

# PART 4 SERVICE REQUIREMENTS



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**Information Classification:** Restricted, Sensitive (Normal)

## Service Requirements

### **Instructions to Participating Service Provider:**

1. This part of the MOHH IT Security Requirements Policies contains service requirements that the Participating Service Provider shall meet in order to perform the requested services.
2. No service requirements shall be removed by Service Provider from this document, unless otherwise approved by the Project team and/or Management.

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### 1 CHANGE REQUESTS

#### 1.1 Change Management

1.1.1 A Change Request refers to requests for changes or enhancements to the proposed system.

1.1.2 The Participating Service Provider shall implement all Change Requests raised by the Company (e.g. for the purpose of operational enhancements due to changes in the business policy and to support new functionalities or new business rules or for system upgrades).

1.1.3 The Change Request is considered as completed after the amended and/or new application programs have been successfully implemented and accepted in the production environment and all relevant updated documentation is accepted by the Company. In cases where the Company decides to shelve the approved and work-in-progress Change Request due to some unforeseen reasons, the Company shall determine if the Change Request can be considered as completed.

#### 1.2 Change Control Procedure

**Note:**

- To **delete** Clauses 1.2.2 to 1.2.11 if Part 2 is based on SCC.6 ITRFP System/Software/Hardware Acquisition template
- To **delete** Clause 1.2.1 if Part 2 is based on other templates that do not have a change control procedure)

1.2.1 The Participating Service Provider shall comply with the change control procedure provided in **Part 2** of this document.

1.2.2 If any Party in the course of the relevant agreement finds that there is a need to change the Requirement Specifications or any other aspect of the proposed system, then:

- (a) The Party requesting the change shall submit a written change request to the other Party which shall include the project/task identification, name and title of the officer requesting the change, the date of the request, a description of the proposed change and the reasons for the proposed change (“Change Request”);
- (b) The Party requesting the change shall categorise the Change Request as Priority 1 (urgent), Priority 2 (ordinary) or Priority 3 (not critical);
- (c) If the Participating Service Provider is requesting the change, the Change Request shall also be accompanied by an impact statement by the Participating Service Provider detailing the impact on the implementation plan, system, delivery schedule and other relevant obligations under the relevant agreement resulting from the proposed change;
- (d) If the Company is requesting the change, the Participating Service Provider shall, within THREE (3) working days of receiving the Change Request, advise the Company if the changes can be made and provide the Company with a Change Request assessment in the form of an impact statement detailing the impact on the contract price, Implementation plan, system, delivery schedule and other relevant obligations under the relevant agreement; and
- (e) Within FOURTEEN (14) calendar days of receiving the Participating Service Provider’s Change Request or impact statement, as the case may be, the Company shall make known its decision whether or not to proceed with the changes.

1.2.3 All Change Requests shall be accompanied with an impact statement for the Company’s

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review.

- 1.2.4 There shall not be any increase in the contract price if the Change Request:
- (a) Merely results in the refinement of the Requirement Specifications;
  - (b) Does not result in any major changes to the detailed design of the proposed system;  
or
  - (c) Is made by the Participating Service Provider.
- 1.2.5 Pending written agreement to implement the changes, the Parties shall proceed only in accordance with the terms and conditions of the relevant agreement.
- 1.2.6 The Parties agree to set out periods (prior to each scheduled delivery of the deliverables) in the implementation plan during which actions on Change Requests concerning the Requirement Specifications will be suspended. Any such Change Request will be dealt with after the Company's acceptance of the scheduled delivery.
- 1.2.7 Any Change Request or change in the Requirement Specifications or any other aspect in the development of the proposed system shall be endorsed and agreed to in writing by the Company's project manager.
- 1.2.8 Where the Participating Service Provider requires the Company's input or the Company to perform their obligations in order that the Participating Service Provider may perform its obligations, the Participating Service Provider shall:
- (a) Advise the Company as to the input which the Participating Service Provider requires or the obligation which the Participating Service Provider requires the Company to fulfil; and
  - (b) Indicate to the Company when the Participating Service Provider expects the Company to so respond to the Participating Service Provider's request, provided always that the Participating Service Provider allows the Company a reasonable period during which to respond to the Participating Service Provider's request.
- 1.2.9 Provided that the above have been complied with, if there is a delay beyond a reasonable period for reasons solely attributable to the Company, the Company's project manager shall upon the application by the Participating Service Provider, grant reasonable extensions of time and the delivery schedule and payment schedule shall be amended or adjusted accordingly.
- 1.2.10 The impact statement shall minimally include:
- (a) Estimation of the resource, costs, and elapsed time for implementing the changes;
  - (b) Impact to the proposed system, implementation plan, delivery schedule, and other relevant obligations under the relevant agreement;
  - (c) Definition of specific changes to be applied to the modules of software, hardware elements and the documentation;
  - (d) Preparation of changes to the proposed system and incorporation into test versions;
  - (e) Testing and acceptance of the changed proposed system; and
  - (f) Timelines for testing, implementation and acceptance of the change to the proposed system.
- 1.2.11 The estimated man-days required to perform the Change Request are subject to review and approval by the Company. All effort spent to assess the impact of Change Requests shall be accounted under operations support. The effort spent in assessing the impact of Change Requests and preparing the impact statement shall be accounted for under

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production support and shall be non-chargeable.

### 1.3 Implementation of Change Requests and Completion Time

1.3.1 Depending on the estimated man-days required, the Participating Service Provider shall complete and implement all Change Requests within the specified turnaround time. The Participating Service Provider shall pay service credits as specified in **Clause 1.5** below, if the Participating Service Provider is unable to meet the following service levels below:

Estimated Change Request Man-days Effort	Service Level for Change Request Completion Time
Less than or equal to THREE (3) man-days	Within FIVE (5) working days
Greater than THREE (3) man-days but less than or equal to TEN (10) man-days	Within TWELVE (12) working days
Greater than TEN (10) man-days	Based on mutual agreement between the Participating Service Provider and Company's representative(s)

*Table: Change Requests Service Level*

1.3.2 The completion time shall start from the date the Change Request is approved and assigned to the Participating Service Provider from the Company's representative(s) directly via phone, fax or email.

1.3.3 The Participating Service Provider shall submit a monthly progress report for all Change Requests raised by the Company for the reporting month. The report shall record both completed and outstanding Change Requests for the reporting month. The monthly progress report shall minimally include the following information:

- (a) Name of application;
- (b) Change Request reference number;
- (c) Date of Change Request;
- (d) Change Request type;
- (e) Brief description of the Change Request;
- (f) Total estimated man-days required;
- (g) Breakdown of estimated man-days required by activity;
- (h) Impact analysis date;
- (i) Expected date of completion;
- (j) Acceptance of Change Requests (e.g. accepted by and accepted date); and
- (k) Date of when the Change Request was implemented.

1.3.4 The Participating Service Provider shall bill the Company for the quoted effort upon successful completion of the Change Request or in accordance with the payment milestones as stipulated in the Change Request. The Company shall acknowledge and verify the quoted effort and billings details.

1.3.5 The Participating Service Provider is wholly responsible for timely delivery of the Change Requests according to the requirements specification and contractual terms. The scope of work shall cover the following application development and maintenance methodology phases:

- (a) Requirement Analysis;
- (b) Preliminary Design / Detailed Design;
- (c) Programming / Configuration;
- (d) System Testing;
- (e) User Acceptance Testing;
- (f) Implementation;

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- (g) Implementation support (i.e. System Warranty); and
- (h) Maintenance.

### 1.4 Change Request – System Warranty

1.4.1 System Warranty shall commence on the date of the successful implementation of the Change Requests.

1.4.2 The Participating Service Provider shall provide the following System Warranty:

- (a) For Major Change Requests (i.e. Change Requests that require more than SIXTY (60) man-days to complete): SIX (6) calendar months; and
- (b) For Minor Change Requests (i.e. Change Requests that require less than or equal to SIXTY (60) man-days to complete): THREE (3) calendar months

1.4.3 During System Warranty, the Participating Service Provider shall at all times and under all conditions be entirely responsible for the satisfactory operation of the proposed system, and for the compliance of such additional requirements as may be mutually agreed upon between the Company and the Participating Service Provider at no additional cost to the Company.

1.4.4 The Participating Service Provider shall render replacements/investigations/services and any other works required to make good all defects raised during the System Warranty at no additional cost to the Company.

### 1.5 Change Request – Service Credits

1.5.1 In the event that the Participating Service Provider fails to meet the stipulated minimum requirements as stated in the following table, the Company may at its own absolute discretion, impose such service credits based on the computation listed below and these will be payable by the Participating Service Provider to the Company:

S/No	Specific Clause	Condition	Service Credits (S\$)
1.	<b>Clause 1.2</b> Change Request – Assessment Turnaround Time	If the Participating Service Provider is unable to meet the stipulated service levels for Change Request assessment	1.0% of the monthly Annual Service Charges for each failure
2.	<b>Clause 1.3</b> Change Request – Completion Turnaround Time	If the Participating Service Provider is unable to meet the stipulated service level for Change Request completion	1.0% of the monthly Annual Service Charges for each failure

*Table: Change Request - Service Credits Schedule*

## 2 OPERATIONS AND SERVICE LEVEL REQUIREMENTS

### 2.1 General Requirements

#### 2.1.1 General Requirements

- (a) The Participating Service Provider shall provide Integrated System Maintenance Services/Maintenance Services for the proposed system together with appropriate housekeeping and support functions as approved by the Company.
- (b) The Participating Service Provider shall provide the option for Integrated System Maintenance Services/Maintenance Services after the expiry of the Warranty Period for an initial period of ONE (1) year.
- (c) The Participating Service Provider shall render replacements / investigations /

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services and any other works required to resolve all defects raised within the agreed Service Level Agreements (SLAs) during the period of providing Integrated System Maintenance Services/Maintenance Services at no additional cost to the Company.

- (d) The Participating Service Provider shall deploy appropriate and proven industry methodologies, best practices and processes to provide the Integrated System Maintenance Services/Maintenance Services.
- (e) The Participating Service Provider shall do the necessary adjustment to adopt the Company's standardized processes and/or tools in Integrated System Maintenance Services/Maintenance Services.
- (f) The scope of the Integrated System Maintenance Services/Maintenance Services for the proposed system shall include:
  - (i) Operations Support Level 1, 2 and 3 (Operations Support Level 1 - helpdesk service is to be proposed as an option to the Company);
  - (ii) Facility management;
  - (iii) User account management;
  - (iv) SR management;
  - (v) Service level requirements; and
  - (vi) Performance measures.
- (g) The operating hours for the proposed system are 24x7x365.
- (h) The proposed system shall be considered to be inoperable or partially inoperable if whole or part of the hardware and/or software of the proposed system becomes inaccessible.
- (i) The proposed system shall be capable of operating unattended during operating hours.
- (j) Regular server maintenance window shall be scheduled with prior approval from the Company and the outcome of the server maintenance shall be reviewed with the Company.
- (k) Running of batch jobs, performing backup and maintenance shall be done only during off-peak hours. Any request for jobs during normal support hours shall require the Company's approval with advance notices to all users.
- (l) The support hours for the proposed system are 24x7x365.
- (m) The Participating Service Provider shall provide on-call services after business hours. Contact via phone call (landline or mobile) shall be made available to activate support after business hours.
- (n) The Company may opt to appoint other contractor(s) to provide whole or part of the services. Under such circumstances, the Participating Service Provider shall collaborate fully with the appointed contractor(s) to ensure complete and smooth service delivery.
- (o) The Participating Service Provider shall receive, record, monitor and resolve technical issues (whether faults or other operational issues) for users of the proposed system (whether application or other software, hardware and infrastructure) that it provides or supports as part of the services.
- (p) The Participating Service Provider shall carry out or liaise with the Company's appointed third party Service Providers to carry out the following activities minimally to ensure effective and efficient operations of the proposed system:
  - (i) Design, plan, document, operate and maintain the proposed system so as to ensure effective and efficient operations in a secure environment;
  - (ii) Propose, implement and execute the operational procedures for the proposed system (e.g., batch jobs scheduling and execution, system monitoring and tuning, system deployment, backup and recovery);
  - (iii) Conduct regular review of the proposed system's operations and

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- procedures, provide updates and recommendations to the Company's programme office for necessary enhancements, and implement approved solutions;
- (iv) Perform proactive monitoring of the proposed system to ensure that the performance standards are met;
  - (v) Perform troubleshooting and provide resolution to the reported issues related to the proposed system, recommend and implement preventive measures where possible to avoid potential issues;
  - (vi) Liaise and follow through with third party Service Providers to provide a feasible recommendation or solution to issues related to the proposed system;
  - (vii) Track and monitor all reported issues related to the proposed system and provide regular status and progress updates to the Company; and
  - (viii) Provide system information and support to the Company or designated personnel authorized by the Company to perform audit tasks.
- (q) During operations support, the Participating Service Provider shall provide details of any new/additional partners (subject to the Company's approval), where applicable.
- (r) The Participating Service Provider shall comply with the Company's security policies, standards and instructions. This includes all subsequent updates and new policies and standards introduced by the Company from time to time.
- (s) The Participating Service Provider shall render all assistance required to the auditor during an audit process at no additional cost to the Company.
- (t) The Company may conduct ad-hoc checks/audits on the proposed system. The Participating Service Provider shall provide all required information and assistance to conduct the checks/audits at no additional cost to the Company.
- (u) The Participating Service Provider shall provide a monthly service level performance report, including all issues and risks encountered during operations and maintenance.
- (v) The Company may opt to appoint other contractor(s) to provide whole or part of the services. Under such circumstances, the Participating Service Provider shall collaborate fully with the appointed contractor(s) to ensure complete and smooth service delivery.
- (w) The Participating Service Provider shall produce a detailed system operations and support plan for the Company's approval before the first rollout of the proposed system.
- (x) The system operations and support plan shall cover minimally the following areas:
- (i) Service delivery models and governance;
  - (ii) Service delivery team structure;
  - (iii) Service management which includes the following:
    - (1) Call management;
    - (2) Incident and problem management;
    - (3) SR management;
    - (4) Configuration and release management;
    - (5) Quality management;
    - (6) Issues and risk management;
    - (7) Escalation management for operational issues and system defects requiring management attention;
    - (8) Performance management and metrics; and
    - (9) Change management;
  - (iv) Operational schedules or calendars of all identifiable activities (e.g.



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- planned downtime, reviews, capacity planning), which shall be reviewed and updated by the Participating Service Provider and the Company;
- (v) System operations management shall include, minimally, the following:
- (1) Data management;
  - (2) Batch jobs management;
  - (3) Patch management;
  - (4) Managed services;
  - (5) System maintenance;
  - (6) Inventory management;
  - (7) Capacity planning; and
  - (8) Technology refresh for hardware or software components reaching end-of-support in TWO (2) years or less.
- (vi) Business continuity plan;
- (vii) High availability testing (semi-annual), covering component (web, application, database, interface) and system failover testing from system A to system B and failover from system B back to system A;
- (viii) DR planning and execution schedule (annual); and
- (ix) Progress reports.
- (y) The system operations and support plan shall clearly state all activities to be carried out by the Participating Service Provider, the Company and/or any other parties.
- (z) The system operations and support plan shall be used as a reference when conducting quality audits and reviews throughout the lifecycle of the proposed system.
- (aa) The Participating Service Provider shall propose a Service Improvement Plan (SIP). The SIP will be the leading document for continuous operational improvement of the services during the term of the relevant agreement. The SIP shall be updated and submitted to the Company on a quarterly basis.
- (bb) In cases where the Participating Service Provider is providing the hardware, the Participating Service Provider shall ensure that any hardware used in the running or monitoring of the entire proposed system is standalone hardware that is not shared with any other entity or program external to the Company.
- (cc) The Participating Service Provider shall provide the appropriate tools, and management software to enable the provision of Integrated System Maintenance Services/Maintenance Services (incident management, problem management and escalation tools, ticket tracking, knowledgebase, etc.).
- (dd) As part of the configuration management framework, the Participating Service Provider shall provide all configurations at system go-live and provide updated configurations of any changes as part of the monthly report.
- (ee) The Participating Service Provider shall conduct System Integration Testing (SIT) as required for any infrastructure-related changes.
- (ff) The Participating Service Provider shall ensure that, where feasible (in the Company's reasonable opinion), duties and areas of responsibility shall be segregated in order to reduce opportunities for unauthorised modification or misuse of patient-specific personal data.
- (gg) The Participating Service Provider shall ensure that any change to be made within the service that hosts applications containing patient-specific personal data are controlled by means of a formal and structured change control process, to ensure the appropriate control of host applications and systems.
- (hh) In so far as the service involves the hosting of healthcare applications containing patient-specific or personal data, the Participating Service Provider shall establish incident management responsibilities and procedures to ensure a quick, effective and orderly response to security incidents, as well as to collect and preserve

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- incident-related data.
- (ii) The Participating Service Provider shall keep track of security vulnerabilities that may impact the proposed system, assess the impact and inform the Company immediately if any new vulnerabilities are identified.

### 2.1.2 Personnel Management

- (a) The Participating Service Provider shall propose the number of resources that will support the proposed system for the Company.
- (b) The Participating Service Provider shall allocate sufficient and skilled resources to provide support so that any issue arisen can be resolved efficiently.
- (c) The Participating Service Provider's personnel shall work closely with relevant parties appointed by the Company, to provide end-to-end Integrated System Maintenance Services/Maintenance Services.
- (d) The Participating Service Provider shall provide a competent team of personnel to manage and resolve technical and operational issues that will affect the daily operations within stipulated service levels.
- (e) The Participating Service Provider shall designate a service manager who will have overall responsibility for managing and co-coordinating the performance and delivery of the Integrated System Maintenance Services/Maintenance Services. In addition to the service manager, the Participating Service Provider shall designate team leaders and other support staff to manage the services.
- (f) The Participating Service Provider shall take into consideration the need to ensure that there are checks and balances in its assignment of jobs to the various personnel in its support team.
- (g) The Participating Service Provider shall have an established training roadmap for its personnel to ensure job competency in terms of both soft skills and hard skills.
- (h) The Participating Service Provider shall have an established personnel deployment plan to ensure proper staff orientation, security clearance, training, and notice to the Company, approval by the Company, etc. before deploying the personnel to the project team to ensure immediate productivity.
- (i) The Participating Service Provider shall have an established procedure to ensure that performance standards are not affected by personnel movements, including annual leaves, medical leaves, shift duties, etc.
- (j) The Participating Service Provider shall have an established transition plan to avoid any service degradation resulting from personnel movement or resignation by ensuring adequate time for the hand-over of projects and operational information from the out-going personnel to the in-coming personnel, and by replacing the out-going personnel with suitable candidate(s) who possess the required technical knowledge and skills in performing the job.
- (k) All key personnel involved in the system operations and support shall be stationed in Singapore throughout the term of the relevant agreement.
- (l) The Participating Service Provider shall ensure that all personnel deployed to the project complete and pass all required security clearance before starting work on the project.
- (m) The Participating Service Provider shall ensure that security and confidentiality are observed by all personnel in accordance with any written instructions from the Company.
- (n) The Participating Service Provider shall ensure continuity in project staffing and their respective roles and responsibilities, so as to minimise any disruption and impact to the quality of work and the operations of the proposed system. The Participating Service Provider shall provide an organisation chart showing how the various individuals will be deployed to provide the required services, including a backup plan, with their roles and responsibilities clearly explained.
- (o) In the event of a need for replacement of key personnel, the Participating Service

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Provider shall inform the Company immediately and seek approval from the Company on the replacement personnel. Approval from the Company shall be sought in writing at least ONE (1) month prior to the date of replacement, indicating the personnel who shall be assuming the responsibilities concerned and providing the resume of the replacement personnel. The Participating Service Provider shall make all necessary arrangement if the Company decides to interview the replacement personnel. The Company reserves the right to accept or reject the replacement personnel.

- (p) The Participating Service Provider shall be responsible for training the successor to be technically competent to carry out the work. The replacement personnel shall be available for at least a reasonable period (duration to be mutually agreed by the Participating Service Provider and the Company) for the existing personnel to hand-over his/her responsibilities and duties. The Participating Service Provider shall be responsible for the cost incurred for the provision of the replacement personnel during the hand over period.
- (q) The Company may, from time to time, request additional staff to be provided by the Participating Service Provider. The provision of additional coverage, and any charges made by the Participating Service Provider for its provision, shall be subject to man-day rates which are negotiated and agreed between the Company and the Participating Service Provider.

### 2.1.3 Business Continuity

- (a) The Participating Service Provider shall provide a business continuity strategy and plan / framework for the proposed system. The strategy and plan / framework shall include the following:
  - (i) System business continuity policies, standards and procedures;
  - (ii) System business continuity architecture and design, including the provision of downtime/offline system;
  - (iii) System business continuity management and operational processes; and
  - (iv) System business continuity mechanism for contingency operations.
- (b) The Participating Service Provider shall provide a plan that will be reviewed and updated on a yearly basis or when there is major change in delivery of the proposed system such as changes in system design change and infrastructure changes.
- (c) The Participating Service Provider shall test the proposed system's business continuity framework every ONE (1) year or when there is major change to the proposed system's design and/or infrastructure, to ensure that it remains fit for purpose in the case of a disaster. The Participating Service Provider shall provide the output of these reviews to the Company.
- (d) The Participating Service Provider shall implement the proposed system's business continuity framework as well as maintain any associated documentation.
- (e) The Participating Service Provider shall comply with the Company's requests to allow the Company's contracted third party suppliers to review the Participating Service Provider's implementation of the proposed system's business continuity framework.
- (f) The Participating Service Provider shall ensure that the proposed system complies with ISO 22301 for business continuity.
- (g) The Participating Service Provider shall perform upgrade/patches without affecting data integrity.
- (h) The Participating Service Provider shall ensure that business continuity is achieved without the following:
  - (i) Any loss of data; and

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- (ii) Any loss of services other than as agreed by the Company.
- (i) The Participating Service Provider shall ensure that the underpinning IT infrastructure supports the business continuity approach.
- (j) The Participating Service Provider shall ensure that the business continuity plan will be able to track changes to the services (systems and underpinning supporting infrastructure) throughout its life.
- (k) The Participating Service Provider shall ensure that, in the event of a failure (that does not constitute a disaster), continuity of the services shall be maintained in accordance with the business continuity plan where appropriate.
- (l) The Participating Service Provider shall ensure that known error/failures of the proposed system shall be identified, and that risks are mitigated and monitored.
- (m) The Participating Service Provider shall ensure that the systems delivered as part of the services are designed to support limits on scheduled downtime.
- (n) Business continuity plan shall not include fall back to full manual process.

### 2.1.4 Disaster Recovery (DR) (if a DR site is required as per specified system availability)

- (a) The Participating Service Provider shall provide a DR plan to the Company for review and approval.
- (b) The Participating Service Provider shall carry out the DR activities for the proposed system.
- (c) In the event of a disaster, the Participating Service Provider shall recover and restore the servers and their contents.
- (d) The Participating Service Provider shall coordinate and work with the relevant contractors, such as DR facility providers, communication links providers, and application contractors, to provide DR service for the servers, networks and systems.
- (e) The Participating Service Provider shall set up and configure all the necessary software, server and data in a DR site.
- (f) The Participating Service Provider shall ensure that the level of services provided during a disaster shall be equivalent to normal operation in accordance with the DR plan.
- (g) The Participating Service Provider shall perform a DR exercise and work with the relevant Service Providers to test the DR solution at the following milestones:
  - (i) Before the end of Warranty Period; and
  - (ii) Once every year thereafter.
- (h) The Participating Service Provider shall ensure that the tests:
  - (i) Provide for the restoration, verification and validation of the proposed system; and
  - (ii) Provide the Company with an opportunity to test its DR procedures and establish operational responsibilities.
- (i) The Participating Service Provider shall conduct restoration testing for the proposed system when there are major changes to the proposed system.
- (j) The Participating Service Provider shall set up and configure or liaise with third party Service Providers to set up and configure all systems software for all servers and network equipment in the DR site.
- (k) The Participating Service Provider shall participate and work with third party Service Providers in the preparation of the DR exercise.
- (l) The Participating Service Provider shall ensure that the proposed system it has developed, delivered or managed shall be resilient and shall not introduce factors

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- which may increase the risk of system failure.
- (m) To support the services, the Participating Service Provider shall make available its resources to test the DR plan on a regular basis as agreed with the Company.
  - (n) The Participating Service Provider shall ensure that the DR plan and all relevant documents are kept up to-date, with at least twice a year review for any change to be updated within the document and/or when there are major changes to the proposed system.
  - (o) The Participating Service Provider shall work with the relevant third party Service Providers during DR exercises or an actual disaster.
  - (p) The Participating Service Provider shall provide assistance and support during DR exercise and during an actual disaster. The Participating Service Provider is required to work after working hours and on Sundays for the DR exercise or an actual disaster.
  - (q) The Participating Service Provider shall be involved in the post DR exercise review and highlight areas of improvements in the DR exercise to better support any future disasters.
  - (r) The Participating Service Provider shall ensure that all relevant staff are physically onsite at the designated DR location at the agreed time for all DR exercises.
  - (s) The Participating Service Provider shall ensure that the proposed system is successfully restored.
  - (t) The Participating Service Provider shall propose an approach and framework for the proposed system's DR. The approach and framework shall include at least the following:
    - (i) System DR and failback policies, standards and procedures;
    - (ii) System DR and failback architecture and design;
    - (iii) System DR and failback management and operational processes; and
    - (iv) System DR and failback infrastructure test plan covering data, backups, storage management and contingency operations.
  - (u) The Participating Service Provider shall provide a detailed description of the proposed system's DR and failback framework.
  - (v) The Participating Service Provider shall be required to implement the proposed system's DR and failback framework as well as maintain any associated documentation.
  - (w) The Participating Service Provider shall test the proposed system's disaster and failback recovery framework before the end of the hardware and software Warranty Period and once every year thereafter to ensure that it remains fit for purpose in the case of a disaster. The Participating Service Provider shall make the output of these reviews available to the Company.
  - (x) The Participating Service Provider shall comply with the Company's requests to allow the Company's contracted third party suppliers to review the Participating Service Provider's implementation of the proposed system's DR and failback framework.
  - (y) The Participating Service Provider shall propose an infrastructure-based DR solution consisting of TWO (2) physical, geographically separated Data Centres (DC) within Singapore.
  - (z) In the event of a full catastrophic failure of the proposed system, it shall be possible to failover the proposed system to a system DR mode operation (RTO) within ONE (1) hour.
  - (aa) In the event of a full catastrophic failure of the proposed system, on return to operations, it shall be possible to restore the proposed system's DR mode system state (RPO) within FIFTEEN (15) minutes of the failure point.
  - (bb) In DR mode operation, the proposed system shall be required to comply with the performance SLAs.

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- (cc) The Participating Service Provider shall propose the time required to prepare the primary data centre (main) for the proposed system for failback to the primary data centre.
- (dd) During failback to the primary data centre, it shall be possible to achieve ZERO (0) hour data loss.
- (ee) The Participating Service Provider shall propose the time required to failback to the primary data centre.
- (ff) The Participating Service Provider shall ensure that the proposed system complies with SS 507 for DR.

### 2.1.5 System Availability

- (a) The system service available hours are as follows:
  - (i) Production: TWENTY-FOUR (24) hours (including Sundays and public holidays);
  - (ii) Development, SIT, User Acceptance Testing (UAT) and training: Monday - Friday (0800-1800 hours, after 1800 hours upon request);
  - (iii) Development, SIT, UAT and training: Saturday, Sunday and public holidays (upon request); and
  - (iv) DR: upon activation.
- (b) The Participating Service Provider shall ensure system availability and adhere to the service level standards defined in this document.
- (c) The Participating Service Provider shall work out a process to immediately inform the Company of any downtime and take the necessary action to resume the services immediately.
- (d) The Participating Service Provider shall submit weekly and monthly reports on the system availability and performance.

## 2.2 Facility Management

### 2.2.1 Data Management

- (a) The Participating Service Provider shall provide or liaise with the Company's appointed third party Service Provider to provide the backup and recovery plan to ensure no data loss. This plan shall minimally include:
  - (i) Backup and recovery procedures of all the essential components of the proposed system (i.e. system files, system logs, audit logs, software and related objects, data in database and application data in the file system);
  - (ii) Overview of the backup strategy;
  - (iii) Backup schedules and types of system backup;
  - (iv) Time and resources required for backup and recovery for each component; and
  - (v) Housekeeping tasks, if any.
- (b) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that data in the proposed system is backed up in a secure manner and that transaction histories are maintained enabling the proposed system to be rebuilt in the event of any system failure.
- (c) The Participating Service Provider shall provide or liaise with the Company's appointed third party Service Providers to provide routine data management and housekeeping services for all data held within the proposed system (housekeeping, archival and backup functions for databases, log files and interface files).

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- (d) The Participating Service Provider shall perform or liaise with the Company's appointed third party Service Providers to perform incremental and full backups for the proposed system.
  - (e) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that any backup issues are monitored and promptly resolved.
  - (f) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure the backup schedules, services and procedures for all servers and databases are being performed.
  - (g) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that backup and maintenance activities are carried out during non-support hours. Any request for jobs during normal support hours shall require the Company's approval with advance notices sent out to all affected users.
  - (h) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that backup and maintenance jobs do not run into the operating hours of the proposed system.
  - (i) The Participating Service Provider shall recommend and document or liaise with the Company's appointed third party Service Providers to recommend and document database administration policies, procedures and configurations that meet the functional requirements of the Company.
  - (j) The Participating Service Provider shall provide or liaise with the Company's appointed third party Service Providers to provide database administration support services and activities associated with the maintenance and support of existing and future databases, including but not limited to review of database table spaces, indexing performance, database logs, long running queries and performing database tuning.
  - (k) The Participating Service Provider shall provide or liaise with the Company's appointed third party Service Providers to provide a mechanism to perform backup and restore operations without impacting system availability and performance.
  - (l) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that the proposed system is capable of recovering data to the last successfully completed transaction in the event of a system failure.
  - (m) The Participating Service Provider shall provide or liaise with the Company's appointed third party Service Providers to provide improvement plans to improve the backup process and procedures to enhance the robustness and efficiency of the proposed system.
  - (n) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that data backups are duplicated (and stored) in a separate site in accordance with the Company's security requirements. Data backups (and any offsite storage) shall be performed in a timely manner to ensure no data loss in the event of a disaster.
  - (o) The Participating Service Provider shall conduct or liaise with the Company's appointed third party Service Providers to conduct restoration tests of backups at least once every year.
  - (p) The Participating Service Provider shall monitor or liaise with the Company's appointed third party Service Providers to monitor the status of the backup jobs on a daily basis and inform the Company of any job failures for the day by a given time.
  - (q) The Participating Service Provider shall perform or liaise with the Company's appointed third party Service Providers to perform capacity planning for the backups to ensure that there are sufficient backup resources. The Participating Service Provider shall inform the Company when the backup resources have reached their threshold.

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- (r) The Participating Service Provider shall manage or liaise with the Company's appointed third party Service Providers to manage the backup media and coordinate their transfers to and from the off-site storage premises. These transfers include scheduled transfer and ad-hoc requests. The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that the media are ready for the off-site storage Service Provider's collection before the given collection time.
- (s) The Participating Service Provider shall provide or liaise with the Company's appointed third party Service Providers to provide the necessary restoration and recovery mechanisms and processes that meet the requirements and service levels.
- (t) The Participating Service Provider shall keep track or liaise with the Company's appointed third party Service Providers to keep track of all software licenses and security certificates deployed for the proposed system. The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that all software licenses and security certificates are renewed in a timely manner without any interruption to system operations.
- (u) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that there are separate development and testing facilities (such as data centres) for healthcare applications that contain patient-specific personal data from operational facilities hosting those healthcare applications. The Participating Service Provider shall define and document or liaise with the Company's third party Service Providers to define and document rules for the support of any application migration, databases migration, and/or hardware installations.
- (v) Prior to using external facilities management services to host applications containing patient-specific personal data, the Participating Service Provider shall ensure that risks are identified and appropriate controls are agreed with the relevant external facilities provider, and incorporated into the relevant agreement.
- (w) The Participating Service Provider shall provide restoration and recovery backup data within TWELVE (12) hours upon the Company's request.

### 2.2.2 Data Archival and Housekeeping

- (a) The Participating Service Provider shall provide or liaise with the Company's appointed third party Service Provider to provide the data archival strategy as defined under **Clause 2.2.2 (b)** below.
- (b) The Participating Service Provider shall provide an approach and framework for the proposed system's data archival and housekeeping. The approach and framework shall include at least the following:
  - (i) Data archival and housekeeping policies, standards and procedures;
  - (ii) Data archival and housekeeping solution architecture and design;
  - (iii) Data archival and housekeeping management and operational processes; and
  - (iv) Strategies for data archival and housekeeping.
- (c) The Participating Service Provider shall provide a detailed description of the proposed system's data archival and housekeeping approach and framework.
- (d) The Participating Service Provider shall be required to implement the proposed system's data archival and housekeeping framework as well as maintain any associated documentation.
- (e) The Participating Service Provider shall review and monitor the implementation of the proposed system's data archival and housekeeping framework every TWELVE (12) months to ensure that it is backing up the up-to-date data in the proposed



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system. The Participating Service Provider shall make the output of these reviews available to the Company.

- (f) The Participating Service Provider shall comply with the Company's requests to allow the Company's contracted third party suppliers to review the Participating Service Provider's implementation of the proposed system's data archival and housekeeping framework.
- (g) The proposed system's data archival and housekeeping framework shall meet the proposed system's data growth requirements.
- (h) The proposed system's data archival and housekeeping framework shall not impact the proposed system's availability during the proposed system's operational window.
- (i) The proposed system's data archival and housekeeping framework shall not impact the proposed system's performance during the proposed system's operational window.
- (j) The Participating Service Provider shall ensure that data in the archival solution shall be retrievable within TWENTY-FOUR (24) hours upon request.

### 2.2.3 Batch Job Management

- (a) The Participating Service Provider shall schedule and execute or liaise with the Company's appointed third party Service Providers to schedule and execute batch jobs in accordance with the jobs schedule. The batch jobs can be scheduled on a daily, weekly, fortnightly, monthly, bimonthly, quarterly, half-yearly or yearly basis.
- (b) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that the execution of batch jobs does not affect the availability and performance of the proposed system.
- (c) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that all batch jobs are executed during the night batch job window.
- (d) All production batch jobs that affect the performance of the proposed system shall be completed within the night batch job window. For ad-hoc batch jobs that need to be run outside the night batch job window, approval shall be obtained from the Company.
- (e) The Participating Service Provider shall support or liaise with the Company's appointed third party Service Providers to support temporary or urgent changes to batch job schedules and/or re-runs of jobs, without any additional cost to the Company.
- (f) The Participating Service Provider shall support or liaise with the Company's appointed third party Service Providers to support adding and executing new and ad-hoc batch jobs, deleting of obsolete batch jobs, amending of the configuration of batch jobs in a job scheduling software. The Participating Service Provider shall schedule or liaise with the Company's appointed third party Service Providers to schedule new production jobs within the turn-around time as specified by the Company.
- (g) The Participating Service Provider shall monitor or liaise with the Company's appointed third party Service Providers to monitor batch jobs to ensure successful completion. For failed batch jobs, the Participating Service Provider shall track and capture or liaise with the Company's appointed third party Service Providers to track and capture them in the batch jobs failure list on a daily basis to be reviewed by the Company. The Participating Service Provider shall also communicate the errors to the respective support Service Providers, if any, for corrective action. The Participating Service Provider shall be familiar with the batch job errors (e.g. system errors or business errors) and the batch jobs dependencies so as to resolve problems effectively and efficiently.

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### 2.2.4 Managed Services

- (a) The Participating Service Provider shall provide or liaise with the Company's appointed third party Service Providers to provide system management services.
- (b) The Participating Service Provider shall provide or liaise with the Company's appointed third party Service Providers to provide operation support system management services.
- (c) The Participating Service Provider shall provide or liaise with the Company's appointed third party Service Providers to provide facility management services as follows:
  - (i) Batch execution (e.g. execution of batch jobs, daily operations tasks);
  - (ii) System backup and recovery;
  - (iii) Archival management;
  - (iv) On-site backup media storage management;
  - (v) Off-site backup media storage management (e.g. off-site storage of backup media for DR purposes);
  - (vi) Daily operation management (e.g. start-up and shutdown of specified databases and application jobs, initiate backup);
  - (vii) Environmental monitoring (e.g. ensure that the environment is in a healthy state);
  - (viii) Migration support, e.g. assist in the migration of applications;
  - (ix) Routine preventative maintenance of hardware and network equipment;
  - (x) System administration;
  - (xi) Database administration;
  - (xii) System configurations management;
  - (xiii) Asset management;
  - (xiv) System and network performance monitoring and fine-tuning;
  - (xv) Technical support;
  - (xvi) Load test simulation;
  - (xvii) High availability testing (semi-annual), covering component (web, application, database, interface) and system failover testing from system A to system B and failover from system B back to system A;
  - (xviii) DR drills and operations; and
  - (xix) Systems capacity planning and review.
- (d) The Participating Service Provider shall manage or liaise with the Company's appointed third party Service Provider to manage the following facilities:
  - (i) Servers;
  - (ii) Network equipment;
  - (iii) Storage facilities;
  - (iv) Operating System (OS);
  - (v) Databases; and
  - (vi) Middleware.
- (e) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that adequate resources are available to undertake the provision of facility management services.

### 2.2.5 System Maintenance

- (a) The Participating Service Provider shall inform the tenants and users by posting announcements on the proposed system's web pages for any preventive maintenance which will cause the proposed system not to be in operation fully or

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- partially, at least TWO (2) weeks in advance.
- (b) In cases where a major upgrade of hardware or software is envisaged, the Participating Service Provider shall phase-in or liaise with third party Service Providers to phase-in the changes and the Company, its tenants and users shall receive at least TWO (2) months advance notice.
  - (c) In cases where the Participating Service Provider is providing the proposed system's facilities, the Participating Service Provider shall be responsible for the upkeep and maintenance of the facilities. Otherwise, the Participating Service Provider shall liaise with the Company's appointed third party Service Providers to ensure that the upkeep and maintenance of the facilities are being carried out.
  - (d) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure that all maintenance activities are scheduled to take place within the approved scheduled maintenance windows.
  - (e) During any downtime, the proposed system shall automatically display appropriate downtime messages.
  - (f) The Participating Service Provider shall be responsible for placing notices such as system downtime or any system outages or any system-related alerts/notifications on the proposed system's web pages as requested by the Company at no cost.
  - (g) The Participating Service Provider shall ensure or liaise with the Company and/or the Company's appointed third party Service Providers to ensure that the Company's designated tools are used to automate the maintenance and management of server patches and files. This shall be in the form of automated and/or scripted processes with management capabilities.
  - (h) The Participating Service Provider shall propose and provide or liaise with the Company's appointed Service Providers to propose and provide general maintenance and support for all in-scope services to include, but not be limited to, the following:
    - (i) Monitor, manage and maintain the application systems to ensure data integrity and efficient performance;
    - (ii) Monitor, manage and maintain systems' external facing interfaces to ensure mediation, message integrity, routing integrity, quality of service, data integrity and efficient performance;
    - (iii) Monitor all key business services, interfaces and log files and ensure health status is visible;
    - (iv) Monitor all infrastructure components (e.g. server health and utilisation, MS SQL farm, virtual machine, database cluster status, long running queries, blocking queries), ensure health status is visible and configuration is accurate;
    - (v) Ensure that all program source codes or executable object codes are maintained and controlled;
    - (vi) Provide performance improvement and tuning to application;
    - (vii) Deploy application bug files, application hot packages and patches;
    - (viii) Streamline, enhance, improvise and automate workflow processes when necessary;
    - (ix) Provide capacity planning;
    - (x) Provide system configuration maintenance and operational change requests to support day-to-day operations (e.g. batch job, authorization profile and minor change or improvements);
    - (xi) Provide, support and maintain processes to manage the collection, aggregation, matching, consolidation, quality assurance, persistence and distribution of data throughout the proposed system to ensure consistency and control in the ongoing maintenance of data quality, data classification, data identification and data reconciliation activities;
    - (xii) Prepare and update all relevant documentation to reflect the system

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- changes made;
  - (xiii) Maintain configuration change management; and
  - (xiv) Maintain software release management.
- (i) The Participating Service Provider shall provide or liaise with the Company's appointed third party Service Providers to provide corrective and remedial support for all in-scope services to include, but not be limited to, the following:
- (i) Manage and control the various system environments - production, SIT, UAT, training and DR;
  - (ii) Provide fixes to application source codes and system configuration according to user and system functional requirements;
  - (iii) Prepare and update all relevant documentation to reflect the system changes made;
  - (iv) Provide incident and problem management;
  - (v) Provide system information to personnel performing the system audits; and
  - (vi) Provide remedial to the proposed system in support of audit requirements.
- (j) The Participating Service Provider shall provide a comprehensive proposal to recommend and implement relevant audit and diagnostic logging processes of various levels of details to facilitate the support of activities of troubleshooting and resolving the possible production related issues. The logs and processes shall be able to measure and monitor the various levels of severity, including various degrees of partial availability.
- (k) The provisioning of the relevant audit and diagnostic logging and reporting processes shall not in any way affect the performance of the proposed system.
- (l) The Participating Service Provider shall resolve application problems including, but not limited to, defects in standard application software, custom programs and reports, interfaces, and any related functionality that does not meet stated design criteria.
- (m) The Participating Service Provider shall have proper problem management processes and procedures. There shall be reports or logs to track problems, bugs or defects identified. Information to be tracked include problem reported, reported by, date of occurrence, date problem is resolved, etc. The Participating Service Provider shall provide a problem management tool to facilitate the process.
- (n) The Participating Service Provider shall be responsible for implementing the required changes or solutions and performing required tests and verifications to ensure that the problem is solved.
- (o) The Participating Service Provider shall be responsible for release and configuration management of the problems, bugs or defects. In any case if a rollback is required, the Participating Service Provider shall perform the required procedure and ensure that functionality is intact.
- (p) The Participating Service Provider shall propose or liaise with the Company's appointed third party Service Providers to propose the approach and framework for patch management. The approach and framework shall include at least the followings.
- (i) Patch policies, standards and procedures;
  - (ii) Patch architecture and design; and
  - (iii) Patching operational process.
- (q) In the event where the Participating Service Provider is providing the hardware, the Participating Service Provider shall ensure that any hardware used in the running or monitoring of the entire proposed system is stand-alone hardware that is not

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- (r) shared with any other entity or program within or external to the Company.  
The Participating Service Provider shall ensure that planned maintenance activities are controlled via the agreed change control processes. Emergency changes shall be managed via the change management processes. Once effected, they shall subsequently link with configuration management and change control in order to reflect the change throughout the entire estate where necessary.
  - (s) The Participating Service Provider shall propose a change control process approach subject to the Company's approval.
  - (t) The Participating Service Provider shall carry out or liaise with the Company's appointed third party Service Providers to carry out routine and planned maintenance work only under stable conditions. All maintenance work shall be ceased until the proposed system is proven stable again in the event of a Severity 1 incident being raised during a scheduled maintenance activity.
  - (u) Service impact of maintenance activities shall be considered when creating maintenance schedules.
  - (v) Through the change control process, there shall be limitations placed on the time allowed for each maintenance activity and the number of components that can be affected. This will minimize risk to service availability and reduce vulnerability caused by the outage of a single component.
  - (w) As a part of the change control process, the Participating Service Provider shall ensure that any maintenance activity has full rollback plans reviewed and tested prior to concurrence being given to implement the activity.
  - (x) Housekeeping events are considered non-service affecting and shall therefore be automated where possible and scheduled as appropriate. Housekeeping events that cannot be automated shall be implemented and scheduled using operational procedures that meet the ISO 9001 standards.
  - (y) Scheduled maintenance events shall utilize the change control process to manage their impact on services, ensuring full permission to implement and to ensure that the tests and acceptance processes have been completed. In addition, particular attention shall be paid to the back-out plans in the event that an issue arises during implementation.

### 2.2.6 Inventory Management

- (a) The Participating Service Provider shall provide or liaise with the Company's appointed third party Service Providers to provide inventory management services, which include an inventory system to capture all system resources (e.g. software license, hardware). The inventory system shall allow categorisation of information to ease enquiry by the Company.
- (b) The Participating Service Provider shall ensure or liaise with the Company's appointed third party Service Providers to ensure all system resources are captured and updated in a timely manner.
- (c) The Participating Service Provider shall manage and track or liaise with the Company's appointed third party Service Providers to manage and track all inventory movement including delivery, relocation, loan, servicing, decommissioning and replacement of these resources where applicable. All inventory data shall be current, with a tolerance of ONE (1) week (i.e. any change shall be reflected in the database within ONE (1) week).
- (d) The Participating Service Provider shall conduct or liaise with the Company's third party Service Providers to conduct a half-yearly physical stock taking exercise to confirm that the list of system resources is accurate and up-to-date.
- (e) The Participating Service Provider shall report or liaise with the Company's third party Service Providers to report the outcome of the stocktaking exercise, highlight and resolve the discrepancies between the inventory list and the physical stock status. This includes:

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- (i) List of system resources which cannot be located physically;
  - (ii) List of system resources which are not in their stated location; and
  - (iii) Any other discrepancies.
- (f) The Participating Service Provider shall not remove, replace or relocate any hardware or part(s) without the approval of the Company. The Participating Service Provider shall seek prior approval from the Company for such movement. The Participating Service Provider shall ensure that any physical movement shall be tracked and documented accordingly.
- (g) The Participating Service Provider shall note that any part(s) removed from the proposed system that contains the Company's data (e.g. hard disks) shall be retained by the Company for proper disposal. The Participating Service Provider shall facilitate and liaise with the Company's appointed third party Service Providers to witness the hard disks destruction and disposal process.

### 2.2.7 Capacity Planning

- (a) The Participating Service Provider shall carry out or liaise with the Company's third party Service Providers to carry out annual capacity planning exercises based on the current load and future growth, so as to project the requirements of hardware, equipment and other resources needed for the effective and efficient functioning of the proposed system.
- (b) The capacity planning report shall be submitted to the Company within TWO (2) weeks upon the completion of each planning exercise. The capacity planning report shall minimally include:
- (i) Methodology used;
  - (ii) Scope of study;
  - (iii) Recommended upgrade plans;
  - (iv) Estimated upgrade schedule; and
  - (v) Estimated upgrade costs including manpower, hardware, software.
- (c) The Participating Service Provider shall analyse and highlight or liaise with the Company's third party Service Providers to analyse and highlight possible bottlenecks and potential capacity issues to the Company on a monthly basis so that a proper assessment on the performance of the proposed system and informed decisions on capacity expansion can be made.

## 2.3 User Account Management

- 2.3.1 The Participating Service Provider shall propose and define a user account management process which allows the provisioning and maintenance of user accounts to support users with direct access.
- 2.3.2 The proposed system shall allow provisioning, deactivation and maintenance of user accounts to support users with direct access.
- 2.3.3 The Participating Service Provider shall ensure that all user accounts are provided with only the required access to perform their duties.
- 2.3.4 The Participating Service Provider shall ensure that user account access is provided through role-based assignments only.
- 2.3.5 The Participating Service Provider shall follow the agreed role-based access control model

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when making role-based assignments.

- 2.3.6 The Participating Service Provider shall be responsible for creating / deactivating users' accounts and all necessary system administration tasks. All accounts shall be set up within ONE (1) working day upon approval.
- 2.3.7 The Participating Service Provider shall be responsible for the urgent setup of accounts to be completed within THREE (3) hours upon approval.
- 2.3.8 The Participating Service Provider shall ensure that all users' registration information is up-to-date and ensure strict confidentiality.
- 2.3.9 The Participating Service Provider shall ensure that user account information shall be made available upon request by the Company with data field compliance for the purpose of user account audits at no additional cost to the Company.
- 2.3.10 The Participating Service Provider shall ensure compliance to security/audit requirements with automated account deactivation for inactive user accounts.
- 2.3.11 In the event that the Operations Support Level 1 service is provided by an appointed third party Service Provider, the Participating Service Provider shall work and liaise with the Company's appointed third party Service Providers to ensure effective and efficient management of user accounts to support users of the proposed system.
- 2.3.12 The Participating Service Provider shall be able to provide account administration reports that minimally include the following information:
- (a) Number of user accounts registered with the proposed system;
  - (b) Changes in account privileges conducted within a date range;
  - (c) State of user accounts (e.g. dormant, active);
  - (d) Last login information; and
  - (e) List of users with specific access rights.
- 2.3.13 The Participating Service Provider shall ensure compliance to all security/audit requirements as stated in **Clauses 2.3.14 to 2.3.16** below.
- 2.3.14 Application Authentication and Access Control
- (a) The Participating Service Provider shall propose a secure mechanism/module/workflow that allows the provisioning of urgent (within THREE (3) hours) accounts and access rights, including timely de-provisioning of such accounts.
- 2.3.15 Audit Logging
- (a) The Participating Service Provider shall retain all logs based on the following schedules:
    - (i) Online – at least THREE (3) months; and
    - (ii) Offline – at least SEVEN (7) years.
- 2.3.16 Account and Access Rights Review
- (a) The Participating Service Provider shall conduct monthly reviews of privileged accounts, including systems administration accounts, database administrator and

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user administration accounts. The review of all user accounts and the associated access rights including accounts used for support purposes shall be conducted on a quarterly basis in the proposed system to ensure that unused or obsolete accounts and accesses are removed in a timely manner.

- (b) The Participating Service Provider shall implement the accounts and access rights review procedures for the following staff movement scenarios:
  - (i) Staff resignation/retirement;
  - (ii) Termination;
  - (iii) Staff transfer;
  - (iv) Role change with same company;
  - (v) Role change within same department;
  - (vi) Extended leave; and
  - (vii) External party user resignation/redeployment.
- (c) The Participating Service Provider shall conduct monthly review of privileged user activities (e.g. root, administrator, etc.) within the proposed system to detect misuse and to ensure that all activities are proper.
- (d) The Participating Service Provider shall conduct a review of the firewall rules every SIX (6) months to ensure that the access control rules are properly configured and valid.

### 2.4 Operations Support Level 1

- (a) The Participating Service Provider shall propose helpdesk services (including provision of end-user computing services as an option) during support hours as options to the Company where the Company may opt to contract the proposed helpdesk service or appoint other contractor(s) to provide the service.
- (b) The Participating Service Provider shall provide the option for different tiers of support for end-user computing services in the event that the Company exercises the option to procure end-user computing services. The Company may opt to appoint another contractor(s) to provide different tiers of end-user computing services in which case the Participating Service Provider shall set-up the back to back support for the end-user computing support services.
- (c) The Participating Service Provider shall propose and provide a comprehensive helpdesk services (Operations Support Level 1 team) as an option, where the scope of the services shall include the following:
  - (i) Perform first-level incident isolation, troubleshooting, recovery and resolution;
  - (ii) Assist caller by providing usage support for the proposed system;
  - (iii) Validate caller identity and record caller's contact details;
  - (iv) Set / clear / monitor outstanding work;
  - (v) Maintain and build up FAQs;
  - (vi) Schedule and manage call back;
  - (vii) Escalate incidents to the second or higher-level support personnel;
  - (viii) Report on compliance with the any service levels agreed between the Participating Service Provider and the Company;
  - (ix) Streamline, enhance, improvise and automate (if necessary) any operations-related, workflow and processes where possible; and
  - (x) Provide on-site end user computing support services.
- (d) To the extent that a fault is within the control of the Participating Service Provider, the Participating Service Provider shall rectify such faults with the service in accordance with the relevant agreement.



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- (e) The Participating Service Provider shall provide a single point of contact for a seamless service irrespective of entry point to the helpdesk. Contact to the helpdesk facility via phone call (landline or mobile) or email shall be made available for users.
  - (f) The Participating Service Provider shall set up the infrastructure, facilities and provide all tools at their premise to provide the helpdesk services.
  - (g) The Participating Service Provider shall ensure that the helpdesk services support the Company, its tenants and users in their use of all IT / solutions provided or supported by the Participating Service Provider.
  - (h) The Participating Service Provider shall receive, record, monitor and resolve application and technical issues (whether faults or other operational issues) for users of the proposed system (whether applications or other software, hardware and infrastructure) that it provides or supports as part of the service.
  - (i) The Participating Service Provider shall ensure that the helpdesk services shall receive record, monitor and manage the resolution of all of the proposed system's IT-related queries.
  - (j) The Participating Service Provider shall ensure that the helpdesk services for the Company's staff, its tenants and users are available according to the support hours.
  - (k) The Participating Service Provider shall comply with all of the service level requirements defined in **Clause 2.7** below. If the Participating Service Provider fails to comply with the service level requirements defined in this document, the Company will be entitled to service level credits.
  - (l) The Participating Service Provider shall ensure that the helpdesk services are configured so that volumes can be managed to maximize the level of service through service peaks and troughs.
  - (m) The Participating Service Provider shall ensure that the helpdesk services provide the means to register, track and manage incidents from initiation to resolution, and that incident histories shall be retained and archived.
  - (n) The Participating Service Provider shall ensure that the helpdesk services provide the means to handle and escalate complaints.
  - (o) The Participating Service Provider shall ensure that the helpdesk services receive up-to-date information on known faults with any aspect of the service to enable information to be quickly passed on to callers.
  - (p) The Participating Service Provider shall ensure that the helpdesk services record and update such information, in sufficient detail, as is required to ensure that the origin of, the existing status of and any historic actions in relation to, an enquiry is noted and fully traceable and to enable the resolution and (where appropriate) transfer of calls and enquiries.
  - (q) Such information shall include, but not be limited to, the following:
    - (i) Name;
    - (ii) Address;
    - (iii) Daytime contact – telephone and/or hand phone and/or pager;
    - (iv) Email address;
    - (v) Enquiry type (option to categorize e.g. technical subsets or free text);
    - (vi) Action taken;
    - (vii) Preferred reply medium - email or phone;
    - (viii) Date expected to be resolved;
    - (ix) Free text facility;
    - (x) Reported date and time;
    - (xi) Name of institutions/clinics; and
    - (xii) Device related details (e.g. laptop brand and model).
  - (r) The Participating Service Provider shall ensure that the helpdesk is not able to

## PART 4 SERVICE REQUIREMENTS



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- view, create or modify information on the proposed system.
- (s) The Participating Service Provider shall ensure that faults reported by users or detected by the Participating Service Provider are logged on a single system, which shall be the same as that tracking faults reported by staff, and given a unique reference number, and the Participating Service Provider shall send an email acknowledgement of the reported fault to the user and log the report into the respective tracking/issue repository.
  - (t) The Participating Service Provider shall ensure that the capture, retention and management of personal data comply with the Company's standards set out in this document on the protection of patient information.
  - (u) The service shall permit outbound voice calls to landline numbers and mobiles.
  - (v) The service shall allow email correspondence in relation to faults and their resolution.
  - (w) The Participating Service Provider shall ensure that the helpdesk services have access to systems that incorporate a caller identification function, so that the helpdesk services can be used for monitoring use, preventing malicious or nuisance calls, and examining patterns of call behaviour.
  - (x) The Participating Service Provider shall ensure that the helpdesk services manage 'call back' action in a prompt and professional manner in response to voicemails where the caller's identity and contact details can be traced or obtained.
  - (y) The Participating Service Provider shall ensure shift rostering and propose handover processes. This will ensure that there is communication and continuity by transferring all important information required for the support to the next person on duty.
  - (z) The Participating Service Provider shall ensure that the helpdesk system used in provision of the helpdesk service shall automatically capture, record and report upon service operation with management information, including the number and percentage of:
    - (i) Actual and mean call duration;
    - (ii) Actual and mean time to answer a call;
    - (iii) Actual and mean time taken to resolve a call;
    - (iv) Advisor occupancy;
    - (v) Call volumes by call type;
    - (vi) Calls abandoned;
    - (vii) Calls abandoned after N seconds (where N may be varied by the Company, acting reasonably);
    - (viii) Calls answered;
    - (ix) Calls answered within N seconds (banded) where N is specified by the Company (acting reasonably);
    - (x) Calls handled in non-English language;
    - (xi) Calls not in the language of preference;
    - (xii) Calls offered (i.e., all calls made whether answered or not forecast and actual);
    - (xiii) Calls queued for helpdesk in real time;
    - (xiv) Calls resolved at first point of contact; and
    - (xv) Calls escalated to Operations Support Level 2.
  - (aa) The Company may, from time to time, request additional staff to be provided by the Participating Service Provider. The provision of additional cover, and any charge made by the Participating Service Provider for its provision, shall be subject to the man-day charges which are negotiated and agreed between the Company and the Participating Service Provider.
  - (bb) The Participating Service Provider shall assess every incident reported and classify its severity level based on the severity criteria highlighted in **Clause 2.7** below. The

## PART 4 SERVICE REQUIREMENTS



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- Company shall be informed of the severity level for each incident reported.
- (cc) The Company reserves the right to amend the severity level for each reported incident if the need arises.
  - (dd) There shall be proper acknowledgment of all reported incidents and monitoring of the status of the reported incidents by the Participating Service Provider. The Participating Service Provider shall also be responsible for advising the Company on the latest status of the reported incidents within the stipulated response and resolution time.
  - (ee) The Participating Service Provider shall propose monthly reports. These reports shall also include, but not be limited to, the following categories. The Participating Service Provider shall be measured against these categories as part of the Participating Service Provider's monthly performance measures:
    - (i) Call centre responsiveness;
    - (ii) Customer satisfaction surveys; and
    - (iii) Operations performance measures including service matrix performance specified in **Clause 2.9** below.
  - (ff) The service level reporting format and frequency shall be developed by the Participating Service Provider and approved by the Company.
  - (gg) The Participating Service Provider shall propose a service model to support the proposed services. The service model will have detailed first level support covering all items stated in this document.
  - (hh) The Participating Service Provider's proposed service model shall provide the detailed first level support structure and approach for the maintenance and support of the proposed system.
  - (ii) The Participating Service Provider shall also work with third party Service Providers supporting various systems of the Company if required, to ensure effective maintenance and support of the proposed system.
  - (jj) The Participating Service Provider shall provide the appropriate tools and management software to enable the provision of Operations Support Level 1 (incident management, problem management and escalation tools, ticket tracking, knowledge base, etc.).
  - (kk) The Participating Service Provider shall allocate sufficient and skilled resources to provide support so that any issue arisen can be resolved efficiently.
  - (ll) The Participating Service Provider shall propose the number of resources that will provide Operations Support Level 1 to the proposed system for the Company.
  - (mm) During operations support, the Participating Service Provider shall provide details of any new/additional partners (subject to the Company's approval), where applicable.
  - (nn) The Participating Service Provider shall ensure that any data or information related to the proposed system that is accessed or used in the course of providing Operations Support Level 1 by the Operations Support Level 1 team will not be viewed, exported or accessed by any means or mediums outside of Singapore.
  - (oo) The Participating Service Provider shall ensure that the helpdesk facility provides call logging (i.e. call recording) capability and retains the call logs for at least TWELVE (12) months.

### 2.5 Operations Support Level 2 and Level 3

- (a) The Participating Service Provider shall propose and provide an Operations Support Level 2 and 3 team or liaise with the Company's appointed third party Service Providers to provide minimally the scope of services that includes, but is not limited to the following:

## PART 4 SERVICE REQUIREMENTS



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- (i) Monitor, manage and maintain the application system to ensure data integrity and efficient performance;
  - (ii) Monitor, manage and maintain the proposed system's external-facing interfaces to ensure mediation, message integrity, routing integrity, quality of service, data integrity and efficient performance;
  - (iii) Ensure that all program source codes or executable object codes are maintained and controlled;
  - (iv) Provide performance improvement and tuning to application;
  - (v) Provide and deploy application bug files, application hot packages and patches;
  - (vi) Streamline, enhance, improvise and automate workflow processes when necessary;
  - (vii) Provide capacity planning;
  - (viii) Provide system administration and configuration maintenance;
  - (ix) Provide operational SRs to support day-to-day operations (e.g. batch job, authorization profile and minor change or improvements);
  - (x) Provide, support and maintain processes to manage the collection, aggregation, matching, consolidation, quality assurance, persistence and distribution of data throughout the system to ensure consistency and control in the ongoing maintenance of data quality, data classification, data identification and data reconciliation activities;
  - (xi) Prepare and update all relevant documentation to reflect the system changes made;
  - (xii) Maintain configuration management;
  - (xiii) Maintain software release management;
  - (xiv) Provide batch job management;
  - (xv) Provide inventory management; and
  - (xvi) Provide backup, recovery, housekeeping, archival and restoration management.
- (b) The Operations Support Level 2 and 3 team acts as the next level of escalation for the Operations Support Level 1 team to direct all reported incidents that cannot be resolved by Operations Support Level 1 team.
  - (c) To the extent that a fault is within the control of the Participating Service Provider, the Participating Service Provider shall rectify such faults with the service in accordance with the relevant agreement.
  - (d) The Participating Service Provider shall ensure that the Operations Support Level 2 and 3 team supports the Company, its tenants and users in their use of all IT / solutions provided or supported by the Participating Service Provider.
  - (e) The Participating Service Provider shall receive, record, troubleshoot, monitor and resolve reported issues on the proposed system (whether faults or other operational issues) for users of the proposed system (whether application or other software, hardware and infrastructure) that it provides or supports as part of the service.
  - (f) The Participating Service Provider shall ensure that the Operations Support Level 2 team shall receive record, monitor and manage the resolution of all of the proposed system's IT-related queries, and work with the Operations Support Level 1 team to resolve these related queries.
  - (g) The Participating Service Provider shall operate the Operations Support Level 2 and 3 service during support hours.
  - (h) The Participating Service Provider shall set up the infrastructure, facilities and provide all tools at their premise to provide the Operations Support Level 2 and 3 services.
  - (i) The Participating Service Provider shall provide a contact facility for the Participating Service Provider's support consultants to be directly contactable on a

## PART 4 SERVICE REQUIREMENTS



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- provided support phone number and work with the Operations Support Level 1 team to help escalate and resolve issues and tickets.
- (j) In the event that the Operations Support Level 1 service is provided by the Participating Service Provider, the Participating Service Provider shall ensure that the Operations Support Level 2 and 3 team is able to work with the Operations Support Level 1 team and provide a common means to register, track and manage issues from initiation to resolution, and that all incident histories shall be retained and archived.
  - (k) In the event that the Operations Support Level 1 service is provided by an appointed third party Service Provider, the Participating Service Provider shall provide the means to register, track and manage incidents from receipt from third party Service Provider to resolution, and that incident histories shall be retained and archived.
  - (l) In the event that the Operations Support Level 1 service is provided by an appointed third party Service Provider, the Participating Service Provider shall provide minimally a primary and secondary contact for escalation to the Operations Support Level 2 and 3 service. Contact to the Operations Support Level 2 and 3 service via phone call or email shall be made available for the Company's appointed third party Service Provider.
  - (m) In the event that the Operations Support Level 1 service is provided by an appointed third party Service Provider, the Participating Service Provider shall ensure that faults reported or detected by the Participating Service Provider are logged on a system, which shall be the same as that tracking faults reported by staff, and given a unique reference number, and the Participating Service Provider shall send an email acknowledgement of the reported fault to the Company's appointed third party Service Provider, and log the report into the respective tracking/issue repository.
  - (n) In the event that the Operations Support Level 1 service is provided by an appointed third party Service Provider, the Participating Service Provider shall ensure sufficient details and information is obtained and recorded from the Company's appointed third party Service Provider to enable timely resolution of the issues and tickets.
  - (o) In the event that the Operations Support Level 1 service is provided by an appointed third party Service Provider, the Participating Service Provider shall ensure that the support facility provides a call logging (i.e. call recording) capability and retains the call logs for at least TWELVE (12) months.
  - (p) The Participating Service Provider shall ensure that the Operations Support Level 2 and 3 team provides the means to handle and escalate complaints, and take over escalated issues from the Operations Support Level 1 team.
  - (q) The Participating Service Provider shall propose a service model to support the proposed services. The service model for Operations Support Level 2 and 3 shall complement with the first level support model covering all items stated in this document.
  - (r) The Participating Service Provider's proposed service model shall provide the detailed second and third level support structure and approach for the maintenance and support of the proposed system.

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(s) Support levels and scope

Support Levels	Functional Scope	Technical Scope
First Level Support / Operations Support Level 1	When an incident arises, the users escalate to the Operations Support Level 1 team. The Operations Support Level 1 team identifies the fault and attempts to resolve it at their end. In the event where the incident cannot be resolved by the Operations Support Level 1 team, it will be escalated to Operations Support Level 2.	
Second and Third Level Support / Operations Support Level 2 and 3	<ul style="list-style-type: none"> <li>- The Participating Service Provider shall receive the escalated issue from the Operations Support Level 1 team or an appointed third party Service Provider.</li> <li>- The Participating Service Provider shall troubleshoot the reported issue and identify if it is a workflow issue or an application bug. If it is an application bug or issue beyond functional usage, the Participating Service Provider shall resolve it.</li> <li>- The Participating Service Provider is responsible for resolving all queries and usage issues. However, the Company may assist if resources permit.</li> <li>- The Participating Service Provider shall liaise with any other Service Providers to resolve the issue.</li> </ul>	<ul style="list-style-type: none"> <li>- The Participating Service Provider shall receive the escalated issue from the Operations Support Level 1 team or an appointed third party Service Provider.</li> <li>- The Participating Service Provider shall troubleshoot and resolve the technical / system issue reported.</li> <li>- The Participating Service Provider shall liaise directly with third parties to meet the required SLA.</li> </ul>

- (t) The Participating Service Provider shall also work with third party Service Providers supporting various systems of the Company if required, to ensure effective maintenance and support of the proposed system.
- (u) In any case of application problems, bugs or defects discovered, the Participating Service Provider shall be responsible for investigating, prioritizing, and providing the fix or working with the respective software manufacturer to ensure that the problem is resolved in accordance to the service level criteria in this document.
- (v) The Participating Service Provider shall remove all workaround solutions after implementing the full resolution to the reported fault.
- (w) The Participating Service Provider shall provide a detailed Root Cause Analysis (RCA) of all issues reported, perform rectification works and identify its root cause. Such analysis shall include the identification of the cause of the issue, the programs and systems affected, the data or any loss suffered. The Participating Service Provider shall propose a permanent solution and carry out preventive maintenance to ensure a similar problem does not recur.
- (x) The Participating Service Provider shall ensure that any data or information related to the proposed system that is accessed or used in the course of providing Operations Support Level 2 and 3 by the Operations Support Level 2 and 3 team will not be viewed, exported or accessed by any means or mediums outside of Singapore.
- (y) The Participating Service Provider shall have proper call, incident, problem and escalation management process and procedure. There shall be reports or logs to

## PART 4 SERVICE REQUIREMENTS



track problems, bugs or defects identified. Information to be tracked includes details of the problem reported, whom the problem is reported by, the date of occurrence, the date that the problem is resolved, etc. The Participating Service Provider shall provide an incident and problem management tool to facilitate the process.

- (z) The Participating Service Provider shall be responsible for implementing the required changes or solutions and performing required tests and verifications to ensure that the problem is resolved.
- (aa) The Participating Service Provider shall be responsible for release and configuration management of the incidents, bugs or defects. In any case if a rollback is required, the Participating Service Provider shall perform the required checks and procedures to ensure that functionality is intact.
- (bb) All modifications made by the Participating Service Provider can be deemed successfully completed only after satisfying the following:
  - (i) Acceptance by users during UAT and post implementation review;
  - (ii) Successful deployment of the software to production environment;
  - (iii) The deployed modification has been closely monitored to ensure that it is error-free; and
  - (iv) All documentation has been updated and endorsed by the Company.
- (cc) The Participating Service Provider shall propose escalation management processes and procedures. There shall be clear escalation matrix and guidelines on when an escalation is required for both operational issues and system defects requiring management's attention.
- (dd) For Severity 1 incident, the Participating Service Provider shall escalate and inform the Company immediately on the occurrence of the major incident.
- (ee) The Participating Service Provider shall comply with all service level requirements defined in **Clause 2.7** below. If the Participating Service Provider fails to comply with the service level requirements defined in this document, the Company will be entitled to service level credits.

### 2.6 Service Requests (SR) Management

- 2.6.1 SR refers to a request for standard change or for access to the proposed system (e.g. to reset a password, or to request for re-run of existing batch jobs). SRs may be raised as part of Business As Usual (BAU) (not-chargeable) or Non-BAU (chargeable) for system changes, or as part of operations or audit and security requirements.
- 2.6.2 In the event that the Operations Support Level 1 service is provided by an appointed third party Service Provider, the Participating Service Provider shall work and liaise with the Company's appointed third party Service Providers to ensure that all SRs are successfully implemented according to the agreed schedule.
- 2.6.3 The Participating Service Provider shall be responsible for ensuring that all SRs are successfully implemented according to the agreed schedule. The Participating Service Provider shall work beyond normal working hours if the pre-agreed schedule is not met and this additional cost shall be borne by the Participating Service Provider.
- 2.6.4 The effort assessed for the non-BAU SRs shall be in man-hour denomination. EIGHT (8) man-hours is equivalent to ONE (1) man-day effort.
- 2.6.5 The Participating Service Provider's scope of work for non-BAU SRs shall include at least the following:

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- (a) Make an assessment on the non-BAU SR and submit a proposal to the Company for review and approval. The proposal shall detail the impact analysis of the change on the proposed system, providing details on effort required, affected system functionalities, operations procedure, system performance, system availability and other relevant considerations. The Participating Service Provider shall bear all costs in the assessment and preparation of the proposal;
  - (b) Design and seek approval from the Company for the changes to be implemented;
  - (c) Prepare/update relevant technical and user documentation (including frequently asked questions) to reflect changes made to the proposed system;
  - (d) Develop, conduct testing and implement the changes to the proposed system according to the requirements of the non-BAU SR;
  - (e) Maintain and keep track of all SRs. This summary log shall be submitted to the Company as part of the monthly reports;
  - (f) Train the users on the enhancements, highlighting to the users if there is any impact or changes to the current way of working and/or workflow; and
  - (g) Prepare and update relevant documentation within SEVEN (7) working days to reflect the changes made to the proposed system and its interfaces.
- 2.6.6 The Participating Service Provider may propose appropriate software tools to assist in its management, tracking and reporting of the SRs life-cycle.
- 2.6.7 After the submission of the impact analysis, the Participating Service Provider shall provide clarification promptly as and when requested by the Company.
- 2.6.8 The non-BAU SR implementation effort estimated by the Participating Service Provider shall be subject to review and acceptance by the Company. The Company may decide on one of the following actions:
- (a) Approve the non-BAU SR based on the assessment;
  - (b) Withdraw the non-BAU SR;
  - (c) Reject the non-BAU SR; and
  - (d) Request to amend the change requirement (i.e. a re-assessment will be required by the Participating Service Provider).
- 2.6.9 The Participating Service Provider shall update all relevant documentation as part of the deliverables of the non-BAU SR.
- 2.6.10 The Participating Service Provider shall note that all non-BAU SRs shall be subject to acceptance in the UAT environment, unless otherwise agreed by the Company.
- 2.6.11 The Participating Service Provider shall give the Company SEVEN (7) working days' notice to commence the UAT, except for urgent non-BAU SR, which shall be based on mutual agreement between the Participating Service Provider and the Company.
- 2.6.12 The Participating Service Provider shall ensure that the requirements in the SRs are met and the SRs are tested before they are passed to the users for UAT.
- 2.6.13 The Participating Service Provider shall ensure that SRs can only be implemented in the production environment only after the UAT has been signed off by the Company.
- 2.6.14 The Participating Service Provider shall meet the expected completion date specified by the Company.
- 2.6.15 The Participating Service Provider shall ensure adequate resources to carry out the SRs such that system support and maintenance are not affected.



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- 2.6.16 The Participating Service Provider shall however note that in case of change of request priority by the users or under any unforeseen circumstances, the Company reserves the right to re-prioritise SRs given earlier.
- 2.6.17 The Participating Service Provider shall propose a performance report format for SRs service metrics to be reviewed and agreed with the Company.
- 2.6.18 The Participating Service Provider shall submit a weekly and monthly performance report to the Company.
- 2.6.19 The Participating Service Provider shall summarise the status (e.g. in-progress, completed, etc.) of SRs in the performance report.
- 2.6.20 As and when required, the Participating Service Provider shall provide ad-hoc reports as requested by the Company for any SR service metrics.
- 2.6.21 The Participating Service Provider shall comply with all service level requirements defined in **Clause 2.7** below. If the Participating Service Provider fails to comply with the service level requirements defined in this document, the Company will be entitled to service level credits.

### 2.7 Service Levels Requirements

- 2.7.1 The Participating Service Provider shall classify the reported issue/fault according to the severity criteria defined below:

Severity Criteria	1 – Critical	2 – High	3 – Medium-Low
Impact to Business Operations	<ul style="list-style-type: none"> <li>Issue causing the entire system to unavailable</li> <li>Potential direct patient care affected</li> <li>Data integrity or reputation at risk</li> </ul>	<ul style="list-style-type: none"> <li>Issue affecting a single critical production</li> <li>System operating in materially degraded state or users experience slow response</li> <li>Material financial impact</li> </ul>	<ul style="list-style-type: none"> <li>Minor subsystem failure has occurred</li> <li>Data entry or access is impaired on a limited basis</li> <li>Failure may be circumvented</li> </ul>
Impact Patient Safety (e.g. imported wrong lab results for the patient)	Any	NA	NA
Security Breaches	Any malicious security incidents	NA	NA
Data Breaches	Any data breach incidents	NA	NA

- 2.7.2 Severity level is based on any of the specified criteria as listed above. The higher of the two criteria shall apply.
- 2.7.3 The Participating Service Provider shall ensure that at least EIGHTY percent (80%) of the calls are answered within FOUR (4) rings by the Operations Support Level 1 team directly. The Participating Service Provider shall propose a monitoring mechanism and reporting tools to enable the tracking of this and any other relevant service level.

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- 2.7.4 Beyond the FOUR (4) rings, the caller shall be given the choice of leaving a message in the voicemail or continue to hold until a personnel is able to answer the call. The Participating Service Provider shall ensure that all voicemails are responded to within THIRTY (30) minutes.
- 2.7.5 The Participating Service Provider shall keep a log of missed calls and propose how the total number of missed calls can be reduced.
- 2.7.6 The Participating Service Provider shall ensure that at least EIGHTY percent (80%) of emails received by service desk personnel are acknowledged and a ticket is logged in the incident tool within THIRTY (30) minutes.
- 2.7.7 The Participating Service Provider shall ensure all calls/activation of support after support hours are responded to within THIRTY (30) minutes.
- 2.7.8 The Participating Service Provider shall be responsible for creating / deactivating users' accounts and all necessary system administration tasks. All accounts shall be set up within ONE (1) working day upon approval.
- 2.7.9 The Participating Service Provider shall be responsible for the urgent setup of accounts to be completed within THREE (3) hours upon approval.
- 2.7.10 The Participating Service Provider shall comply with the service targets defined below:

Service Categories	1 – Critical	2 – High	3 – Medium-Low
<b>Response and Escalation Time:</b> - The date and time when the reported issue is received by the Operations Support Level 1 team to the time when a response is provided by the Operations Support Level 1 team to the caller and the reported issue is escalated to the next level of support. The reported issue to the Operations Support Level 1 team and the response provided by the Operations Support Level 1 team may be communicated through phone calls and email.	THIRTY (30) minutes	THIRTY (30) minutes	FOUR (4) hours
<b>Interim Fix (when Operations Support Level 1 is provided by the Participating Service Provider):</b> - The date and time when the reported issue is received by the Operations Support Level 1 team to the time when a workaround / a temporary solution / a permanent solution is accepted by the	FOUR (4) hours	EIGHT (8) hours	THREE (3) working Days

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Service Categories	1 – Critical	2 – High	3 – Medium-Low
Company and implemented in production by the Participating Service Provider. It shall exclude manual workaround or non-usage of the function.			
Interim Fix (when Operations Support Level 1 is provided by an appointed third party Service Provider): <ul style="list-style-type: none"> <li>- The date and time when the reported issue is received by the Participating Service Provider's Operations Support Level 2 and 3 services from the Company's appointed third party Service Provider to the time when a workaround / a temporary solution / a permanent solution is accepted by the Company and implemented in production by the Participating Service Provider. It shall exclude manual workaround or non-usage of the function.</li> </ul>	FOUR (4) hours	EIGHT (8) hours	THREE (3) working Days
Permanent Fix (when Operations Support Level 1 is provided by the Participating Service Provider): <ul style="list-style-type: none"> <li>- The date and time when the reported issue is received by the Operations Support Level 1 team to the time when a permanent solution is accepted by the Company and implemented in production by the Participating Service Provider. Root cause analysis and permanent resolution will be required for all incidents that were initially resolved with a workaround or a temporary solution.</li> </ul>	TWENTY-FOUR (24) hours	FORTY-EIGHT (48) hours	FIVE (5) working days
Permanent Fix (when Operations Support Level 1 is provided by an appointed third party Service Provider): <ul style="list-style-type: none"> <li>- The date and time when the reported issue is received by the Participating Service</li> </ul>	TWENTY-FOUR (24) hours	FORTY-EIGHT (48) hours	FIVE (5) working days

## PART 4 SERVICE REQUIREMENTS



Service Categories	1 – Critical	2 – High	3 – Medium-Low
Provider's Operations Support Level 2 and 3 services from the Company's appointed third party Service Provider to the time when a permanent solution is accepted by the Company and implemented in production by the Participating Service Provider. Root cause analysis and permanent resolution will be required for all incidents that were initially resolved with a workaround or a temporary solution.			
Incident Report: - An incident report provides a detailed account of the event including investigation details, evaluation details and outcome, and workaround or resolution provided.	Interim report within TWENTY-FOUR (24) hours of provision of Interim Fix.  Final report within ONE (1) day of implementation of permanent fix.	Interim report within FORTY-EIGHT (48) hours of provision of Interim Fix.	Details aggregated in monthly report (i.e. distributed to the Company within FIVE (5) working days of the following month)

2.7.11 For Severity 1 incident, the Participating Service Provider shall inform the Company immediately and brief the Company on the causes, areas of impact and lead time for resolution. The Participating Service Provider shall provide in writing an interim incident report to explain the incident within TWENTY-FOUR (24) hours of provision of workaround.

2.7.12 System Availability is defined as the percentage of the total time during which the proposed system is available to the users. It is calculated as:

$$\text{System Availability} = ((\text{SOT} - \text{SD}) / \text{SOT}) * 100\%$$

Where,

SOT (Scheduled Operating Time) is the schedule operation hours for the proposed system.

SD (System Downtime) is the accumulated time during which the proposed system is inoperable or partially inoperable due to product failure measured from the time the Participating Service Provider is informed of the product failure to the time when the proposed system is returned to its proper operation.

2.7.13 The Participating Service Provider shall propose service requirements against TWO (2) different sets of system availability, as outlined as follows:

- (a) Set-1: System availability shall NOT be less than NINETY-NINE percent (99%) during operation hours for any month (excluding scheduled downtime). The proposed system shall not experience more than SEVEN POINT TWO (7.2) hours of system downtime in aggregate for every THIRTY (30) days. This availability requirement precludes the need for a DR site.
- (b) Set-2: System availability shall NOT be less than NINETY-NINE POINT FIVE

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percent (99.5%) during operation hours for any month (excluding scheduled downtime). The proposed system shall not experience more than THREE POINT SIX (3.6) hours of system downtime in aggregate for every THIRTY (30) days. The proposed system shall not experience more than ONE (1) Severity 1 incident in every SIX (6) months.

- 2.7.14 The proposed system is unavailable when users are not able to access the proposed system, intermittent slowness that affects usability, or to declare downtime. This shall include, but not be limited to, incidents falling in the Severity 1 category.
- 2.7.15 The Participating Service Provider shall ensure that all relevant staff are physically onsite at the designated DR location within NINETY (90) minutes upon activation of actual DR.
- 2.7.16 The Participating Service Provider shall ensure that the system is fully restored (including data and services) within ONE (1) hour with no performance degradation in the event of a DR exercise or an actual disaster.
- 2.7.17 The Participating Service Provider shall provide backup data retrieval upon Company's request within TWELVE (12) hours.
- 2.7.18 The Participating Service Provider shall assign a severity level to the incident. In case of disagreement, the Company reserves the right to change the severity level of the incident.
- 2.7.19 SR response and escalation time (when Operations Support Level 1 is provided by the Participating Service Provider):

Service Categories	SR Types	
	BAU SR	Non-BAU SR
SR Response and Escalation Time (when Operations Support Level 1 is provided by the Participating Service Provider): <ul style="list-style-type: none"> <li>- The date and time when the SR is submitted to the Operations Support Level 1 team to the date and time when a response is provided to the requester and SR escalated to the next level of support.</li> </ul>	Within ONE (1) working day	Within THREE (3) working days

### 2.7.20 Non-BAU SR

Service Categories	NON-BAU SR Types		
	Simple	Standard	Complex
Non-BAU SR - Turnaround Time for statement of work assessment period (when Operations Support Level 1 is provided by the Participating Service Provider): <ul style="list-style-type: none"> <li>- The date and time when the non-BAU SR is submitted to the Operations Support Level 1 team to the date and time when the Participating Service Provider submits a practical, comprehensive and complete proposal to the Company for review and approval.</li> <li>- The Participating Service Provider shall note that the</li> </ul>	Within THREE (3) working days	Within FIVE (5) working days	Within TEN (10) working days

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Service Categories	NON-BAU SR Types		
	Simple	Standard	Complex
assessment period includes the Participating Service Provider clarifying on the requirements with the Company.			
<p>Non-BAU SR - Turnaround time for statement of work assessment period (when Operations Support Level 1 is provided by an appointed third party Service Provider):</p> <ul style="list-style-type: none"> <li>- The date and time when the non-BAU SR is submitted to the Participating Service Provider's Operations Support Level 2 and 3 services from the Company's appointed third party Service Provider to the date and time when the Participating Service Provider submits a practical, comprehensive and complete proposal to the Company for review and approval.</li> <li>- The Participating Service Provider shall note that the assessment period includes the Participating Service Provider clarifying on the requirements with the Company.</li> </ul>	Within THREE (3) working days	Within FIVE (5) working days	Within TEN (10) working days

2.7.21 The Participating Service Provider shall ensure that all accepted non-BAU SRs shall be completed and implemented within the specified completion time, based on the estimated man-days required as follows:

Estimated Man-days Effort	Elapsed Completion Time
< = THREE (3) man-days	Within FIVE (5) working days or any other dates as indicated by the Company.
> THREE (3) man-days and <= TEN (10) man-days	Within TEN (10) working days or any other dates as indicated by the Company.
> TEN (10) man-days	Based on mutual agreement between the Participating Service Provider and the Company.

2.7.22 The Participating Service Provider shall note that the SRs shall only be considered as completed after the changes have been tested, successfully migrated to the production environment and when all relevant documentation is prepared / updated, and accepted by the Company.

2.7.23 The Participating Service Provider shall accept that the Company will implement service credits for failing to meet the service levels defined in this document. The Company shall be entitled to service credits based on the computations listed in this document.

### 2.8 Performance Measures

2.8.1 During the Warranty Period and during any period during which the Participating Service

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Provider is required to provide Maintenance Services, the Participating Service Provider shall ensure that the application performance is able to meet or surpass the requirements as specified below.

- 2.8.2 The Participating Service Provider shall meet the response time of the system as stated in the table below. The Participating Service Provider shall note that if the proposed system is unable to meet the performance standards, stated below, resulting in the need to conduct more than additional round(s) of performance tests, the Participating Service Provider shall be held fully accountable for any additional resources, inclusive of software and hardware, that may be required to conduct subsequent round(s) of performance test. In the event of non-compatibilities or system degradation, the Participating Service Provider shall bear the responsibility to propose and implement solution(s) including adding system resources to meet the system requirements. The Participating Service Provider shall bear all the cost for implementing the solution(s) agreed by the Company.

Type of Transaction	Response Time
Login, Logout - From submission of request to the completion of the response.	Shall not exceed TWO (2) seconds for NINETY-FIVE percent (95%) of the time.
Query Transaction	Shall not exceed THREE (3) seconds for NINETY-FIVE percent (95%) of the time.
Update Transaction	Shall not exceed FIVE (5) seconds for NINETY-FIVE percent (95%) of the time.
Online Report generation	Shall not exceed EIGHT (8) seconds for NINETY-FIVE percent (95%) of the time.
Batch Processes	Shall be completed within batch hours (0200 to 0500 hours). The successful rate for batch jobs shall be at NINETY-NINE POINT FIVE percent (99.5%) for each calendar month.

- 2.8.3 The proposed system shall ensure it can support concurrency without degradation of service. Concurrency is defined as distinct users performing some kind of action in the proposed system at the exact same time.
- 2.8.4 Performance is a key requirement for the project. The Participating Service Provider shall propose a performance framework for the proposed system, which shall include, but not be limited to, the following:
- (a) Performance standards and metrics;
  - (b) Performance measurement architecture and design; and
  - (c) Performance management and operational processes.

In addition to the items above, the Participating Service Provider shall list any other requirements and factors that could influence performance of the proposed system.

- 2.8.5 Where the transaction types rely on data from other external systems, the Participating Service Provider shall implement mechanisms in the proposed system to eliminate the performance impact of the external service. Such mechanisms shall be agreed with the Company as part of design review.
- 2.8.6 The proposed system shall log the performance of transactions. The following shall be logged for each eligible transaction:
- (a) Name of transaction;
  - (b) Timestamp representing transaction start (as per the measurement points to be defined in the performance metrics schedule by the Company);
  - (c) Timestamp representing transaction end (as per the measurement points to be

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- defined in the performance metrics schedule by the Company);
- (d) Duration of any external SRs conducted during the transaction, with the name of the service;
- (e) Size of the received and sent data; and
- (f) The proposed system shall support diagnostics logging at varying levels of detail. This is to support system troubleshooting.

The Participating Service Provider shall propose the amount and type of transactions to be collected for the Company's review and approval (e.g. the proposed system may record ONE (1) in every TEN (10) query transactions).

- 2.8.7 When the proposed system is declared unavailable, the logging of performance data shall be suspended and shall not be included in performance reporting.
- 2.8.8 The Participating Service Provider shall provide a performance management solution that proactively identifies and resolves availability and performance problems in the proposed system. It shall at least have the following requirements:
- (a) Ability to measure end-to-end performance including the user experience, and map against the performance metrics defined for response time;
  - (b) Ability to isolate and identify root cause of the performance bottleneck, including infrastructure, system software, database and application;
  - (c) Ability to discover behavioural and performance trends for applications and components; and
  - (d) Integrated reporting that includes key performance indicators, service level objectives, and end-user response times.
- 2.8.9 For the purposes of performance measurement, an external system is defined as a system that is not part of the proposed system.
- 2.8.10 The Participating Service Provider shall perform performance tuning on the production environment such that the performance capability of the environment is fully exploited. The Participating Service Provider shall provide a report of the performance tuning completed in the production environment, that shall minimally contain:
- (a) Reasons/evidence for tuning need;
  - (b) Tuning parameters and justifications; and
  - (c) Measured outcome.
- 2.8.11 The Participating Service Provider shall provide all documentation related to the monitoring of the performance of the proposed system. The documentation shall include but not be limited to the following:
- (a) Application performance (in terms of transaction times);
  - (b) Server performance (CPU load);
  - (c) Network performance; and
  - (d) Any other critical or key components that affects the performance of the proposed system (e.g. middleware such as ESB, managed services such as DDoS, etc.)
- 2.8.12 The Participating Service Provider shall ensure that low priority activities (e.g. batch loads) running during production time shall not impact the user's experience of the proposed system. Any defects raised due to low priority activities impacting the proposed system shall be the responsibility of the Participating Service Provider to fix.
- 2.8.13 The Participating Service Provider shall calculate the bandwidth required to support



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interfaces between the proposed system and external systems. The Participating Service Provider shall then work with the Company and the external system providers to ensure the correct amount of bandwidth capacity is provisioned at the appropriate times.

- 2.8.14 The performance monitoring system shall provide the Company with a service performance breakdown against the agreed service levels on a weekly basis. This shall be rolled up every month into a monthly summary.
- 2.8.15 The principle elements covered by the performance monitoring system reports will include incident, problem and change information.
- 2.8.16 The format of the system performance reports will be broken down into logical groups and are described in **Clauses 2.8.17 to 2.8.35** below.
- 2.8.17 Key Performance Indicators (KPI)
- (a) The Participating Service Provider shall include all agreed KPIs in a management summary. These KPIs shall cover transactional performance plus the availability of the service as measured against the service level requirements defined (refer to **Clause 2.7** above).
- 2.8.18 Satisfaction Surveys / Rating of Satisfaction (the Company)
- (a) Formal structured satisfaction surveys of the Company shall be conducted approximately every SIX (6) months. The Participating Service Provider shall present these to the Company in a standard and agreed format.
- 2.8.19 Service Feedback
- (a) When raised, the Participating Service Provider shall include service feedback from users. For instance, the Company may include service complaints/compliments updates relevant to the Company's action reports. These shall detail the progress and anticipated action schedule.
  - (b) All current service initiatives will be listed along with their status and target implementation dates.
- 2.8.20 Helpdesk Service
- (a) The Participating Service Provider shall provide helpdesk statistics (refer to **Clause 2.4** above).
- 2.8.21 SRs
- (a) The Participating Service Provider shall provide a list of SRs raised and the status of each SR. The report shall include response time from the Participating Service Provider to the Company, and indicators of whether the turnaround time is met.
- 2.8.22 First Time Fix Rate
- (a) The Participating Service Provider shall provide the First Time Fix Rate. This provides a good measure of the quality of service with respect to the number of incidents resolved at First Point of Contact (FPoC) (i.e. the service desk). As a continuous service improvement initiative, knowledge and capability will be passed to the Operations Support Level 1 team to improve their ability to resolve problems independently.

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### 2.8.23 Reported Critical Incidents (Service Failures)

The Participating Service Provider shall provide a list of critical incidents and service failures. These will include all incidents reported and:

- (a) Details of any service failures that remain outstanding at the time of report production; and
- (b) Details of all resolved and closed service failures indicating the relevant fix time.

### 2.8.24 Major Incident Summary

- (a) The Participating Service Provider shall provide a summary of major incidents outlining the actions taken and any input into the Participating Service Provider's Continuous Service Improvement Plan (CSIP).

### 2.8.25 Service Downtime

- (a) The Participating Service Provider shall provide a summary of all planned and unplanned downtime. This will detail the nature of the occurrence.
- (b) Planned downtime information will be correlated to the approved Request For Changes (RFCs) and any appropriate unplanned downtime will be referenced to emergency changes.

### 2.8.26 System Monitoring

- (a) The Participating Service Provider shall provide a summary of incidents captured.
- (b) The Participating Service Provider shall capture system performance information from the components of the proposed system's service.

### 2.8.27 System Performance

- (a) The Participating Service Provider shall provide detailed reporting if the proposed system is performing against the SLAs as defined in **Clause 2.7** above.

### 2.8.28 Availability Calculation

- (a) The Participating Service Provider shall provide availability calculation for all incidents. This enables the availability statistics to be verified by the supporting information from the incident and problem summaries.

### 2.8.29 Service Usage

- (a) The Participating Service Provider shall provide a statistical summary of the service usage trends detailing peak periods and demand.

### 2.8.30 Failure Trends

- (a) The Participating Service Provider shall provide a rolling trend of failures as an addition to service level. These will be correlated to any service deductions that have been applied.

### 2.8.31 Improvement Trends

- (a) The Participating Service Provider shall provide measurements to detail service

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improvements and the opportunities for further improvements.

### **2.8.32 Fault Origination**

- (a) The Participating Service Provider shall provide origins of each fault, classified by the Affiliate where applicable.

### **2.8.33 Incorrect Referrals**

- (a) The Participating Service Provider shall provide the number of incorrect referrals classified by originator.

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### 2.8.34 Incident Type Breakdown

- (a) Incidents will be classified into logical groups for black spot analysis and to help identify common problem areas. The analysis of this data will input into any service improvement plans.

### 2.8.35 Change Control

- (a) The Participating Service Provider shall provide detailed reporting of the changes including, but not limited to the following:
  - (i) Forward schedules of change;
  - (ii) Change scope;
  - (iii) Description;
  - (iv) Impact assessment; and
  - (v) Rollback.
- (b) Several levels of system monitoring shall be undertaken including:
  - (i) Hardware platform;
  - (ii) Operating system;
  - (iii) Application;
  - (iv) Middleware/ interfaces;
  - (v) Database;
  - (vi) Infrastructure; and
  - (vii) Availability and performance shall be measured against the agreed service level standards. This shall be possible using a combination of industry standard and bespoke monitoring solutions to make up the overall monitoring toolkit.

2.8.36 The Company shall be entitled to notify the Participating Service Provider of any aspect of the Participating Service Provider's performance of the services which the responses to the satisfaction surveys suggest need to be improved and the manner and extent of such required improvements.

## 2.9 Service Credits

- 2.9.1 If the Participating Service Provider fails to comply with the system performance, availability and support service levels requirements defined in this document, the Company will be entitled to service credits.
- 2.9.2 The Company may elect either to take a service credit as a payment from the Participating Service Provider or to off-set the service credit against any payments due from the Company to the Participating Service Provider under the relevant agreement.
- 2.9.3 The service credits incurred or payable under each category shall be mutually exclusive and the Company may collect service credits from the Participating Service Provider under one or more categories.
- 2.9.4 If the Participating Service Provider fails to comply with a service level during or after the expiry of the Warranty Period, then the Company will be entitled to the relevant service credits described in the service credit table shown below. For the avoidance of doubt, a reference to "monthly charges" in the table is a reference to fees payable to the Participating Service Provider in each month where such monthly payments are derived either from (a) the Annual Service Charges payable divided by TWELVE (12), or (b) quarterly charges

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divided by THREE (3); or (c) the agreed monthly charges:

*Please refer to the next page.*



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Metrics	Service Level Target	Service Credits Payable
<b>System Performance (Overall)</b>		
Login, Logout	NINETY-FIVE percent (95%) within TWO (2) seconds	1.0 % of the monthly Annual Service Charges for failure to achieve the monthly target
Query Transaction	NINETY-FIVE percent (95%) within THREE (3) seconds	1.0% of the monthly Annual Service Charges for failure to achieve the monthly target
Update Transaction	NINETY-FIVE percent (95%) within FIVE (5) seconds	1.0% of the monthly Annual Service Charges for failure to achieve the monthly target
Online Report Generation	NINETY-FIVE percent (95%) within EIGHT (8) seconds	1.0% of the monthly Annual Service Charges for failure to achieve the monthly target
Batch Processes	NINETY-NINE POINT FIVE percent (99.5%) completed within batch hours (0200 to 0500 hours).	1.0% of the monthly Annual Service Charges for failure to achieve the monthly target
<b>System Availability</b>		
System Availability*	NINETY-NINE POINT NINETY-FIVE percent (99.95%)	<p>&lt;98% availability: 2.4% of the monthly Annual Service Charges for each failure</p> <p>98% ≤ availability &lt; 99%: 1.2% of the monthly Annual Service Charges for each failure</p> <p>99% ≤ availability &lt; 99.95%: 0.6% of the monthly Annual Service Charges for each failure</p>
<b>Support</b>		
Operations Support Level 1 Call Answer	EIGHTY percent (80%) of the calls are answered within FOUR (4) rings for the reporting month	1.25% of the monthly Annual Service Charges for failure to achieve the monthly target
Voicemail Responded Time	All voicemails are responded to within THIRTY (30) minutes.	0.10% of the monthly Annual Service Charges for each failure
All Calls/Activation of Support after Support Hours Response Time	Within THIRTY (30) minutes for all severities	0.3% of the monthly Annual Service Charges for each failure
At least EIGHTY percent (80%) emails received per month by service desk personnel are acknowledged and a ticket is logged in the incident tool within THIRTY (30) minutes.	Within THIRTY (30) minutes for all severities	0.10% of the monthly Annual Service Charges for each failure



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PART 3 SECTION F: SERVICE REQUIREMENTS

Metrics	Service Level Target	Service Credits Payable
<p>Response and Escalation Time:</p> <ul style="list-style-type: none"> <li>- The date and time when the reported issue is received by the Operations Support Level 1 team to the time when a response is provided by the Operations Support Level 1 team to the caller and reported issue escalated to the next level of support. The reported issue to the Operations Support Level 1 team and the response provided by the Operations Support Level 1 team may be communicated through phone calls and email.</li> </ul>	<p><b>Severity 1 and 2:</b> Within THIRTY (30) minutes  <b>Severity 3:</b> Within FOUR (4) hours</p>	<p><b>Severity 1:</b> 0.3% of the monthly Annual Service Charges for each failure  <b>Severity 2:</b> 0.2% of the monthly Annual Service Charges for each failure  <b>Severity 3:</b> 0.1% of the monthly Annual Service Charges for each failure</p>
<p>Interim Fix* (when Operations Support Level 1 is provided by the Participating Service Provider):</p> <ul style="list-style-type: none"> <li>- The date and time when the reported issue is received by the Operations Support Level 1 team to the time when a workaround / a temporary solution / a permanent solution is accepted by the Company and implemented in production by the Participating Service Provider. It shall exclude manual workaround or non-usage of the function.</li> </ul>	<p><b>Severity 1:</b> Within FOUR (4) hours  <b>Severity 2:</b> Within EIGHT (8) hours  <b>Severity 3:</b> Within THREE (3) working days</p>	<p><b>Severity 1:</b> 0.4% of the monthly Annual Service Charges for each failure  <b>Severity 2:</b> 0.3% of the monthly Annual Service Charges for each failure  <b>Severity 3:</b> 0.2% of the monthly Annual Service Charges for each failure</p>
<p>Interim Fix* (when Operations Support Level 1 is provided by an appointed third party Service Provider):</p> <ul style="list-style-type: none"> <li>- The date and time when the reported issue is received by the Participating Service Provider's Operations Support Level 2 and 3 services from the Company's appointed third party Service Provider to the time when a workaround / a temporary solution / a permanent solution is accepted by the Company and implemented in production by the Participating Service Provider. It shall exclude manual workaround or non-usage of the function.</li> </ul>	<p><b>Severity 1:</b> Within FOUR (4) hours  <b>Severity 2:</b> Within EIGHT (8) hours  <b>Severity 3:</b> Within THREE (3) working days</p>	<p><b>Severity 1:</b> 0.4% of the monthly Annual Service Charges for each failure  <b>Severity 2:</b> 0.3% of the monthly Annual Service Charges for each failure  <b>Severity 3:</b> 0.2% of the monthly Annual Service Charges for each failure</p>



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PART 3 SECTION F: SERVICE REQUIREMENTS

Metrics	Service Level Target	Service Credits Payable
<p>Permanent Fix* (when Operations Support Level 1 is provided by the Participating Service Provider):</p> <ul style="list-style-type: none"> <li>- The date and time when the reported issue is received by the Operations Support Level 1 team to the time when a permanent solution is accepted by the Company and implemented in production by the Participating Service Provider. Root cause analysis and permanent resolution will be required for all incidents that were initially resolved with a workaround or a temporary solution.</li> </ul>	<p><b>Severity 1:</b> Within TWENTY-FOUR (24) hours  <b>Severity 2:</b> Within FORTY-EIGHT (48) hours  <b>Severity 3:</b> Within FIVE (5) working days</p>	<p><b>Severity 1:</b> 0.3% of the monthly Annual Service Charges for each failure  <b>Severity 2:</b> 0.2% of the monthly Annual Service Charges for each failure  <b>Severity 3:</b> 0.1% of the monthly Annual Service Charges for each failure</p>
<p>Permanent Fix* (when Operations Support Level 1 is provided by an appointed third party Service Provider):</p> <ul style="list-style-type: none"> <li>- The date and time when the reported issue is received by the Participating Service Provider's Operations Support Level 2 and 3 services from the Company's appointed third party Service Provider to the time when a permanent solution is accepted by the Company and implemented in production by the Participating Service Provider. Root cause analysis and permanent resolution will be required for all incidents that were initially resolved with a workaround or a temporary solution.</li> </ul>	<p><b>Severity 1:</b> Within TWENTY-FOUR (24) hours  <b>Severity 2:</b> Within FORTY-EIGHT (48) hours  <b>Severity 3:</b> Within FIVE (5) working days</p>	<p><b>Severity 1:</b> 0.3% of the monthly Annual Service Charges for each failure  <b>Severity 2:</b> 0.2% of the monthly Annual Service Charges for each failure  <b>Severity 3:</b> 0.1% of the monthly Annual Service Charges for each failure</p>
<p>Assessment Period (when Operations Support Level 1 is provided by the Participating Service Provider):</p> <ul style="list-style-type: none"> <li>- The date and time when the non-BAU SR is submitted to the Operations Support Level 1 team to the date and time when the Participating Service Provider submits a practical, comprehensive and complete proposal to the Company for review and approval.</li> <li>- The Participating Service Provider shall note that the assessment period includes the Participating Service Provider clarifying on the requirements with the Company.</li> </ul>	<p><b>Standard SR:</b> Within THREE (3) working days  <b>Normal SR:</b> Within FIVE (5) working days  <b>Complex SR:</b> Within TEN (10) working days</p>	<p>0.25% of the monthly Annual Service Charges for each failure</p>





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Metrics	Service Level Target	Service Credits Payable
<p>Assessment Period (when Operations Support Level 1 is provided by an appointed third party Service Provider):</p> <ul style="list-style-type: none"> <li>- The date and time when the non-BAU SR is submitted to the Participating Service Provider's Operations Support Level 2 and 3 services from the Company's appointed third party Service Provider to the date and time when the Participating Service Provider submits a practical, comprehensive and complete proposal to the Company for review and approval.</li> <li>- The Participating Service Provider shall note that the assessment period includes the Participating Service Provider clarifying on the requirements with the Company.</li> </ul>	<p><b>Standard SR:</b> Within THREE (3) working days  <b>Normal SR:</b> Within FIVE (5) working days  <b>Complex SR:</b> Within TEN (10) working days</p>	<p>0.25% of the monthly Annual Service Charges for each failure</p>
<p>Elapsed Completion Time</p> <ul style="list-style-type: none"> <li>- The elapsed completion Time shall be the date and time when the non-BAU SR is approved to the date and time when the changes have been tested, successfully migrated to production and when all relevant documentation is prepared / updated and accepted by the Company.</li> </ul>	<p><b>&lt; = THREE (3) man-days:</b> Within FIVE (5) working days or any other dates as indicated by the Company.  <b>&gt; THREE (3) man-days and &lt;= TEN (10) man-days:</b> Within TEN (10) working days or any other dates as indicated by the Company.  <b>&gt; TEN (10) man-days:</b> Based on mutual agreement between the Participating Service Provider and the Company.</p>	<p>0.25% of the monthly Annual Service Charges for each failure</p>

\*Metrics for Systems Availability, Interim Fix and Permanent Fix shall be subject to a minimum of S\$5,000 service credits payable for each failure.

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2.9.5 For the avoidance of doubt, the service credit table as shown in **Clause 2.9.4** above is equally applicable during the Warranty Period, save that during the Warranty Period, the quantum of the service credits shall be computed based on the monthly charges (as defined in **Clause 2.9.4** above) that is forecasted for the first year of **Integrated System Maintenance Services/Maintenance Services**.

**3 KEY PERFORMANCE INDICATORS**

3.1 The following table is an SLA compliance guide.

<b>Indicators</b>	<b>Target per Month</b>
Change Request – Assessment Turnaround Time	Refer to <b>Clause 1.2</b> above
Change Request – Completion Turnaround Time	Refer to <b>Clause 1.3.1</b> above
Operations – Service Performance	Refer to <b>Clause 2.1</b> above
Operations – System Performance	Refer to <b>Clause 2.1</b> above

*Table: SLA Compliance*

3.2 The Participating Service Provider shall provide the Company with monthly reports on performance metrics.