceability level specified of 98% or higher, the Contractor shall pay to the Government the liquidated damages according to Clause 29.3 of Part IV.
- 4.6 In the event that the DR Service Provider is required to provide the Disaster Recovery Service and if the Disaster Recovery Service cannot achieve the committed serviceability level specified of 98% or higher when the LCSD is in use of the DR services in the event of the Contractor’s failure to provide the Disaster Recovery Services, the DR Service Provider shall be considered to have failed to provide the services promised and shall pay to the Government the liquidated according to Clause 29.3 of Part IV.
- 4.7 Default Performance
- 4.7.1 At any time during the Contract Period, the LCSD may investigate each case where the Contractor has failed to perform the Disaster Recovery Service or any part thereof in accordance with the provisions of the Contract.
- 4.7.2 Where the LCSD is satisfied that in any particular case the Disaster Recovery Service provided by the Contractor has failed to meet the standards required under the Contract or any terms and conditions of the Contract, he shall be entitled to instruct the Contractor in writing to remedy/rectify the failure in order to comply fully therewith within such period as it in its absolute decision may determine, but any such period shall in no case be later than twenty-four (24) hours after giving such written instructions to the Contractor.
- 4.7.3 If the Contractor fails to comply with the instruction of the LCSD issued under Clause 4.7.2 in Annex C to Part VII, the LCSD shall be entitled to record in writing a Notice of Default (hereinafter called “Default Notice” and also to expressed in abbreviated form of “DN”) which shall be issued to the Contractor. Without prejudice to any other rights and remedies or actions under the Contract, the LCSD shall have the right to reject unsatisfactory performance of the Disaster Recovery Service until such defects have been rectified by the Contractor and to the satisfaction of the LCSD.
- 4.7.4 Deductions in the form of liquidated damages of a sum equivalent to the actual administration costs incurred for enforcing the contractual term of this clause may be made by the Government from the monthly payment due to the Contractor in respect of DN issued on the basis of the scale below -

DN issued to the Contractor in any Month	Amount of Deduction for each DN
i. The 1 st	HK\$2,339
ii. 2 nd	HK\$3,113
iii. 3 rd and beyond	HK\$4,079

- 4.7.5 Without prejudice and in addition to any deduction which may be made under Clause 4.7.4 in Annex C to Part VII, the Government shall be entitled to withhold any payment to the Contractor until the Disaster Recovery Service has been performed to the satisfaction of the Government and in strict accordance with the terms and conditions of the Contract and until all costs and expenses which may be incurred by the Government in accordance with Clause 4.7.6 in Annex C to Part VII have been recovered.

- 4.7.6 If the Contractor fails to provide any of the DR Services or fails to provide the DR Services to the satisfaction of the LCSD, the LCSD shall be entitled to have such DR Services carried out by its own resources or by other contractors, and to recover any sums, expenses, loss, damages, claims or any liability that may be incurred by the LCSD and may deduct the same from any monies due or becoming due to the Contractor under this or other Contracts with the Government and the same shall be recoverable as a debt due by the Contractor to the Government.
- 4.7.7 For the purpose of Part VII Annex C Clauses 4.7, the DR Service Provider shall be construed as the “Contractor” when the LCSD is in use of the DR Service Provider’s services in the event of the Contractor’s failure to carry out the Contract.

List of Major Government Standards and Guidelines

1. The following is a list of major Government standards and guidelines in use, these standard/guidelines can be downloaded from the OGCIO of the Government Chief Information Officer (OGCIO) website at <http://www.ogcio.gov.hk>. The Contractor shall note that the standards / guidelines may be updated from time to time and shall also make reference to the OGCIO website for the latest standards / guidelines adopted by the Government.

1.1 Project Management

- (a) Practice Guide to Project Management for IT Projects under an Outsourced Environment
- (b) Practice Guide for Scoping & Planning of Large-scale IT System Development Projects

1.2 Resource Estimation

- (a) An Introduction to FPA

1.3 System Development

- (a) Best Practices for Business Analyst
- (b) Effective Systems Analysis and Design Guide
- (c) Practice Guide for Agile Software Development
- (d) Guidelines for Application Software Testing

1.4 System Maintenance

- (a) Guidelines on System Maintenance Cycle

1.5 Software Asset Management

- (a) Reference Guide on Software Asset Management

1.6 IT Security Policies and Guidelines

- (a) Baseline IT Security Policy
- (b) IT Security Guidelines
- (c) LCSD IT Security Policy
- (d) LCSD IT Security Guidelines
- (e) LCSD Information Security Incident Handling Guidelines
- (f) Practice Guide for Security Risk Assessment & Audit
- (g) Practice Guide for Information Security Incident Handling
- (h) Practice Guide for Mobile Security

(i) Practice Guide for Cloud Computing Security

2. The following is a list of standards and guidelines in use in the Government. The documents will be available upon request.

2.1 Quality Management

- (a) Quality Manual
- (b) Quality Planning Procedure
- (c) Quality Assurance Review Procedure

2.2 Resource Estimation

- (a) Resources Estimation Guide

2.3 System Development

- (a) Developer Guide for Accessible Mobile Application Templates
- (b) Technical Notes on Website Development and Maintenance

2.4 Web/Mobile App Accessibility

- (a) Mobile Application Accessibility Handbook
- (b) Illustration on Mobile Application Accessibility Best Practice
- (c) Baseline Accessibility Criteria for Government Mobile Apps
- (d) Guidelines on Dissemination of Information through Government Websites
- (e) Web Accessibility Handbook

2.5 Site Preparation Guidelines

- (a) Practice Guide to Data Centre Design and Site Preparation

2.6 Practice Guides for IT Security

- (a) Security Regulations
- (b) Practice Guide for Internet Gateway Security
- (c) Practice Guide for Data Loss Prevention
- (d) Practice Guide for Penetration Testing
- (e) Practice Guide for Website and Web Application Security
- (f) Practice Guide for e-Engagement Security
- (g) Practice Guide for Secure Use of USB Storage Devices
- (h) Practice Guide for Destruction and Disposal of Storage Media
- (i) Practice Guide for Mitigation Strategy for Distributed Denial-of-Service Attacks
- (j) Practice Guide for IT Outsourcing

- (k) Practice Guide for Security Controls on Virtualisation
- (l) Practice Guide for Security Controls on Web 2.0 Application Development
- (m) Practice Guide for the Security of Web Application Development

2.7 Other Standards & Guidelines

- (a) Documentation Standards for Implementation Phase
- (b) Standards & Methods Document Style Manual
- (c) Software Configuration Management Process Guide for Application Software
- (d) Green Data Centre Practices

Minimum Quantity of New Hardware and Software Required

Hardware and Software

Part I – Items in Public Cloud

HARDWARE

Item	Description	Minimum Quantity			Reference Model		
		PRD	DR	Testing Environment (for purposes such as development, testing, training, load test, etc.)	Amazon Web (AW) VM Services	Quantity (support 3,000 concurrent sessions)	
						PRD	DR
1	Internet and mobile web Server	>=2	>=1	TBP	m4.2xlarge 8 vCPU 2.4GHz 32GB	14	14
2	Busy Page Server	>=2	>=1	TBP	m4.xlarge 4 vCPU 2.4GHz 16GB	2	2
3	Email Server - SMTP Server	>=2	>=1	TBP	m4.xlarge 4 vCPU 2.4GHz 16GB	3	3
4	Presenter Portal Server	>=2	>=1	TBP	m4.xlarge 4 vCPU 2.4GHz 16GB	3	3
5	Internal Firewall	>=2	>=1	TBP	m4.xlarge 4 vCPU 2.4GHz 16GB	2	2
6	Internet and mobile application Server	>=2	>=1	TBP	m4.2xlarge 8 vCPU 2.4GHz 32GB	3	3
7	POS User Interface (UI) Server	>=2	>=1	TBP	m4.2xlarge 8 vCPU 2.4GHz 32GB	3	3
8	POS Application Server	>=2	>=1	TBP	m4.2xlarge 8 vCPU 2.4GHz 32GB	3	3
9	Ticket Admin Server	>=2	>=1	TBP	m4.xlarge 4 vCPU 2.4GHz 16GB	3	3
10	Background Process Server	>=2	>=1	TBP	m4.xlarge 4 vCPU 2.4GHz 16GB	2	2

Item	Description	Minimum Quantity			Reference Model		
		PRD	DR	Testing Environment (for purposes such as development, testing, training, load test, etc.)	Amazon Web (AW) VM Services	Quantity (support 3,000 concurrent sessions)	
						PRD	DR
11	EDM Server	>=2	>=1	TBP	m4.xlarge 4 vCPU 2.4GHz 16GB	2	2
12	Kiosk / UTDM Agent Server	>=2	>=1	TBP	m4.xlarge 4 vCPU 2.4GHz 16GB	3	3
13	Internal DNS Server	>=2	>=1	TBP	m4.large 2 vCPU 2.4GHz 8GB	3	3
14	Anti-Malware Management Server	>=1	>=1	TBP	m4.xlarge 4 vCPU 2.4GHz 16GB	1	1
15	Configuration, Patching and Deployment Server	>=2	>=1	TBP	m4. large 2 vCPU 2.4GHz 8GB	2	2
16	Backup Server with all necessary software including agents	>=1	>=1	TBP	m4.xlarge 4 vCPU 2.4GHz 16GB	1	1
17	Admission Control Server	>=2	>=1	TBP	m4.large 2 vCPU 2.4GHz 8GB	2	2
18	CRM Server	>=2	>=1	TBP	m4.xlarge 4 vCPU 2.4GHz 16GB	2	2
19	Data Analytic Server	>=2	>=1	TBP	m4.xlarge 4 vCPU 2.4GHz 16GB	2	2
20	AntiBot and anti-DDoS Appliance/Service	>=1	>=1	TBP	External Appliance	1	1
21	Virtual Queue Service	>=1	>=1	TBP	External Service	1	1
22	Payment Gateway Service / Servers	>=1	>=1	TBP	External Service	1	1
23	Backup / Restore Service	>=1	>=1	TBP	AW Service	1	1
24	Network Services						
	Instance Data-Out (1TB)	TBP	TBP	TBP	AW Service	21	21
	NAT	>=1	>=1	TBP	AW Service	1	1
	Data-Out (1TB)	TBP	TBP	TBP	AW Service	21	21
	Object Storage (1TB)	TBP	TBP	TBP	AW Service	17	17
	CDN (1TB)	TBP	TBP	TBP	AW Service	21	21
	DNS	>=2	>=1	TBP	AW Service	1	1
	Standard Queries (1M)	TBP	TBP	TBP	AW Service	10	10
	Geo DNS Queries (1M)	TBP	TBP	TBP	AW Service	10	10
	Load Balancer	>=2	>=1	TBP	AW Service	2	2

Item	Description	Minimum Quantity			Reference Model		
		PRD	DR	Testing Environment (for purposes such as development, testing, training, load test, etc.)	Amazon Web (AW) VM Services	Quantity (support 3,000 concurrent sessions)	
						PRD	DR
	Data-Out (1TB)	TBP	TBP	TBP	AW Service	10	10
	Direct Connect (1 Gbps)	TBP	TBP	TBP	AW Service	21	21
	Data-Out (1TB)	TBP	TBP	TBP	AW Service	10	10
	Public IP Address	>=2	>=1	TBP	AW Service	1	1
	Monitoring & Log	>=1	>=1	TBP	AW Service	1	1
	NTP	>=1	>=1	TBP	AW Service	1	1
	External Firewall (AWS)	>=2	>=1	TBP	AW Service	2	2
	HIPS Service	>=1	>=1	TBP	AW Service	75	75
	Anti-Malware	>=1	>=1	TBP	AW Service	75	75
	Key Management Service	>=1	>=1	TBP	AW Service	75	75
	Web Application Firewall	>=2	>=1	TBP	External Service	2	2
25	Others	TBP	TBP	TBP	N/A	N/A	N/A

SOFTWARE

Item	Description	Minimum Quantity		
		PRD	DR	Testing Environment (for purposes such as development, testing, training, load test, etc.)
1	Operating System software	TBP for all VMs and Servers		
2	Anti-malware software and update subscription	TBP for all VMs and Servers		
3	Backup Software	TBP for all VMs and Servers		
4	Virtualization software	TBP for all VMs.		
5	Monitoring software	TBP	TBP	TBP
6	Management software	TBP	TBP	TBP
7	NIPS Software	TBP	TBP	TBP
8	HIPS hosts and clients	TBP	TBP	TBP
9	High-availability Software	TBP	TBP	TBP

Item	Description	Minimum Quantity		
		PRD	DR	Testing Environment (for purposes such as development, testing, training, load test, etc.)
10	Others	TBP	TBP	TBP

Note:

1. TBP – to be proposed by Tenderer
2. Items in Public Cloud shall be provided by means of cloud services.
3. AW Service means that the service is provided by the Amazon cloud service provider.
4. External Service means that the service is provided by a third-party service provider.

Part II – Items in Private CloudHARDWARE

Item	Description	Minimum Quantity			Reference Model		
		PRD	DR	Testing Environment (for purposes such as system / software maintenance, training, user acceptance test, etc.)	Model	Quantity (support 3,000 concurrent sessions)	
						PRD	DR
1	Database Server with all necessary software (including Transaction DB; Admin & Report DB; CRM & BI DB, VM management, etc.)	>=2	>=1	TBP	Intel Xeon Gold 6148 20C 2.4 GHz , 256GB Memory, 2TB SSD Usable Space	7	2
2	Management Server (including Anti-malware Management, HIPS management, Log Server, System Monitoring, NTP, patch management, VM management, etc.)	>=2	>=1	TBP	Intel Xeon Gold 6148 20C 2.4 GHz , 64GB Memory; 2 TB SSD Usable Space	2	1
3	Backup Server with all necessary software including agents	>=1	>=1	TBP	Intel Xeon Gold 6148 20C 2.4 GHz , 64GB Memory; 2 TB SSD Usable Space	1	1
4	Storage System	>=1	>=1	TBP	Hitachi VSP G400 With at least 30 TB storage; (With hardware resilience Support non-disruptive maintenance, Support data encryption Support SSD, SAS)	1	1
5	HSM and KMS including encryption agent for virtual machines on public clouds	>=2	>=1	TBP	SafeNet Protect Server	2	>=1
6	Full-height Equipment Rack with accessories	TBP	TBP	TBP	Rack (with a total of 24U)	1	1

Item	Description	Minimum Quantity			Reference Model		
		PRD	DR	Testing Environment (for purposes such as system / software maintenance, training, user acceptance test, etc.)	Model	Quantity (support 3,000 concurrent sessions)	
						PRD	DR
7	Cabling Service (with accessories and metallic conduit)	TBP	TBP	TBP			
8	LTO8 Tape Library (2 in Production and 1 in DR) (if tape backup solution is proposed)	>=2	>=1	TBP	HP MSL 2024, 2 drives 24 slots	2	1
9	Switch	>=2	>=1	TBP	Cisco 3750X	2	2
10	Router	>=2	>=1	TBP	Cisco 1921	2	2
11	Internal Firewall (connected application zone, data circuit link to public, management zone and internal zone)	>=2	>=1	TBP	Fortinet 501E UTM	2	2
12	Others	TBP	TBP	TBP	N/A	N/A	N/A

SOFTWARE

Item	Description	Minimum Quantity		
		PRD	DR	Testing Environment (for purposes such as system / software maintenance, training, user acceptance test, etc.)
1	Operating System Software	TBP for all VMs and Servers		
2	Anti-malware software and update subscription	TBP for all VMs and Servers		
3	Monitoring software	TBP	TBP	TBP
4	Management software	TBP	TBP	TBP
5	Backup software	TBP	TBP	TBP
6	High-availability software	TBP	TBP	TBP
7	Others	TBP	TBP	TBP

Note:

1. TBP – to be proposed by Tenderer
2. Hardware items shall be provided by means of physical machine.

Part III – Items at Outlets, Venues and Offices

Item	Description	Minimum Quantity
1	SFTP Server - Integration Server	TBP
2	Self-service Ticketing Kiosk (with related software, ticket printer, QR code scanner, etc.)	90
3	POS workstation with monitor	160
4	Monitor (for customers)	85
5	Monitor with KVM switch (for counters serving disabled customers)	30
6	QR Code Scanner for POS Workstation	160
7	Reading devices using near field technology for Electronic Payments for workstations at outlets and ticketing kiosks	250
8	Ticket Printer	120
9	Report Printer	60
10	Patching (manual), Remote Control and Management Workstation	TBP
11	Handwriting Pad	160
12	Anti-malware software and update subscription	TBP for all Servers, Kiosks and Workstations
13	Switch	>=1 for each outlet/office
14	Firewall	>=1 for each outlet/office
15	Equipment for Admission Control	
	Network Switch	TBP for each Performing Arts outlet
	Wifi router	TBP for each Performing Arts outlet
	Wifi Extender	TBP for each Performing Arts outlet
	Handheld Devices	400 (Please refer to “For Admission Control of Venue Facilities” at below for details)
16	Cabling Service (with accessories and metallic conduit)	TBP
17	Others	TBP

Communication Lines

Item	Communication Service	Minimum Quantity
1	Point-to-point Metro-Ethernet (ME) links or better technology by two different service providers supporting Gigabit Ethernet for connecting production site of the Contractor Private Cloud to production site of the Contractor Supplied Public Cloud	≥ 2
2	Point-to-point ME link or better technology supporting Gigabit Ethernet for connecting production site of the Contractor Private Cloud to disaster recovery site of the Contractor Supplied Public Cloud	≥ 1
3	Point-to-point ME link or better technology supporting Gigabit Ethernet for connecting disaster recovery site of the Contractor Supplied Private Cloud to the production site of Contractor Supplied Public Cloud	≥ 1
4	Point-to-point ME link or better technology supporting Gigabit Ethernet for connecting disaster recovery site of the Contractor Supplied Private Cloud to the disaster recovery site of Contractor Supplied Public Cloud	≥ 1
5	Point-to-point ME links or better technology supporting Gigabit Ethernet for connecting production site to disaster recovery site in the Contractor Supplied Private Cloud for replication	≥ 2
6	Point-to-point ME links or better technology supporting Gigabit Ethernet for connecting Multiprotocol Label Switching (MPLS) network to the production site of the Contractor Supplied Public or Private Cloud	≥ 2
7	Data circuits for connecting each outlet to production site of the Contractor Supplied Public Cloud via MPLS or ME network	≥ 1 for each outlet
8	Data circuit(s) for connecting the payment gateway	TBP
9	Data circuit for connecting contractor site to production site of the Contractor Supplied Private Cloud; Data circuit for connecting contractor site to disaster recovery site of the Contractor Supplied Private Cloud and data circuit for connecting contractor site to production site of the Contractor Supplied Public Cloud	≥ 3
10	Data circuits connecting between LCSD Ticketing Office (6/F & 9/F) to the production site of the Contractor Supplied Public Cloud via MPLS or ME network	≥ 2
11	Data circuit connecting between LCSD IT Office to the production site of the Contractor Supplied Public Cloud via MPLS or ME network	≥ 1

12	Others	TBP
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Note:

1. TBP – to be proposed by Tenderer

For Admission Control of Venue Facilities

Item	Name of Venues	Name of Facilities	No. of Halls	No. of Entrances	Estimated Number of Handheld Device at Admission Checkpoint
A. LCSD Venues					
1	Hong Kong City Hall	Concert Hall	4	4	30
		Theatre			
		Exhibition Hall			
		Recital Hall			
2	Hong Kong Cultural Centre	Concert Hall	4	10	46
		Grand Theatre			
		Studio Theatre			
		Minor Facilities			
3	Ngau Chi Wan Civic Centre	Theatre	2	2	6
		Cultural Activities Hall			
4	Sai Wan Ho Civic Centre	Theatre	2	2	4
		Cultural Activities Hall			
5	Sha Tin Town Hall	Auditorium	3	3	10
		Cultural Activities Hall			
		Exhibition Gallery			
6	Sheung Wan Civic Centre	Theatre	3	3	6
		Lecture Hall			
		Exhibition Hall			
7	Tsuen Wan Town Hall	Auditorium	3	3	10
		Cultural Activities Hall			
		Missing Exhibition Gallery			
8	Tuen Mun Town Hall	Auditorium	3	3	11
		Cultural Activities Hall			
		Exhibition Gallery			
9	Ko Shan Theatre	Auditorium	4	4	14
		Theatre			
		Exhibition Gallery			
		Function Room			
10	Kwai Tsing Theatre	Auditorium	2	2	8
		Black Box Theatre			
11	Hong Kong Coliseum	Arena	1	28	50
12	North District Town Hall	Auditorium	1	2	4
13	Queen Elizabeth Stadium	Arena	1	2	14
14	Tai Po Civic Centre	Auditorium	2	2	4
		Black Box Theatre			

Item	Name of Venues	Name of Facilities	No. of Halls	No. of Entrances	Estimated Number of Handheld Device at Admission Checkpoint
15	Yau Ma Tei Theatre	Theatre	1	2	3
16	Yuen Long Theatre	Auditorium	1	2	7
17	East Kowloon Cultural Centre	Theatre	5	5	16
		Auditorium			
		Drama Studio			
		Dance Studio			
		Music Studio			
18	Hong Kong Film Archive	Cinema	1	1	2
19	Hong Kong Space Museum	Space Theatre	-	1	2
		Lecture Hall	-	1	2
		Exhibition Halls	-	2	4
20	Hong Kong Museum of Art	Entrance Lobby at G/F	-	1	2
		Lift Lobby at G/F	-	1	2
		Entrance at Waterfront	-	1	2
		Entrance at Annex Building	-	1	2
		Galleries at 2/F-5/F	-	4	8
21	Hong Kong Science Museum	Exhibition Halls	-	6	12
22	Hong Kong Museum of History	Special Exhibition Gallery	-	1	2
23	Hong Kong Heritage Museum	Thematic Gallery 1-6	-	12	24
B. Non-LCSD Venues					
1	Hong Kong Arts Centre	Cinema	3	5	10
		McAulay Studio			
		Shouson Theatre			
2	HKICC Lee Shau Kee School of Creativity	Multi-media Theatre	1	2	4
3	Youth Square	Y-Theatre	2	5	10
		Y-Studio			
4	Tai Kwun	JC Cube	2	3	6
		F Hall Studio			
C. Others					
1	Ad-hoc Venues		-	-	63

Sample Sizing Report for the System

Sizing Report for the System

[Date of Report]

Prepared By
[Tenderer's Name]

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1. Introduction

[Brief introduction to this sizing report, such as methodology, basic assumptions, parameters and input data used (if any). Tenderers shall describe the hardware and software environment being used in the reference sites with the workload and performance requirements.]

2. Assumption

1. An average think-time of not more than 8 seconds for web page navigation.
2. Each online user request would triggers no less than 5 HTTP/HTTPS requests.

3. Projection Methodology

3.1 Description

Tenderer shall describe in detail the devised methodology, including formulas, figures and graphs. Performance specification for the computer equipment being used in reference sites and the System shall be submitted.

3.2 Summary

Tenderer shall complete the following summary table according to the captioned projection description.

	Reference Sites	Projected Requirements for the Tender*	Capability of the Proposed System**
Hardware and Software			
[Type of Servers, such as web servers, web application servers, database servers, etc.]	<ul style="list-style-type: none"> ♦ Hardware and Virtual Host Configuration ♦ CPU Utilisation ♦ Memory Utilisation ♦ Performance Figures (e.g. tpm, rperf, TPC, etc.) ♦ Others 	<ul style="list-style-type: none"> ♦ CPU Performance Figures (e.g. tpm, rperf, TPC, etc.) ♦ Memory for system processes, high availability process, database system process, concurrent user process, DB connection pools, etc. ♦ Others (e.g. paging space) 	<ul style="list-style-type: none"> ♦ Hardware Configuration ♦ Total CPU Utilisation (including system, application and user processes) ♦ Total Memory Utilisation (including processes for system, high availability software, database, application, concurrent user, DB connection pools, etc.) ♦ Performance Figures (e.g. tpm, rperf, etc.) ♦ Others (e.g. paging space)
[Type of Networking Equipment]	<ul style="list-style-type: none"> ♦ Bandwidth for core network 	<ul style="list-style-type: none"> ♦ Bandwidth for core network ♦ Bandwidth for the data circuits connected between Data Centre and branch outlets ♦ Internet access bandwidth 	<ul style="list-style-type: none"> ♦ Supporting bandwidth for core network ♦ Supporting bandwidth for the data circuits connected between Data Centre and outlets ♦ Supporting Internet access bandwidth
[Type of External Disk Storage]	<ul style="list-style-type: none"> ♦ Model No. ♦ Records for events and performance, discount packages, etc. 	<ul style="list-style-type: none"> ♦ Records for events and performances ♦ Records for seats inventory 	<ul style="list-style-type: none"> ♦ Model No. ♦ Effective disk Storage (comply with the size of data stored in the

	Reference Sites	Projected Requirements for the Tender*	Capability of the Proposed System**
	<ul style="list-style-type: none"> ♦ Records for seats inventory ♦ Records for transactions ♦ Effective disk Storage 	<ul style="list-style-type: none"> ♦ Records for transactions ♦ System and application log ♦ Storage for snapshots and backup image ♦ Effective disk Storage 	<p>proposed System up to the seven years after system launch)</p> <ul style="list-style-type: none"> ♦ Total physical disk storage
Others			
Workload Requirement	<ul style="list-style-type: none"> ♦ No. of tickets daily ♦ No. of tickets hourly ♦ No. of Events & No. of performances at any instance ♦ No. of seats inventory ♦ No. of transaction records / journals of past 3 months ♦ No. of online workstations ♦ No. of ticket printers ♦ No. of report printers ♦ Concurrent users from Internet ♦ Busy pages (for all web servers) ♦ etc 	<ul style="list-style-type: none"> ♦ No. of tickets daily ♦ No. of tickets hourly ♦ No. of Events & No. of performances at any instance ♦ No. of seats inventory ♦ No. of transaction records / journals of past 3 months ♦ No. of online workstations ♦ No. of ticket printers ♦ No. of report printers ♦ Concurrent users from Internet ♦ Busy pages (for all web servers) ♦ etc 	Comply with Workload Specifications
Performance Requirement	<ul style="list-style-type: none"> ♦ Response time to issue the first ticket from the confirmation of the orders ♦ Response time for displaying each subsequent page of online booking and enquiry functions 	<ul style="list-style-type: none"> ♦ Response time to issue the first ticket from the confirmation of the orders ♦ Response time for displaying each subsequent page of online booking and enquiry functions 	Comply with System Performance Specifications

Remarks:

- * - The projected requirements shall comply with the Workload Specifications and the System Performance Specifications.
- ** - The projected utilisation figures for the System shall not be higher than those of the recommended threshold limits. The recommended threshold limits for CPU utilisation shall not be higher than 85% and network overhead shall not be lower than 30% respectively.
- *** - The System shall be easily expandable up to 2 times of the original configuration, maintaining full compatibility with the proposed system software and application software, to accommodate the future increase in workload.

Graphical Presentation for the 7 Years Period

[System utilisation vs. workload]

[Core network vs. workload]

[Communication equipment utilisation vs. workload]

4. Conclusion

[Conclusion]