



Telecommunications Consultants India Ltd.
(A Govt. of India
Enterprise) Greater Kailash-I
New Delhi- 110048 (India)
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TENDER No. TCIL/DT/e-Gov/2025/HSHRC

Date 19.03.2025

CORRIGENDUM 13 TO TENDER

Name of Item : Selection of Consortium Partner for Operations and Maintenance of Hospital Management Information System (HMIS) e-Upchaar for Haryana State Health Resource Center (HSHRC)

Last date & time for Online submission of Bids: [02/04/2025], [11:00 Hrs]

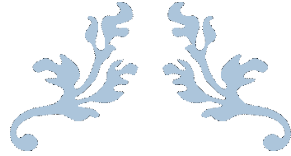
Online Opening of Technical Bid (Part-I): [02/04/2025], [12:00 Hrs]

Online Opening of Financial Bid (Part-II): To be notified later

- Subject to the extension from Client tender.

All other terms & conditions of this EoI shall remain same.

**Telecommunications consultants
India Ltd. TCIL Bhawan, Greater
Kailash-I,
New Delhi-110048.**



Operations & Maintenance of Hospital Management Information System (HMIS): e-Upchaar

Request for Proposal- Volume 1



AUGUST 13, 2024

HARYANA STATE HEALTH RESOURCE CENTRE

State Institute of Health & Family Welfare Campus, Sector-6, Panchkula

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Abbreviations

S. No.	Abbreviation	Explanation
1	ABDM	Ayushman Bharat Digital Mission
2	ACID	Atomicity, Consistency, Isolation, Durability
3	ADT	Admission Discharge Transfer
4	AI	Artificial Intelligence
5	AMC	Annual Maintenance Contract
6	APHC	Additional Primary Health Centre
7	API	Application Programming Interface
8	ATS	Annual Technical Support
9	HIS	Haryana Health information system
10	BoM	Bill of Material
11	CA	Chartered Accountant
12	CDN	Content Delivery Network
13	CERT	Computer Emergency Response Team
14	CHC	Community Health Centre
15	CMMi	Capability Maturity Model Integration
16	COTS	Commercial-Off-The-Shelf
17	CS	Civil Surgeon
18	CSSD	Central Sterile Supply Department
19	DH	District Hospital
20	DSC	Digital Signature Certificate
21	DWH	Data Warehouse
22	EMD	Earnest Money Deposit
23	EMR	Electronic Medical Record
24	ERP	Enterprise Resource Planning
25	ETL	Extract, Transform and Load
26	FAQ	Frequently Asked Question
27	FTP	File Transfer Protocol
28	Goh	Government of Haryana Health
29	GST	Goods and Services Tax
30	HIMS	Hospital Information Management System
31	HIU	Health Information User
32	HSC	Health Sub Centre

33	HWC	Health Wellness Centre
34	ICD	International Classification of Diseases
35	ICT	Information and Communication Technology
36	ICU	Intensive Care Unit
37	IEC	International Electro technical Commission
38	INR	Indian Rupee
39	IPD	In Patient Department
40	ISO	International Organization of Standards
41	IT	Information Technology
42	ITES	Information Technology Enabled Services
43	LLP	Limited Liability Partnership
44	MeitY	Ministry of Electronics and Information Technology
45	MIS	Management Information System
46	MSA	Measurement System Analysis
47	MSP	Managed Service Provider
48	NDHB	National Digital Health Blueprint
49	NEFT	National Electronic Fund Transfer
50	NGO	Non-Government Organization
51	NIB	Notice Inviting Bid
52	OCR	Optical Character Recognition
53	OEM	Original Equipment Manufacturer
54	OPD	Out Patient Department
55	OSS	Operations Support System
56	OT	Operation Theatre
57	OWASP	Open Web Application Security Project
58	PACS	Picture Archiving and Communication System
59	PBG	Performance Bank Guarantee
60	PDF	Portable Document Format
61	PHC	Primary Health Centre
62	PM-JAY	Pradhan Mantri Jan Arogya Yojana
63	PMU	Programme Management Unit
64	PQ	Pre-Qualification
65	PSU	Public Sector Undertaking
66	RFP	Request for Proposal
67	RH	Referral Hospital

68	RIS	Radiology Information System
69	RTGS	Real Time Gross Settlement
70	SCM	Supply Chain Management
71	SDH	Sub Divisional Hospital
72	SEO	Search Engine Optimization
73	SHS	State Health Society
74	SIHFW	State Institute of Health and Family Welfare
75	SLA	Service Level Agreement
76	SMS	Short Message Service
77	SNOMED	Systemized Nomenclature of Medicine
78	SOA	Service Oriented Architecture
79	SRS	Software Requirement Specification
80	STQC	Standardization Testing and Quality Certification
81	TLS	Transport Layer Security
82	UAT	User Acceptance Test
83	UDIN	Unique Document Identification Number
84	UI	User Interface
85	UX	User Experience
86	VPN	Virtual Private Network
87	DVDMS	Drugs and Vaccine Distribution Management System

Chapter 1: Introduction

Chapter 1 *Introduction*

Health department, Haryana is constantly guided by the W.H.O definition of Health which states that “Health is a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity”.

Government of Haryana is committed to provide quality health care to all its citizens. Health department has been constantly upgrading itself in terms of infrastructure, human resource, drugs, equipment etc. Haryana Health Department is responding to the health needs of all categories of population including infants, children, adolescents, mothers, eligible couples and the elderly in addition to the sick and trauma victims. Also, there is a constant endeavour to keep communicable and non-communicable diseases in check and to have strong systems of recording, reporting, evaluating and planning.

The departments’ aim is to improve the quality of life of people by providing better Health Services. Health department, Haryana strives to help people improve their productivity and reduce risks of diseases and injury in a cost-effective way. The department is guided by the W.H.O principle of Universal Health “Ensuring that all people have access to needed promotive, preventive, curative and rehabilitative health services, of sufficient quality to be effective, while also ensuring that people do not suffer financial hardship when paying for these services”.

The ultimate function of the department is to provide adequate, accessible, equitable, quality healthcare services to all leading to the reduction of out of pocket expenditure on health of a common man.

1.1 Haryana State Health Resource Centre

The Haryana State Health Resource Centre (HSHRC) came into existence on 22nd May 2012. HSHRC primarily acts as an autonomous and independent body to advise the Govt. of Haryana for strategic planning and development of Health & Family Welfare services in Haryana, which include Health planning, implementation, monitoring and evaluation of policies and programmes in the State. It creates expertise and information and develops capacities of organization in the State and districts for this purpose. The goal of the organization is to contribute and strengthen all the efforts directed towards universal access to health care

1.1.1 Objectives of new Tender

Haryana State Health Resource Centre is looking forward to implement its Health Management Information System (HMIS) across all its facilities. The Department invites SI/MSPs in form of System Integrators/ HMIS ISV’s or a consortium of both of them for Transition of the already-implemented HIS from the incumbent System Integrator to the chosen new SI with full knowledge transfer and source code transfer such that the new SI does Operations & Maintenance (O&M) of the incumbent-provided HIS as is as part of their phase one engagement and later provide enhancements for defined outcomes of the

department.

It may be noted that as part of this project, during the first phase, we expect the incoming team (SI/ISV or Consortium) to move the current HMIS to a MeitY empaneled CSP environment and provision access to the same from anywhere (internet facing as well as intranet facing). We don't expect any changes to be made to the overall architecture of the application, which also means that the deployments at remote sites should remain as is for minimal disruption of operations. After the successful transition of the system to the new environment and the completion of the knowledge transfer phase, the next phase should follow. However, it may be noted that the Department would like to be ready with the infrastructure required for all the phases, hence we are proposing to onboard the partner (SI/ISV or Consortium) as well as the infrastructure provider (CSP). While the RFP calls out the intent of usage of advance services in the future, for the decision-making process of the RFP including price discovery, an indicative BOQ has been identified. The stated BOQ is only indicative based on HSHRC'S current vision and objective which may go through modifications at a later stage.

This document also gives an overview of the current deployment and the expected functional and technical specifications going forward.

1.1.2 Project Objectives

The objective of this project is to implement a state-of-the-art ICT enabled Hospital Information System (HIS) in order to improve productivity of the State Health Department and the state hospitals / health institutions, thereby improving public health services and bring administrative efficiency in the entire healthcare system.

The state envisages meeting the following key objectives:

- i. Unique ID patients and availability of EHR across all facilities in the State
- ii. Reduction in patient waiting time, efficient queue management
- iii. Improve services availability to patients
- iv. Simplification and automation of manual processes
- v. Transparency and availability of information related to services
- vi. Efficient grievance redressal mechanism
- vii. Optimal utilization of infrastructure, equipment, facilities, HR, drugs & Consumables
- viii. Integration with external applications, programmes and schemes
- ix. Real-time reporting, efficient analytics and decision support

1.1.3 Project Timelines

As mentioned, HSHRC expects the project to be executed in majorly two phases as indicated below. The activities mentioned are indicative activities to be completed in the said phase across a period of 3 years.



RFP decision		
Onboarding of new partner (SI/ or Consortium)	7 Months	
	Migration of current HMIS, Run and Stabilize system, includes 7 months Knowledge Transfer period from Optum, Optum will continue to manage of On-prem environment and respective workforce, ABDM Level 3 Completion, establish a Data Lake to ingest data from current sources and Introduction of identified KPI Dashboards.	Post 7 Months till a total of 3 years
		Introduction of Advance Tech like IOT, AI/ML, Tele Consultation, Tele Radiology including Gen AI based on SOW decided in course of time

In case the initial phase of 7 months is required to be extended because of any unforeseen challenges, the department reserves the right to extend this phase further.

1.1.4 Haryana Health Profile and Administrative structure

The state level organization comprises of the following administrative wings:

- HEALTH DIRECTORATE:** Headed by the DGHS. It is responsible for administrating the public health system in the state. Below is the bifurcation of different tier of Hospitals. It is important to mention that smaller facilities are upgraded to increase their scope during the course and more healthcare facilities are being opened to include in the scope of services

Type of hospital	No. of hospitals
District Hospital (DH)	22
Sub District Hospital/Civil Hospital	50
Medical colleges	5
Community Health Centre	123
Primary Health Centre	409
Dispensaries	30
Polyclinics	13
Urban Primary Health Centre	108
Urban Health Centres	11
Health & Wellness centre (approximately)	1500
Grand Total	2271

2. **HARYANA STATE HEALTH RESOURCE CENTRE:** The executive committee is headed by the Principal Secretary Health and member secretary is the EXECUTIVE DIRECTOR, HSHRC. HSHRC is the implementing agency from the govt. side for this project.
3. **NHM, HARYANA.** The executive committee is headed by the Additional Chief Secretary Health and member secretary is the MD, NHM. The NHM was started in 2005 as a GOI sponsored programme for Health System strengthening, improve health indicators, disease control and inter-sector convergence.
4. **DEPARTMENT OF MEDICAL EDUCATION & RESEARCH:** Carries out function of Medical Education and provides tertiary health care facilities. Currently there are 5 Govt. Medical Colleges in Haryana viz and many new projects are in pipeline and likely to be in place
- PGIMS, Rohtak
 - BPS Govt. Medical College for Women, Khanpur Kalan, Sonipat
 - SHKM, Govt Medical College, Nalhar, Mewat
 - Kalpna Chawla Govt Medical College, Karnal
 - Shri Atal Bihari Vajpayee, Govt Medical College, Chhainsa, Faridabad
- More medical colleges are in the pipeline for implementation
5. **DIRECTORATE OF AYUSH:** Directorate is responsible to emphasize the role of AYUSH in Public Health as per NHP 2017. Its vision is to establish a holistic wellness model through AYUSH Health and Wellness Centres focusing on preventive and promotive health care based on AYUSH principles and practices, to reduce the disease burden and out of pocket expenditure.

A. STATE		No.
(a)	Govt. Institute of Indian System of Medicine and Research, Panchkula	01
(b)	Hospitals	
(i)	100 bedded Ayurvedic Hospital attached with Shri Krishna Govt. Ayurvedic College, Kurukshetra. Now merged with Shri Krishna AYUSH University (Already Implemented)	1
(ii)	25 bedded Ayurvedic Hospital at Bhiwani.	1
(iii)	10 bedded Ayurvedic Hospital, Imlota (Bhiwani)	1
(iv)	10 bedded Unani Hospital, Sihol (Palwal)	1
(v)	100 bedded Govt. Ayurvedic Hospital, Pattikara (Narnaul)	1
(vi)	50 bedded integrated AYUSH Hospital, Mayyer, Hisar	1

(vii)	25 bedded Govt. Homeopathic Hospital, Village Chandpura, Ambala	1
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Chapter 2: Scope of work

Chapter 2 Scope of Work

This chapter summarizes the overall scope of work that needs to be executed by the selected Implementation Agency.

A **Hospital information system (HIS)** is envisaged to be a comprehensive, integrated information system designed to manage overall functioning of a government healthcare institution including patient care, hospital administration and the corresponding service processing.

2.1 Project Requirements

The RFP envisages the following components of work to be executed by a competent Implementation Agency in order to fulfill the objectives of the Hospital Information System:

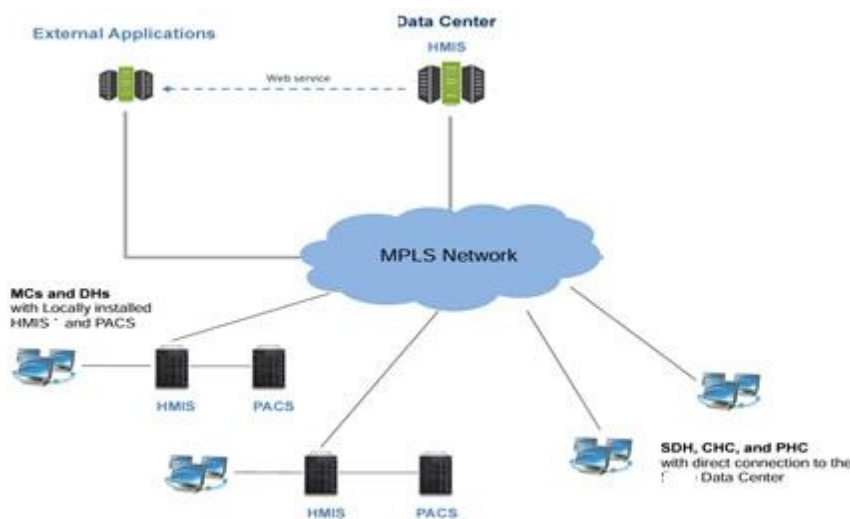
1. Migrating the existing HMIS to new internet facing environment
2. Supply, installation, configuration, customization, integration, of Hospital Information System (HIS) together with the necessary database and other software
3. Implementation of HIS according to the reference architecture, performance metrics, acceptance criteria's and conformance to industry standards including its testing and certification
4. Installation, configuration and commissioning of central servers for hosting the HIS solution at Data Centre. Facilitate HSHRC in provisioning of redundant broadband connectivity. Procurement Installation, configuration and commissioning of end user computing infrastructure at the project locations comprising of, system software, application software and any other software including necessary site preparation of hospital facilities considered for implementation
5. Operation and Maintenance of the entire HIS Solution including Application and data Centre services, for a period of 3 years
6. Change Management and Capacity Building including Training of users for effectively using the system
7. Adherence to Implementation Plan and Project Governance Structure

2.2 Detailed Description of Activities

2.2.1 Migrating the existing HMIS to new internet facing environment

The Bidder will be responsible for the successful migration, and maintenance of the Haryana Hospital Management Information System (HMIS) e-Upchaar. The objective is to migrate the existing health data and systems from on-premises infrastructure to a modern, integrated digital solution leveraging Cloud services to enhance scalability, reliability, and security.

A high-level architecture of the current HMIS System is provided below:



The scope of work encompasses several phases, including planning, assessment, migration, testing, maintenance and modernization.

1. HMIS Core Application and Modules
2. HMIS Backend Modules
3. Application Admin (User Management & Security)
4. MIS Reporting
5. Integration services
6. Advance analytics / Business Intelligence
7. Helpdesk support / Incident Management services

2.2.2 Compliance to Standards

- a. The IA must ensure that the HIS technology components adhere to flexibility, interoperability, usability, availability, manageability, security and integration standards
- b. The IA shall ensure adherence to all relevant e-gov standards defined by Government of India (GoI) from time to time

2.2.3 Deployment Architecture

The IA shall ensure the deployment of management and monitoring tools like Project Management, Application Performance Monitoring, version control

(software as well as document), bugs tracking tools. The IA shall facilitate HSHRC in deployment of servers and commissioning of core HIS application and HIS Lite application at the data center and end-user environment respectively. The deployment of HIS application shall follow and comply to the contemporary principles of Information Security Management System (ISMS) i.e. ISO 27001

2.2.4 Testing and Hosting

- a. The IA shall conduct all tests as a part of standard Software Testing Life Cycle (STLC)
- b. The IA shall facilitate HSHRC or its nominated agencies to conduct a User Acceptance Testing, Application Security testing (vulnerability testing and penetration testing) and Infrastructure Security
- c. The IA shall host the HIS solution at the facility finalized by HSHRC

2.2.5 Installation, configuration and commissioning of central servers for hosting the HIS solution at Data Centre. Facilitate HSHRC in provisioning of redundant broadband connectivity. Procurement Installation, configuration and commissioning of end user computing infrastructure at the project locations comprising of all application software and any other software including necessary site preparation of hospital facilities considered for implementation

- a. The IA shall be responsible for Installation, configuration and commissioning of central servers for hosting the HIS solution at Data Centre
- b. The IA shall be responsible for facilitating HSHRC in estimation of Bandwidth for successful implementation of project.
- c. The IA shall be responsible for Procurement Installation, configuration and commissioning of end user computing infrastructure at the project locations comprising of all system software, application software and any other software including necessary site preparation of hospital facilities considered for implementation

2.2.6 Operation and Maintenance of the entire HIS Solution including Application and Data center Services for a period of 3 Years (three) years

- a. The IA must also deploy a minimum of one resource each at District Hospital and Medical College, to provide handholding support to the users at these locations according to the implementation schedule. The resource deployment plan to be discussed and freeze.
- b. During the operational and maintenance support, the IA should:
 - i. Ensure that all necessary measures are taken for the smooth operation of the HIS system
 - ii. Ensure that designated personnel from HSHRC support team are duly prepared and groomed in a progressive manner so as to operate the system on their own, with a view to eventually takeover operations at the end of contractual term
 - iii. Ensure that all necessary know-how is transferred to HSHRC support team in an effective manner to facilitate a smooth

transition. The transition plan will need to be agreed between the IA and HSHRC

- iv. Ensure adherence to baseline performance SLA matrix as defined

2.2.7 Change Management and Capacity Building including Training of users for effectively using the system

- a. The IA shall impart training to hospital staff and other key stakeholders on the usage and maintenance of the HIS application
- b. HSHRC has come out with an indicative list of training modules and user groups.
- c. The IA shall provide a change management plan to HSHRC which addresses the various aspects of capacity building and training
- d. The IA shall propose different training modules for different user profiles at appropriate timelines
- e. The IA shall provide such additional training as they deem necessary in order to ensure that the training imparted is comprehensive, complete and meets the Service Level Agreement as mentioned in the RFP
- f. The IA must also prepare Training Modules/content to enable the users for self-learning.
- g. The training material prepared will be owned by the HSHRC

2.2.8 Adherence to Implementation Plan and Project Governance Structure

- a. The IA must ensure phase wise implementation of HIS solution at different project locations as defined in the RFP
- b. The IA shall adhere to roles and responsibilities as defined in the RFP but not limited to with respect to design, development/customization, implementation as well as operations and maintenance of HIS solution across all project locations in the State.
- c. The IA must conform to the defined institutional mechanism for project review and monitoring including risk management during the entire contractual period
- d. The IA shall maintain all documentation related to HIS project including software artifacts with adequate traceability matrix and version control

Chapter 3

Stakeholders: Roles & Responsibilities

Chapter 3 Stakeholders: Roles & Responsibilities

A clear definition of the roles and responsibilities of all the stakeholders in a project establishes transparency, accountability, manageability and efficiency in the project.

3.1 Stakeholders

Following will be the key stakeholders involved during the implementation phase of the HIS project:

1. **DGHS:** The DGHS will be the ultimate owner of the HIS project and will primarily be responsible for providing strategic directions during implementation phases and will act as the final decision authority for key decisions / deliverables. It will also be responsible for framing and issuing Guidelines to the State Administration for implementation of project during the Pilot and State-wide roll out phases.
2. **HSHRC:** On behalf of the ultimate owner of the Project as well as with its assistance and coordination, the role of HSHRC in the successful implementation of the project includes discharging the following responsibilities as a nodal agency on day to day basis:
 - a. Setting up of a State Project Committee (SPC) for overseeing the implementation of the Project
 - b. Provide technical assistance to the State for effective implementation of the project
 - c. Provide support for organizational capacity building initiatives
 - d. Defining service levels for identified services, ensuring service level adherence, implementation and sustainability of the project and subsequent state wide rollout
 - e. Driver for policy, regulatory and other relevant changes
 - f. Providing State Financial Support as per the project report
 - g. Support to the Implementation Agency (IA) with respect to Infrastructure setup
 - h. Take an appropriate decision on the mode and degree of integration of 'HIS' application with the other Government Schemes and existing physical, digital and institutional infrastructure of various Government Departments, as required
 - i. Decide upon the State wide rollout based upon common software, approach and financial model following the completion of the pilot project
 - j. Provide commitment and support to bring-in the process changes
 - k. Work closely with the implementation agency to undertake the field work, comprehend the requirements, document the observations, oversee preparation of roadmap, develop/customize application as per proposed re-engineered processes, etc.

- l. Help build capacity for the Hospital staff and executive resources of Health administration so that they can work closely with the technical solution provider for developing / customizing the software, and implement the technical solution as required
 - m. To manage, supervise and implement backend computerization of Hospitals with long term vision of Health Department of the State
 - n. Coordinate, manage & monitor the receipt and utilization of financial support
 - o. Coordinate and facilitate interactions between the project implementation partners/other stakeholders, State Government Departments, and Central Administration, as necessary
 - p. Central Project Team - The Central Project team will be headed by the nominated Project Director. It will consist of the Officials of HSHRC and the Program Management Unit. This team will be the nodal point for this project and will be responsible for making key decisions, policy matters, vendor evaluation and monitoring the overall direction of the project. The Committee will play a major role in successful implementation of the project at the field level
 - q. Any breach or misuse of Hospital infrastructure other than entitled ones, should be an obligation to HSHRC and Hospital Administrators also
 - r. The change requests, if any, should be carried out by the IA as per defined Change Control Procedure. The project committee or HSHRC will provide the requirements for the change requests and decide the penalty for non-compliance as mentioned in the Service Levels for Change Requests. The decision of HSHRC on all such matters will be final and binding on the IA
 - s. Ensure that there is no unauthorized access at any of the restricted areas defined by the IA at any of the Hospital facilities / location, without prior information and without maintaining a proper log
- 3. DMER:** The medical colleges where in e-Upchaar is already implemented fall under the purview of Department of Medical Education & Research.
- 4. DG AYUSH :** The AYUSH health facilities are looked after by the AYUSH department
- 5. Project Management Unit / Team:** The Project Management team shall work with HSHRC and the Selected IA on day-to-day management of the project. The PMU will also be responsible for coordination with DGHS on key strategic issues and decisions. The responsibilities of Project Management Team will include but not be limited to the following:
- a. Prepare the Project Reports and proposal vetting
 - b. Provide project management services
 - c. Support HSHRC in monitoring the implementation of the project
 - d. Provide continuity (from the concept stage) during implementation of the project
 - e. Provide support to the Hospitals and its field units in their discussions with the selected IA

- f. Provide guidance and clarifications to the selected IA
 - g. Project management, monitoring and evaluation after selection of the IA to ensure adherence to the project timelines and requirements
 - h. Periodic SLA monitoring of the system deployed by the IA
 - i. Periodic review of project plans and progress and advise HSHRC and the Hospital Teams
 - j. Track project issues and risks and advise HSHRC on mitigation measures
 - k. Review of software requirement specifications, system design, hardware sizing/Scrutiny of deliverables for their compliance with Scope specifications
 - l. Review content, methodology and other documentation for user training
 - m. Provide support to HSHRC and the selected IA in the change management initiatives and training programs
 - n. Review and monitor data digitization / migration plans and their implementation, if any
 - o. Review the technical documentation provided by the selected IA and ensuring that it conforms to the standards
 - p. Support HSHRC in acceptance testing and certification
 - q. Organize weekly/fortnightly review meetings to review functionality issues and progress of project. The frequency of meetings will be intimated by the Project Management Team in consideration of requirements of the project. The project management team would prepare the minutes of the review meetings mentioning the issues discussed, decisions taken on them and appropriate level at which these require being resolved
 - r. Support HSHRC in popularizing the project initiatives through a media plan for encouraging citizen, and other users to access the various channels for availing services
 - s. Inspection of the entire infrastructure (UPS, switches, Server, other facility requirements etc.) provided by the IA twice a year at all the specified locations and provide reports for corrective actions wherever gaps are observed
 - t. Periodic inspection of back-ups, storage, DMS, and other systems, at least twice a year
 - u. Physical monitoring of data centers in Hospitals and report to HSHRC
 - v. Validation and approval of configuration and monitoring parameters
- 3 **Implementing Agency:** The detailed scope of work and responsibilities for the selected IA are discussed in earlier sections of this document. In addition to these roles and responsibilities, the responsibilities of the selected IA will include but will not be limited to the following:
- a. Designing System Requirement Specification (SRS), and other technical documents / reports
 - b. Development of UAT procedures and test cases

- c. Conduct User Training
- d. Rollout in various locations, first during pilot phase and then across the state as decided by HSHRC
- e. Interface with external applications and delivery channels for to and fro seamless flow of data / information
- f. Develop the Application Software based on the requirements specified
- g. Procure and Implement the Infrastructure (Software and Hardware) for the project as per specified requirements
- h. Configure the solution to facilitate access to the application from all the identified locations / users
- i. Provide application software and IT infrastructure maintenance support, as decided by HSHRC
- j. Work in close coordination with HSHRC, Project Management Team and other stakeholders for this project; and provide periodic reports
- k. Carry out the activities as indicated in the contract agreement and submit all the mentioned deliverables within the stipulated time-frame
- l. Ensure that the time lines will be adhered to and take necessary actions to mitigate any slippage in timelines and risks envisaged. Communicate with HSHRC accordingly
- m. Ensure compliance with the project SLAs. IA shall make available all the application related to the HSHRC at the time of User Acceptance Testing (UAT)
- n. Submit hardcopies and softcopies of all the deliverables other than source code to HSHRC as per timelines specified in contract agreement. Application Code may be shared as Soft Copy only
- o. All the recommendations mentioned as a result of IT Security Review, Architecture Review, code review etc. must be implemented by the IA. IA must highlight the issues with appropriate facts and figures to suggest an alternative but equally viable solution and implementation plan as applicable
- p. It is a necessary requirement that the IA should implement a version control tool to record each and every version of the software application release, as well as ensure that all security measures are in place to secure the data, code or functionality and nothing is changed after UAT phase
- q. Any change notified to HSHRC from the UAT phase till deployment on the production environment will be treated as breach of contract and HSHRC will take all necessary action within its jurisdiction, even leading to termination of contract
- r. The change requests should be carried out as per the defined Change Request Procedure and directions of HSHRC
- s. Conduct detail survey of all locations across the state and assess the hardware, networking devices, software, any other infrastructure components and prepare a comprehensive inventory list before Go-Live

- t. While proposing the exact number of PC's and other auxiliary components, taking into consideration the re-usage of existing hardware, ensure that any device or hardware component which is equal to or more than four years old is totally discarded. All the devices and hardware components which are less than four years old are upgraded as required. All the devices & hardware components which are less than one year old and which are in perfect working condition is accounted in the final sizing

3.2 Documentation and Versioning

The IA must ensure that complete documentation of HIS Project is provided with comprehensive user manuals, and adhere to standard methodologies in software development as per ISO standard and/or CMM models. The following documents are the minimum requirements:

1. System Requirement Specifications and Solution Design Document
2. Traceability Matrix document
3. Communication Plan listing all stakeholders in the project, defining their roles and responsibilities
4. All Architecture documents, Design documents and, testing and deployment manuals, non-functional requirements etc.
5. Quality Assurance Plan (not methodology) stating the planned actions to ensure satisfactory delivery conforming to functional and technical requirements of HIS project
6. Interface Control Document, documenting the interface characteristics of one or more systems and any previously documented information together with any agreements between interface owners.
7. Test Plan containing information on the software test environment to be used for independent testing, the test cases to be performed, and the overall testing schedule. This includes, schedule, resources, tools, procedures, environment definition, test cases, and software test results
8. Operations Manual providing instructions for installing the application, troubleshooting, interpreting message logs, and FAQs (Frequently Asked Questions)
9. User Manual (online or downloadable content) providing detailed instructions in the form of a narrative on how to use the software. In addition, it shall describe how to access, submit inputs to, and interpret outputs from the application
10. A data dictionary listing out all the data elements shall be prepared
11. Minutes of Meeting, Agenda, Proceedings and tracking of decisions during the entire implementation period
12. All the documents including, but not limited to the above shall be submitted to HSHRC for sign-off

Chapter 4

Business functions

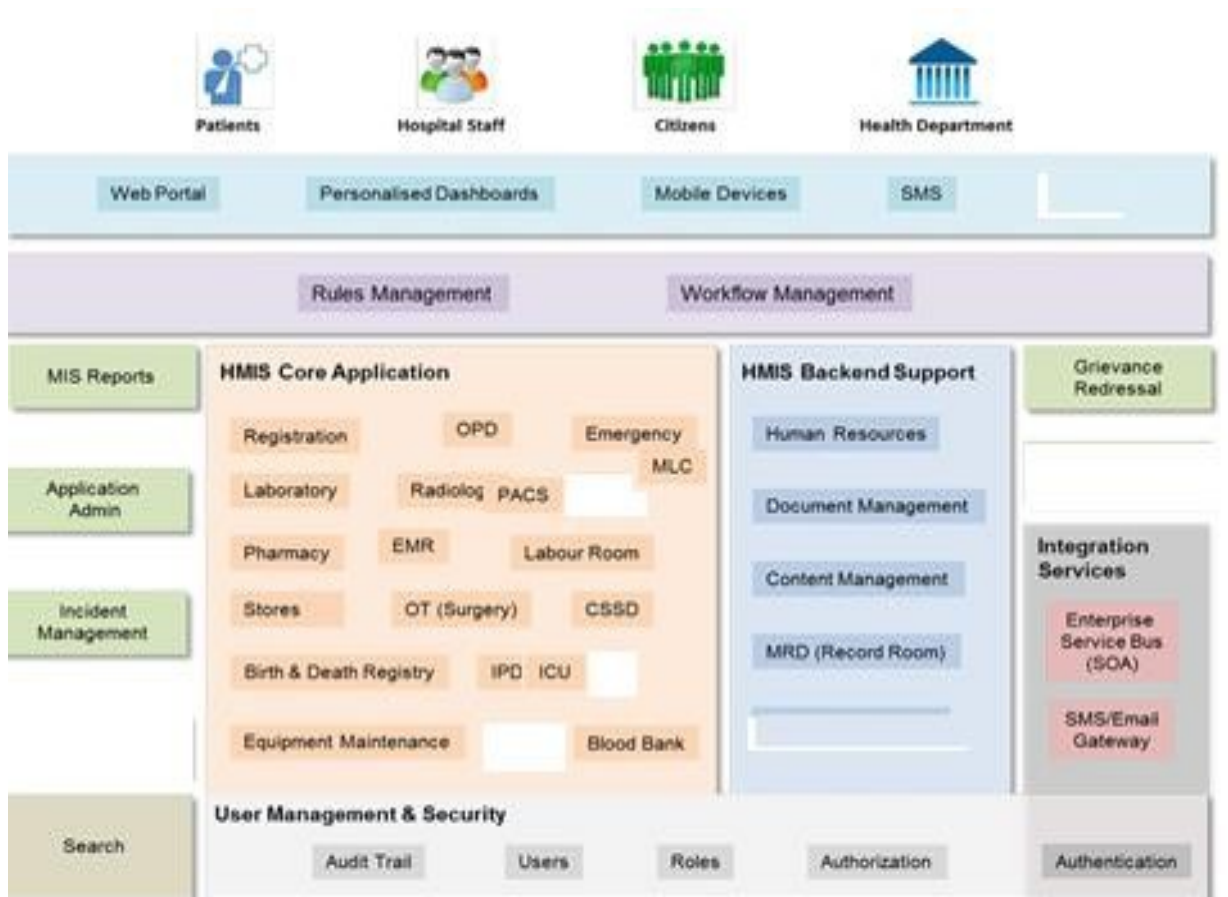
Chapter 4 Business Functions

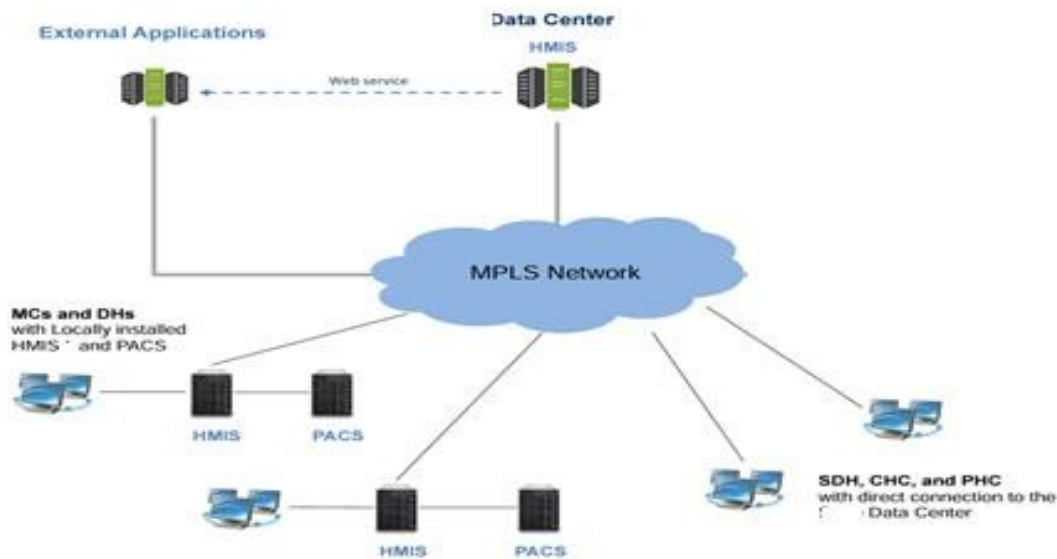
As mentioned earlier, the IA would have to migrated with existing application to internet facing environment therefore the necessary changes would have to be done for the same, Also the current application has 20 modules which needs to be maintain. The detailed business functions are as below:

4.1 Migrating the existing HMIS to new internet facing environment

The Bidder will be responsible for the successful migration, and maintenance of the Haryana Hospital Management Information System (HMIS) e-Upchaar. The objective is to migrate the existing health data and systems from on-premises infrastructure to a modern, integrated digital solution leveraging Cloud services to enhance scalability, reliability, and security.

A high-level architecture of the current HMIS System is provided below:





4.2 Maintenance of the current application at the existing sites

The scope of work encompasses several phases, including planning, assessment, migration, testing, maintenance and modernization.

1. HMIS Core Application and Modules
2. HMIS Backend Modules
3. Application Admin (User Management & Security)
4. MIS Reporting
5. Integration services
6. Advance analytics / Business Intelligence
7. Helpdesk support / Incident Management services

4.2.1 HMIS – Core Application and Modules

HMIS core application caters to below functional modules to achieve the key objective of maintaining the health data across multiple public health facilities in the state:

S.no	Current Modules
1	Registration
2	Emergency & MLC
3	OPD management
4	Laboratory
5	Radiology and PACS
6	Pharmacy Dispensing
7	IPD / ICU
8	Labour Room
9	Operation Theatre
10	Birth Recording
11	Death Recording
12	Blood Bank/ BSU
13	Billing (OP/IP)
14	Store and Sub-store

15	Purchase Management
16	Asset Equipment
17	Maintenance Cell
18	MRD
19	CSSD
20	HRMS

4.2.2 HIS Core Application – Processes and Functions

A. Registration (Online & Walk-in patients)

The existing features in the application are as follows:

1. The system allows for pre-registration online (HIS Web Portal). The pre-registration screen is available on the Web, and upon filling in the required demographic details by the Patient/Relative, a unique temporary pre-registration number is assigned. The form is automatically forwarded to the Registration desk operator, and the system allows searching of the registration record using the unique pre-registration number. Once registration is complete at the Registration desk and a Unique ID for the Patient is generated, the temporary pre-registration number becomes invalid.
2. The system allows the Registration desk operator to enter the following demographic details of the Patient, but not limited to: a. Name b. Age c. Sex d. Address e. Mobile/contact number f. Government-issued ID proof
3. When the patient approaches the registration desk with the pre-registration number, the system generates a Unique Patient ID upon successful registration, valid for seeking any healthcare services across all e-Upchaar healthcare institution across the state of Haryana.
4. For walk-in patients, the system captures the required demographic details provided by the patient/relative.
5. The system allows searching of the registration record using the 'search component' for existing and new patient registration.
6. The Unique ID issued to the patient has lifetime validity. The proposed sequence of a Unique ID is State, District, Year, and random unique system-generated number. The Unique ID is valid for seeking healthcare services within and across the State of Haryana.
7. The system indicates if the Patient is liable to pay any fees for availing any healthcare services, based on defined criteria for exemption.
8. The system allows the operator to collect applicable fees, as defined in the 'Payment component.'
9. The system also allows the Registration desk operator to select the relevant OPD doctor and specialty/OPD Room as per the defined roster available for the day. The system assists the operator in suggesting an equal distribution of the Patient queue for all doctors in the same OPD.
10. The system allows configuration of the maximum number of patients to be assigned to a particular OPD doctor in a particular shift.
11. The system has the feature for Electronic Queue Management System and override facility.
12. The system automatically generates the 'Token' number specific to the concerned OPD. This token number is tracked throughout different departments/sections of the Hospital. The display systems installed within the Hospital premises display the Token number and the sequence for all Patients to see.

13. The system can print the registration receipt on a sticker which can be attached to the pre-printed OPD card. The registration receipt is proposed to have the following information, but not limited to: a. Bar Code (generated as per Unique ID) b. Unique ID (having State, District, Year, and random unique system-generated number) c. Payment Information (in case of exempted patients, the payment mentioned will be Zero (0)) d. Date and Time Stamp e. Token Number f. Any other relevant information, as applicable
14. In case of 'Emergency Registration,' the system generates bar-coded wrist tags with unique ID, which can be attached to the Patient, based on defined categories
15. The system scans the barcode and links the demographic as well as preliminary treatment details to the Patient ID. The rest of the search and registration features, along with the registration process, remain as described above

The additional features required to be incorporated are:

- ✓ Payment gateway to be incorporated to allow online payments and encourage pre-registration of patients at facility level.
- ✓ Option to scan QR code for enabling Scan & Share and other programmes of GoI
- ✓ Option to capture data/particulars of PMJAY/CHIRAYU beneficiaries.

B. Out-Patient Department (OPD)

The existing features in the application are as below:

1. The user can map the doctor to OPD rooms as required.
2. The system automatically forwards the patient registration record to the dashboard of the concerned OPD doctor. Patients are queued from initial registration to later arrivals.
3. Upon selecting a patient registration record, the system displays their token number on the display unit, along with at least the next two in sequence.
4. The system provides other options on the OPD doctor's dashboard, such as viewing past treatment details, investigation results, allergies/health conditions, etc., if the doctor requires. The Doctor can view the information by clicking on the relevant section.
5. The system allows the OPD doctor to select the relevant section on the screen for entering diagnosis and various doctor orders, treatments, investigations, minor procedures, drugs, referrals, etc.
6. The system allows entry of treatment details at the respective functional units, as per the advice mentioned in the OPD card.
7. Health records of the patients are captured and collated electronically through various touch points in the hospital after the patient visits the OPD. The system automatically forwards the relevant sections of the information/data form to concerned departments for further action on the patient's case as required. These records may be sent to the pharmacy store for dispensing medicines, labs for investigations, radiology for X-ray/ultrasound, the injection room for administering an injection, and/or any minor OT procedure. The system allows entry of treatment details by the data entry operators present at the respective functional units, as per the advice mentioned in the OPD card, if that is the procedure adopted by Hospital administrators.
8. The system allows tracking of OPD services (investigations, drug dispensing) and follow-up cases as required.
9. In case of radiology investigations, the system displays the available slots for getting the required test done. The concerned doctor/operator can select the available slot and provide the sequence at the radiology department in emergency cases.
10. The system allows concerned doctors to mark the investigations as 'Emergency,' so that these patients are sequenced on priority.

11. The system provides a pre-defined list of investigations, minor procedures, drugs, etc., with easy select options at the billing counter dashboard. Once entered by the operator, the details are automatically forwarded and queued to the respective departments' dashboards. The respective operator at the concerned departments can search the patient's record by either scanning the barcode or through a unique ID, and then proceed with the required process.
12. The system allows automatic flow of test results (investigations) for the patient to be made available to the concerned doctor, as required, including intimation of panic values (if defined).
13. The system allows tracking of transfer and referral cases from within the hospital.
14. In case of admissions, the system automatically forwards the request to the Admission counter dashboard, with the registration details and any other relevant information captured in the system.
15. In case of surgery, the patient details are forwarded to the OT scheduler screen. The system allows the respective operator to allocate a slot for surgery.
16. In emergency cases, the system automatically forwards the intimation to the Emergency department, with required patient details as captured in the system.

The additional features required to be incorporated are:

- Queue management system for better management of patient crowd at the healthcare facilities
- Slotting of appointments for online appointments for OPD and Laboratory and Radiology services for patient convenience
- Telemedicine module to be incorporated or integration with e-Sanjeevani application
- Provision of digital pen/pad capture notes, prescription of doctors & automatically synchronize with the system. (The infrastructure will be provided by department).
- Provision of verbal recording of complaint/ counselling/advice.
- Prakriti Parikshan for AYUSH OPD to be included as part of History taking of patients

C. Emergency & MLC

❖ Emergency

1. The system allows patient categorization and registration through the use of bar-coded wrist tags, as mentioned in the registration process.
2. The system allows the operator to enter the registration details along with preliminary treatment details given by the doctors, tagged to the unique ID, through user-friendly select options as far as possible.
3. The system allows easy tracking and tagging of brought dead/MLC and referral cases.
4. In case of surgery, the patient details are forwarded to the OT scheduler screen. The system allows the respective operator to allocate a slot for surgery.
5. In case of the death of the patient, the intimation is forwarded to the concerned operator assigned for generating and providing Death certificates. The HIS system forwards the information/data related to the death of a patient to the existing system using the Interface Component, if integration of HIS with the existing system is possible. The existing system continues to generate the Death Certificate as per the current process. Information transfer from emergency to mortuary happens manually.
6. In case specialist consultation is required, the system allows the selection of the concerned specialist and sends the intimation to their dashboard.
7. The system provides other options on the EMO's dashboard, such as viewing past treatment details, investigation results, any allergies/health conditions, etc., if the doctor requires. The doctor can view the required information by clicking on the relevant section.

8. The system allows the EMO/Operator to select the relevant section on the screen for entering diagnosis, treatment, and doctor orders like investigations, minor procedures, drugs, blood, referrals, etc., whichever is applicable and required.
9. Health records of the patients are captured and collated electronically through various touchpoints in the hospital after the patient visits the Emergency. The system automatically forwards the relevant sections of the information/data form to concerned departments for further action on the patient's case as required. These records may be sent to the pharmacy store for dispensing medicines, labs for investigations, radiology for X-ray/ultrasound, and/or any minor OT procedure. The system allows entry of treatment details by the operators present at the respective functional units, as per the advice of EMO, if that is the procedure adopted by Hospital administrators.
10. The system allows standardization in generating discharge summary and follow-up instructions/discharge on Request/Left against Medical Advice. In cases of Discharge on Request (DOR)/Left Against Medical Advice (LAMA), the system allows status to be captured in the system. The system generates the reports, including 'Discharge Summary' in a printable pre-defined format.
11. If a patient visits the Emergency after normal OPD hours, the OPD procedure follows as stated above. However, the registration and the billing happen at the Emergency section. The system allows for registration, billing, and tracking of such patients after normal OPD hours.
12. The system allows the inventory management of life-saving drugs as well as other consumables, as required.

❖ Medico-Legal Case/Report (MLC/MLR)

1. The system has a provision to mark the Medico-Legal cases. These cases are tracked under a separate ID. All the assessments done by the concerned doctor/EMO in case of Emergency are tracked and recorded through this Unique ID. This is linked to the patient's Unique ID for easy reference and tracking.
2. The system captures patient treatment details in case the patient is alive.
3. The system captures the details of the Postmortem conducted in case it is conducted after the patient's death/brought dead cases. The Post Mortem Report, samples (if any, taken during Post Mortem), and the body handed over to the police are recorded in the system.

The additional features required to be incorporated are:

- Integrate with MedLeaPR application for detailed MLC record
- Integrate with 104 services, Ambulance Services (including Referral Transport)
- Integrate with iRAD application of MORTH developed by trauma cases.
 - i. The system should have provision to track requests from various departments like OPD, IPD, Emergency, Labour room, OT, etc. The system should also have provision to track ambulance requests from outside Hospital as well, if required. The system should track all internal and external requests through a separate referral ID.
 - ii. In case the Patient is outside Hospital, the call made to the ambulance helpdesk (102) should be tracked in the system. The provision of requesting ambulance services through Web Portal and SMS at later stages of project is also proposed.
 - iii. The system should allow the Control room operator to enter data like patient details, his/her location etc. into the system. The system should also assist the Operator to locate available ambulances nearest to patient's location, out of available ambulances in field and allow operator to allocate one. The status for the ambulance should be updated in the system automatically.
 - iv. In case patient in OPD/IPD/Labour room/Emergency requires ambulance services then the concerned hospital staff should be able to raise a request for ambulance through the

- system. The request should automatically reflect on Ambulance control room dashboard. Alerts should be generated and sent to control room operator.
- v. The operator should be able to search for ambulance stationed in hospital marked as “idle”; else the operator should be able to locate an ambulance nearest to patient’s location which is marked as “idle”. The status should be automatically updated in the system once the ambulance is allocated for the Patient.
 - vi. The operator should be able to send message through SMS Gateway stating Patient/Caller Name and phone number, Pick up point, Destination, etc. to the Ambulance driver.
 - vii. The operator should be able to send message through SMS gateway to the caller and calls the caller to inform about the driver contact and ambulance details, estimated arrival time, etc.
 - viii. The system should be able to track the ambulances through the GPS based system integrated with the application.
 - ix. The System should be able to maintain the KM log of each and every referral movement through the GPS based system integrated with the application.

D. In-Patient Department

The existing features in the application are as below:

1. The system allows admission under the concerned doctors/specialists
2. The system allows patient registration records to be automatically forwarded to the dashboard of the admission counter operator and Nursing station, once the admission request is placed by the consulting doctor. The system allows the operator to enter admission-related details for the patient, along with the selection of the concerned IPD doctor.
3. The system allows the nurse at the nursing station to allocate a bed in the concerned ward. The system displays the status of the beds in all the wards in real time.
4. The system generates the bar-coded wrist tag once the patient is admitted. The system retrieves the patient record once the bar-coded wrist tag is scanned.
5. The system tracks all the patient details under a separate ID for the IPD processes.
6. The system allows the IPD doctor/nurse to select the relevant section on the screen for entering diagnosis and doctor orders like treatment, investigation, minor procedures, diet, drugs, referrals, transfers, blood requisition, etc., through the console at the nursing station.
7. Health records of the patients are captured and collated through various touch points in the hospital electronically after the patient visits the Emergency. The system automatically forwards the relevant sections of the information/data once the patient is admitted in IPD.
8. The system compiles all the payments from the patient/relative for the availed/required services and also computes the balance payment.
9. The system intimates the concerned departments/users in case the doctor decides to discharge the patient.
10. The system allows standardization in generating discharge summary and follow-up instructions/discharge on request/left against medical advice. Upon receiving clearance

from all concerned, the system allows the nurse/operator to generate the discharge summary in a pre-defined format.

11. The system displays diagnostic results and alerts for critical values(if defined).
12. The system tracks the patient-wise usage of drugs and other consumables and maintains linkage to the inventory management process.

E. Labour Room

The existing features in the application are as below:

1. The system allows mapping of patients to labour room doctors/specialists in a particular ward.
2. The system has a personalized dashboard for the labour room.
3. The system allows patient registration records to be automatically forwarded to the dashboard of the admission counter operator and nursing station. The system allows the operator to enter admission-related details for the patient, along with the selection of the concerned labour room doctor. The system allows the nurse at the nursing station to allocate a bed in the concerned ward. The system displays the status of the beds in all the wards in real time.
4. The system displays the packages/schemes under which the patient needs to be admitted. The details of the package/scheme and corresponding requirements are automatically displayed by the system to the operator/nurse.
5. The system generates the bar-coded wrist tag once the patient is admitted. The system retrieves the patient record once the bar-coded wrist tag is scanned. The system allows the newborn child to be registered and tagged with the bar-coded wrist tag immediately after delivery for easy identification. The system links the two IDs for easy identification and representation of the family tree with health parameters, as applicable.
6. The system tracks all the patient details under a separate ID for the labour room-related processes.
7. The system automatically sends the intimations to various departments/ dashboards as required. This can be introduced during later phases of the project, as a scalable/expandable option.
8. The system generates the nursing schedule/orders automatically based on the information captured in the system.
9. The system allows the labour room doctor/nurse to select the relevant section on the screen for entering diagnosis and doctor orders like treatment, investigation, diet, drugs, referrals, blood requisition, etc., through their handheld devices or the console at the nursing station.
10. The templates/formats for generating doctor and nursing orders are available in the system for easy selection and usage by the concerned user.
11. Health records of the patients are captured and collated through various touch points in the hospital electronically after the patient visits the emergency. The system

automatically forwards the relevant sections of the information/data form to concerned departments for further action on the patient's case as required.

12. The system generates the nursing schedule/orders automatically based on the information captured in the system.
13. The system compiles all the payments from the patient/relative for the availed/required services and also computes the balance payment.
14. The system allows standardization in generating discharge summaries and follow-up instructions/discharge on request/left against medical advice. Upon receiving clearance from all concerned, the system allows the nurse/operator to generate the discharge summary in a pre-defined format. The information in the discharge summary is pulled from the patient's digital record and integrated with lab investigations, radiology results, pharmacy, etc., as far as possible.
15. The system displays diagnostic results and alerts for critical values as required.
16. The required forms are filled out after delivery, and the system allows uploading of the scanned copy of the signed form by the parents. The system retrieves the record when the parents apply for birth registration within one year of birth.
17. The system records the assessment done by the pediatrician post-childbirth.
18. The system records information if the newborn is shifted to the postnatal ward and kept under observation for 48 hours (normal delivery) or 7 days (caesarean delivery).
19. The system tracks the newborn child with unique ID-bar coded wrist tags if the child is shifted to the SNCU for further treatment/observation.

The system tracks the patient-wise usage of drugs and other consumables and maintains linkage to the inventory management process.

F. Operation Theatre (Surgery)

The existing features in the application are as below:

1. The system allows both emergency and elective surgery scheduling as advised by the doctor/surgeon on a daily basis. The system also allows mapping of patients to the concerned surgeon/doctors/specialist.
2. The system allows patient registration records to be automatically forwarded to the dashboard of the OT counter operator. The system allows the operator to enter OT-related details for the patient, select the concerned surgeon, and schedule the surgery.
3. The system allows the operator to select the vacant slot for the prescribed surgery from the calendar/schedule of the concerned surgeon.
4. The system allows for re-scheduling of the prescribed surgery after recording the reasons for re-scheduling.
5. The system displays the packages under which the patient needs to be admitted and operated. The details of the package and corresponding requirements are automatically displayed by the system to the operator/nurse.

6. The system sends information/alerts to the patient, anesthetist, and surgeon through the system, and via SMS if required, about the surgeries scheduled.
7. The system generates an SPP token number once the payment is made and the surgery is scheduled/confirmed.
8. The system allows for 'time scheduling' one day before the actual date of surgery, as per available slots for the next day.
9. The system captures the status of pre- and post-anesthetic check-ups performed by the anesthetist.
10. The system has a pre-defined checklist for the scheduled surgeries to ensure the preparatory work is done before the actual OT process begins.
11. In the case of elective surgery, the patient is admitted one day before surgery. A bar-coded wrist tag is generated through the system and attached to the patient. The system allows the nurse at the nursing station to allocate a bed in the concerned ward. The system displays the status of the beds in all the wards in real time.
12. In the case of emergency surgery, the system allows prioritizing of the surgery schedule (date and time) and informs all concerned.
13. The surgery parameters are captured in the system through single-click options. The following are the six indicative parameters that may be captured as per requirements defined by HSHRC:
 - a. Wheel-in time
 - b. Anesthesia start time
 - c. Surgery start time
 - d. Surgery end time
 - e. Anesthesia end time
 - f. Wheel-out time
14. The system allows capturing of names of surgeons, anesthetists, staff nurses, technicians involved; type of anesthesia and procedure/surgery performed.
15. The system maintains the supply chain in terms of tracking and provisioning of surgical packages (items, drugs, articles, and equipment). After every surgery is scheduled, the system provisions the specific set of articles, equipment, items, drugs, tools, etc., as per predefined logic. The system automatically sends intimations for making available all the concerned articles, equipment, items, drugs, tools, etc., to specific departments for necessary action.
16. The system allows the ordering of investigations and tracking of samples as advised by the concerned doctors, such as histopathology/pathology/laboratory /radiology, pre- and post-surgery. The system generates a barcode that can be attached to sample containers. The system allows the lab technician to upload the test details in the system after performing the required tests. The system makes the information available to the concerned surgeon/doctor through the system for reference.

17. The system tracks the movement of the patient (internal transfers) to the concerned ward and forwards the details automatically to the departments'/ward dashboard.
18. The system records details on pre-operative and post-operative procedures and assessments done.
19. For surgeons and anesthetists, the option for using handheld devices/digital pens or digital pads is proposed as an expandable/scalable feature, so the system integrates with the same.

❖ Minor OT

The existing features in the application are as below:

1. The system has a provision to track requests from various departments like OPD, IPD, Emergency, etc.
2. The system has a personalized dashboard with queue management using token numbers. If the patients are registered and come through OPD, the token number issued to them during registration is valid for the same day procedures.
3. The system has automatic provisioning of all required items/articles/tools/instruments/drugs/other supplies as per the defined minor OT procedure.
4. The system allows the concerned nurse/paramedic to update the status of the minor procedure conducted as advised by the doctor.
5. The system tracks the patients' transfer to the recovery room or ward as required.

G. Central Sterilized Supply Department (CSSD)

The existing features in the application are as below:

1. This follows the functionalities defined in the 'Store module' and captures package details, issue, and receipt of inventory. No separate module/functionality is required for CSSD in the system.

H. Laboratory

The existing features in the application are as below:

1. The system has a provision to track requests from various departments like OPD, IPD, Emergency, Labour room, OT, etc. The system also has a provision to track samples from outside the hospital sent for testing. The system tracks all internal and external test requests through a separate unique test ID.
2. The system has a defined list of lab tests under various categories, available for selection by the concerned operator/nurse/doctor through user-friendly select options.
3. The system generates the invoice automatically after the selection of the required tests prescribed for a patient. The invoice/receipt contains the following information, but is not limited to:
 - a. Bar Code (generated as per Unique Patient ID)
 - b. Test ID

- c. Payment Information {in case of exempted patients, the payment value will be null}
 - d. Date and Time Stamp
 - e. Token Number
 - f. Any other relevant information, as applicable
4. The system has a personalized dashboard with queue management for all requests made through the system, including the provision to define priority.
 5. The system has separate processes/workflows defined for the Phlebotomy counter and test labs. The system generates a Token Number provided to the Patient after required payment at the Phlebotomy counter. Doctors can define Emergency requests, which receive priority in sequence.
 6. The display systems installed within the Hospital premises display the Token number and sequence for all Patients. When a Patient record/Lab request is selected by the Lab in-charge/technician, the system displays their token number on the display unit, along with at least the next 2 in sequence.
 7. The system generates unique sample IDs, which can be attached to the sample containers/tubes.
 8. The system has the provision to scan the Patient unique ID barcode and the Sample ID barcodes, linking them with the Test ID generated for the Patient.
 9. The system tracks the status of the samples sent to the Lab from the Phlebotomy counter.
 10. The system matches the number of sample IDs generated with the number of samples collected and sends notifications accordingly to the Phlebotomy counter operator and Lab in-charge.
 11. The system allows Lab technicians to accept samples sent for testing and highlights any discrepancies.
 12. The system captures test results directly from testing equipment, if available, or allows Lab technicians to enter results in a pre-defined format. It provides a mechanism for forwarding test results to the laboratory doctor for authentication before they become final results, ready for printing or online distribution.
 13. For OPD Patients, the system generates SMS alerts to the Patient's mobile number as soon as Lab test reports are submitted and ready for printing. For IPD, Labour Room, Emergency, OT, etc., the system displays test results on the respective dashboards of doctors/specialists and sends required notifications to concerned staff.
 14. The system tracks the dispatch status of Lab test reports from the "Report Dispatch Counter" when Patients/relatives collect required reports.
 15. The system tracks "Panic" values in test results, automatically alerting concerned Hospital staff/Nurses/Doctors and displaying results on their respective dashboards in all such cases.

16. In out-patient cases, the Help desk may request Patients to visit the OPD if test results show "Panic" values or for collection of reports.
17. The system has laboratory interlinkages with stores for inventory and stock management of reagents used for various tests, with provisions for auto-indenting when supplies fall below specified levels.
18. There is provision for raising e-indents for bulk requirements of reagents by concerned Lab technicians

The additional features required to be incorporated are:

- Integrate lab machines as per request received from facilities from time to time

I. Radiology & PACS

The existing features in the application are as below:

1. The system has provisions to track requests from various departments like OPD, IPD, Emergency, Labour room, OT, etc. It also tracks Investigation requests from outside the Hospital. All internal and external test requests are tracked through a separate unique Radiology ID.
2. The system has a defined list of Radiology tests under various categories, available for selection by the concerned operator, Nurse, or doctor through user-friendly select options.
3. The system automatically generates the invoice after the required tests prescribed for a Patient are selected. The invoice/receipt contains the following information, but is not limited to:
 - a. Bar Code (generated as per Unique Patient ID)
 - b. Test ID
 - c. Payment Information {in case of exempted patients, the payment value will be null}
 - d. Date and Time Stamp
 - e. Token Number
 - f. Any other relevant information, as applicable
4. The system has a personalized dashboard with queue management for all requests made through the system, including provisions to define priority.
5. The system allows respective Doctors advising Radiology investigations, Nurses, or operators to view the vacancy/sequence at the Radiology Department and opt for a specific schedule as required.

6. The system generates a Token Number provided to the Patient undergoing Radiology tests after required payment. Doctors also have the facility to define Emergency requests, which are given priority in sequence.
7. The display systems installed within the Hospital premises display the Token number and sequence for all Patients. When a Patient record/Radiology request is selected by the Radiology technician, the system displays their token number on the display unit, along with at least the next 2 in sequence.
8. The system has provisions to scan the Patient unique ID barcode and the Test IDs barcodes, linking them with the Patient's digital record.
9. The system tracks the status of Radiology tests requested and conducted for each Patient.
10. The system matches the number of Radiology tests requested and conducted, sending notifications accordingly to concerned administrators and Radiology in-charge/technician.
11. The system allows Radiology technicians to accept Patients sent for Radiology testing. It highlights discrepancies in conducted Radiology tests and permits re-do if necessary.
12. The system captures test results directly from Radiology equipment if available, and provides an option for Radiologists to enter investigation results/summaries in a predefined format, with user-friendly select features where possible.
13. For OPD Patients, the system displays finalized reports and generates SMS alerts to Patients' mobile numbers as soon as Radiology test reports are submitted and ready for dispatch. For IPD, Labour room, Emergency, OT, etc., the system displays finalized reports on the respective dashboards of doctors/specialists and sends required notifications to concerned staff.
14. If an antenatal case requires ultrasound, a digital requisition slip should be filled along with Form F (in digital format available in the system) with restricted access, automatically attached to the test digital file. In cases of MLC, test details should be attached to the Patient's digital file.
15. The system tracks panic results as soon as reports are finalized, sending alerts to concerned staff/nurses/doctors and displaying test results on their respective dashboards in all such cases.
16. The system tracks the dispatch status of Radiology test reports from the "Report Dispatch Counter" when Patients/relatives collect required reports/films.
17. In outpatient cases, the Help desk may request Patients to visit the OPD if test results depict "Panic" values or for collection of reports. This feature may be implemented in later phases of project implementation.
18. The system has Radiology interlinkages with stores for inventory and stock management used for various tests, with provisions for alerts if supplies fall below specified levels. There should be provision for raising e-indents for bulk requirements of films/articles by concerned Radiology technicians.
19. The system has integration capabilities for Picture Archiving & Communication Systems (PACS) for Medical Colleges and District Hospitals.

20. The system seamlessly handles inbound and outbound HL7 messages from systems with similar capabilities.
21. The system is DICOM 3.0 compliant.
22. The system provides facilities to be web-enabled.
23. The system allows for setting up policies for automatic transfer and deletion of digital images from PACS.
24. The application incorporates streaming technology for facilitating faster viewing of images over the net (for PACS)

The additional features required to be incorporated are:

- ✓ Integrate Radiological equipment as per request received from the healthcare facilities
- ✓ Teleradiology module to be implemented
- ✓ Integrate with PPP vendor applications so that patient EMR is completed in all respects

J. Blood Bank

The existing features in the application are as below:

1. The system displays all relevant information related to blood donation as well as requisitions and availability through various channels like Web Portal, Help Desk, and Display units.
2. Donors are able to search details of blood donation camps, etc., and Patients can check blood availability online.
3. The system allows for pre-registration online (HIS Web Portal). The pre-registration screen is available on the Web, where upon filling required demographic details by the Donor, a unique temporary pre-registration number is assigned. The form is automatically forwarded to the Blood Bank Registration desk operator. The system allows searching of the registration record using the unique pre-registration number. Once registration is complete at the Registration desk and a Unique ID is generated for the Donor, the temporary pre-registration number becomes invalid.
4. The system allows the operator to search for existing registration records based on defined search parameters in the 'Search' component.
5. The system displays available Donor registration information already existing in the database when any of the parameters match during Donor registration. If one or multiple records are displayed, the operator needs to select an existing record to avoid re-registration (if the Donor details being entered are the same as those existing in the database). Otherwise, they select the reason for not selecting any displayed record and proceed with the new registration.
6. The system allows Donors to register. It standardizes the recording of Donor information. The registration receipt/donor card contains the following information, but is not limited to:
 - a. Bar Code (generated as per Unique ID)

- b. Unique ID (having State, District, Year, and random unique system generated number)
 - c. Date and Time Stamp
 - d. Any other relevant information, as applicable
- 7. The system generates the Donor Card in a pre-defined format, including the above-mentioned details.
- 8. The system allows the doctor/operator/Nurse to enter vitals/general health details.
- 9. The system captures the number of units donated by the donor. It has pre-defined criteria for donors to donate blood at specific time frames or intervals, and it tracks the frequency and period of blood donations by each donor.
- 10. The system has a personalized dashboard for the Blood Bank, containing all information about donors, blood units available in different categories, and requisitions from various departments.
- 11. The system also captures blood units collected through donation camps/replacement units, along with all related information about the camp or replacement units. Digital stock information is automatically updated by the system after details are entered by the concerned user.
- 12. The system has a pre-defined list of cell and serum grouping, sample blood tests, which are selected by the concerned operator/Blood Bank in-charge through user-friendly select options.
- 13. The system generates bar-coded stickers to be attached to the Blood bags, containing the following details, but not limited to:
 - a. Blood unit ID
 - b. Blood related details like group etc.
 - c. Type (Blood, Platelets, and Serum etc.)
 - d. Barcode for easy identification.
 - e. Expiry date
- 14. The system records the details of all discarded blood units. If blood is discarded after conducting tests on collected blood, the system sends an intimation/SMS to the registered donor about the same.
- 15. The system has provisions to suggest near-expiry blood/components to be issued in case requisitions for the same are received through the system.
- 16. The system tracks requests from various departments like IPD, Emergency, Labour room, OT, etc. It also tracks Blood requisitions from outside the Hospital. All internal and external Blood requisitions are tracked through a separate unique Blood requisition ID.
- 17. The system has the option to mark requisitions for blood units as "Emergency" if they are required urgently.

18. A bar-coded tag is attached to the sample container for easy tracking, and the system captures blood sample details from the Patient for whom the requisition is made.
19. The system cross-matches details of the blood sample and the blood unit available in the blood bank. If a matching blood unit is found, the system displays the available units. The Blood Bank technician can update the status of the requisition and issue required units of blood.
20. In case of any reactions/adverse effects on the Patient's health after giving blood, the blood should be returned to the Blood Bank. The system captures the details and marks it for further analysis. It also has provisions to flag and even blacklist a particular donor if the blood is found to be infected with disease or reactive.
21. If a matching unit is not found, the requisition is denied, and an alert is sent to the relative/patient/department. The concerned doctor receives an alert about the unavailability of the required blood unit. If a digital database is integrated, the system suggests other options based on available information. If there is no digital database, information is provided by searching manual records, if any, and the status is updated in the system.
22. The fees collected from the Patient/relative are returned in this case, and the status is updated in the system.
23. The system has the capability to integrate with blood banks of public and private hospitals for availability checks in case of emergencies, disease outbreaks, and for planning purposes.
24. The system maintains a State-level Global Databank for Blood availability, storage, and provisioning of blood units, including alerts for non-availability.

The additional features required to be incorporated are:

- Integrate with e-Raktkosh application of GoI to facilitate the information of blood availability across blood banks in the State.

K. Birth & Death Registration

❖ Birth Registration

The existing features in the application are as below:

1. After the birth of a baby, birth details are entered into the system by the concerned operator/Nurse in a predefined digital format of the birth form. A printout of the form is given to the parents, and their signature is obtained on the form.
2. The printout includes the following information, in addition to other birth details:
 - a. Bar Code (generated for easy identification)
 - b. Unique ID (having State, District, Year, and random unique system generated number), same as the mother ID
 - c. Date and Time Stamp
 - d. Any other relevant information as required
3. A duplicate copy of the birth form signed by the parent(s) is scanned and uploaded into the system for reference.

4. Upon receiving the request for Birth registration within one year of birth, and upon payment of the required fees, the system retrieves the signed form and allows the operator to enter the details for generating the birth certificate.
5. The system forwards the digital certificate to the authorized signatory/approving authority for authentication and approval. The approving authority verifies the Digital Birth Certificate using Digital Signature or any other authentication device.
6. The system generates an alert for the operator to print and issue the verified Digital Certificate to the Parents and updates the status in the system.

The additional features required to be incorporated are:

- Integrate with CRS portal of Gol

❖ **Death Registration**

The existing features in the application are as below:

1. The system also allows the doctor/nurse to designate if the death is due to unnatural causes.
2. If the death is unnatural, the system sends an intimation to the Police. If the process is to be followed manually, the system generates an intimation in a pre-defined format to be printed and sent as a hard copy. The system creates a new task in the MLC dashboard for further action.
3. In case of natural death, the death details are entered into the system by the concerned operator/nurse in a predefined digital format of the Death form. A printout of the form is given to the relative, and their signature is obtained on the form.
4. The printout should include the following information, in addition to other death details:
 - a. Bar Code (generated for easy identification)
 - b. Unique ID (having State, District, Year, & sequential unique system generated number)
 - c. Date and Time Stamp
 - d. Any other relevant information as required
5. A duplicate copy of the Death form signed by the relative is scanned and uploaded into the system for reference.
6. Upon receiving the request for Death registration within one year of Death, and upon payment of the required fees, the system retrieves the signed form and allows the operator to enter the details for generating the Death certificate.

7. The system forwards the digital certificate to the authorized signatory/approving authority for authentication and approval. The approving authority verifies the Digital Death Certificate using Digital Signature or any other authentication device.
8. The system generates an alert for the operator to print and issue the verified Digital Certificate to the relative and updates the status in the system.

L. Pharmacy Management

The existing features in the application are as below:

1. Pharmacy Management services take care of all critical system information to ensure that all medications required for treating patients are adequately stocked and maintained. It is important that all drugs, items, and articles are constantly available to care providers. All pharmacy stores and sub-stores are part of this module.
2. The system has the facility to create main stores and sub-stores in each facility with integration of all the stores.
3. The designated sub-stores include, but are not limited to, OPD Pharmacy, Emergency Department, Injection and Immunization Room, OT, Labor Room, and Wards.
4. The system maintains a master list of suppliers with unit costs for each item.
5. The system facilitates the creation of standard and unique codes for departments and locations.
6. The system allows the Store In-Charge to upload scanned copies of required documents like bills, invoices, etc., and fill in other details in the system.
7. The system has the ability to maintain Location master data.
8. A standard list of drugs and medical supplies used in the store is maintained.
9. The system captures unique Item Descriptions and codes in the Inventory Master File.
10. Associated Units of Measurement are captured in the Inventory Master File.
11. Lead Times are captured in the Inventory Master File.
12. The system provides a facility to define Item Codes under an item group.
13. The system provides a facility to generate Store ledgers with details for each item: opening balance (Quantity and value), receipts and issues, closing balance (Quantity and value).
14. The system allows entering supplies needed patient-wise by entering/selecting: Name of item, Quantity.
15. The system checks the availability and quantity of items/drugs/articles/tools, etc., at all sub-stores and the main store.
16. Stock is classified and maintained in categories such as sub-store wise, VED, ABC, Expiry date of medicine, disease-wise, FSN, and high-risk medication, High Cost.

17. The system facilitates retrieving details of available drugs (batch number, expiry date, location) in the pharmacy/drug store and reserves drugs for the indent based on the item code and quantity mentioned in the approved indent.
18. A list of available and authorized medications with their source (warehouse or local purchase) is maintained and auto-updated from existing software.
19. Monitoring and Tracking of Supplies to Hospital units, Management of materials, Management of suppliers/drugs/items/equipment.
20. Alerts are provided to concerned officials for tracking their use to enable effective monitoring and avoid pilferages.
21. The system supports planning methodologies such as re-order point, safety point, lot sizing, lead times, min/max levels, etc.
22. The system has the facility to transfer and record material from one location/store to another.
23. Medicines/articles that are consumed as per prescription/generated and daily expense register (prescription-wise consumption) are generated by the system as per information entered by respective Users.
24. The system records items that are damaged and adjusts the stock after proper approvals by the authorized person.
25. The system automatically deducts outgoing medicines and prescriptions from its stock list.
26. The system maintains minimum, maximum, and re-order quantities for each item-store combination based on adopted policies and procedures for replenishment of stock at sub-stores.
27. Alerts are provided to concerned officials for tracking their use to enable effective monitoring and avoid any pilferages.
28. The system maintains data for any Recall of Drugs due to any reported reactions and tracks the entire batch of medicines.
29. The system generates a list of near-expiry items due to expire within 30 days or as defined from the date and displays an alert to the user.
30. The system keeps an account of all drugs nearing expiry or expired so that they may be returned to the Central Drug Store for return to the vendor.
31. Demand, Indenting, receipt of Stores.
32. Each store has the capacity to raise an indent based on demand forecast/previous consumption at fixed time intervals through the store module as well as auto-indent based on minimum reorder levels and availability in the main store.
33. The system tracks auto-indents as well as online requests from various departments like OPD, IPD, Emergency, Labor room, OT, Pharmacy, etc., through a separate unique store ID.

34. The demand generated is automatically consolidated by the system for the Store In-charge.
35. The system shortlists the items to be purchased at the hospital level and items to be indented from the warehouse.
36. The system prints indent sheets according to prescribed formats.
37. The system allows tracking of the indent throughout the creation and approval cycle using the unique indent number.
38. The system displays alerts to the indent approving authority upon receipt of indent approval requests in the system.
39. The system captures the approval of the indents and transmits the approved indent details to the stores.
40. If the medicine is not available with the approving authority, the system automatically generates a Non-Availability Certificate to initiate local purchase.
41. A dispatch note is generated according to the approved indent in a prescribed format and sent by the system to the indenting authority.
42. Once supplies are received, the digital stock register is updated automatically. The system maintains a predefined checklist for the inspection of stock and captures the status of the inspection for each aspect/item.
43. A barcode is generated through the system and attached to the stock for identification and tracking within the hospital stores. If the barcode already exists, the system reads the barcode.
44. The system records details of drugs received against the approved indent including Date of Receipt, Drug Name, Drug Quantities, Batch Number, Expiry Date.
45. The system validates the receipt against the Indent and Dispatch note.
46. The system generates a Receipt Report including item details like quantity demanded, Expiry date, Batch number, quantity received, quantity accepted, quantity rejected, etc.
47. The system allows entry of drugs procured locally and maintains a complete inventory list of items/articles.
48. Reports & Analysis.
49. Generate inventory reports as per user requirements.
50. Store-wise periodic analysis and demand projection.
51. Inquiry & Reporting for Inventory Status (by item-code, type, etc.).
52. List of Indents with status.
53. List of materials vendor-wise.
54. List of vendors with unit cost of item.
55. Location-wise, specialty-wise, disease-wise, and month-wise consumption reporting.

56. Comparative analysis of location-wise inventory.
57. The system maintains detailed audit trails for the transactions carried out in the system for issuing drugs, including date & time and details of the user conducting the transaction in the system.
58. Inquiry & Reporting for Slow Moving and Obsolete Inventory.

M. Stores (Both Sub-Stores and main Store)

The existing features in the application are as below:

1. The system allows creation of Central Stores and sub stores.
2. It checks the availability of store items etc. at all sub-stores and main store. Following are the designated sub-stores, but not limited to: OPD Pharmacy, Emergency Department, Injection and Immunization Room, OT, Labor Room, Wards.
3. It allows creation of master data including item groups, item code, having different units of measurement.
4. Each of the central stores and sub stores has the facility of raising an indent through the store module as well as e-indent based on minimum reorder levels.
5. It maintains a list of items in the General Store items, instruments, linen etc.
6. The system tracks indent as well as online requests from various departments like OPD, IPD, Emergency, Labor room, OT, Pharmacy, etc. The system tracks all requests through a separate unique store ID.
7. The demand generated is automatically consolidated by the system for the Store In-charge.
8. After receiving the supplies, the system maintains the digital stock register. If the items have not been received in store, the Central Store reflects the status of supplies accordingly.
9. Once the supplies are received, inspection is done for quantity as well as quality. The system maintains a pre-defined checklist for the same and captures the status of the inspection for each aspect / item. Also, barcode is generated through the system and attached to the stock for further identification and tracking within the hospital stores.
10. Monitoring management and Tracking of materials and store Supplies to Hospital units, Management of materials.
11. The system allows Store wise periodic analysis and demand projection.
12. It allows Generate inventory reports as per requirement of user.

The additional features required to be incorporated are:

- Integrate with Drug Procurement & Management Unit portal of HMSCL for seamless procurement and dispensing of drugs & consumables

N. Maintenance Cell

The existing features in the application are as below:

1. The system allows authorized hospital staff to raise complaints or requests through the system in case of any maintenance issues.
2. The system sends an alert to the Maintenance Cell In-Charge, who then investigates the nature of the complaint and updates the complaint status in the system.
3. The system automatically checks and suggests to the Maintenance Cell In-Charge if the faulty unit or process is covered under AMC/CMC/warranty and if it is in a condition for repair as per the 'History sheet' maintained by the system.
4. If the concerned unit or process is covered under AMC/CMC/warranty and is in a condition for repair, the Maintenance In-Charge can notify the external agency responsible for resolving the issues under AMC/CMC/warranty. The system automatically generates a request or complaint for maintenance/repair to the external agency if they can receive email or SMS requests, or allows manual generation if necessary. Details are updated in the system for reference and follow-up. If the Maintenance Cell In-Charge makes a call to a specified number for the agency and records the request for maintenance/repair, the details are entered in the system for further reference and follow-up.
5. The system can project the status if the complaint/request is not resolved within defined timelines or SLAs.
6. If the concerned unit or process is not covered under AMC/CMC/warranty, the concerned technician or vendor is called to rectify the problem, and the status is updated in the system.
7. The system sends alerts or notifications to the concerned hospital staff through the system about the resolution of the complaint/request. The concerned hospital staff verifies the resolution and records the status as closed or reopened, etc.
8. The system tracks and records the maintenance history sheet, utilization record of machines, data of breakdown time, scheduled alerts regarding annual maintenance/warranty/breakdown/preventive maintenance checks, and CMC. Regulatory requirements, licenses, permits, and compliances are also recorded, and the system generates necessary alerts for renewal or compliance automatically.

The additional features required to be incorporated are:

- Integrate the SMTP server for auto alerts to authorities & vendors in case of equipment breakdown

O. Equipment Management

This module pertains to the administration of all hospital equipment and assets utilized for Patient Administration Services, Patient Clinical Services, and Support Services across various hospital departments. This encompasses managing equipment visibility, utilization history, maintenance schedules, and new requirements, such as biomedical equipment, security equipment, IT hardware, etc.

1. The system allows the creation of a Machinery and Equipment Store and sub-store.
2. It maintains separate Machinery Equipment (M&E) Asset records.
3. The system centrally defines Machinery Equipment categories and descriptions across asset classes.
4. It generates unique Machinery & Equipment asset numbers upon entry into the system.
5. The system stores all relevant information about M&E, including location, description/specification, Supplier ID, installation date, asset life, Order No., and maintenance schedule.
6. It retrieves details of all M&E for any location in the structure.
7. The system consolidates M&E Registers from healthcare facilities/departments into departmental M&E Registers.
8. There are no restrictions on the number of M&E items held.
9. It records initial cost, description, and book value of assets.
10. The system provides for condemning equipment, including reasons and mode of condemnation, and updates the asset register accordingly.
11. It captures current utilization and correlates equipment working condition based on history sheets.
12. The system plans, schedules, monitors, tracks, and records maintenance activities.
13. It maintains and updates asset inventory when assets are installed or transferred.
14. The system defines and maintains preventive maintenance schedules.
15. It generates maintenance and performance reports such as log books, defect lists, asset history, location-wise asset lists, inspection checklists/schedules, delay & downtime reports, uptime analysis, asset-wise consumables, and other user-defined reports.
16. It generates and schedules emergency maintenance work orders.
17. The system helps in costing maintenance activities.
18. It maintains business rules for tracking actual resource utilization (tools, manpower, consumables, spares) against planned standards.
19. The system alerts the Maintenance cell In-charge about complaints, allowing them to update the complaint status.
20. It projects the status of complaints if not resolved within defined timelines/SLAs and sends alerts/intimations to concerned hospital staff about complaint resolutions.
21. It tracks equipment history sheets.
22. Tracks complaints/requests from various departments and their statuses.
23. Categorizes complaints/requests according to AMC/CMC/Warranty terms.
24. Coordinates seamlessly with AMC/CMC agencies and/or other technicians.

25. Standardizes requests for raising and consolidating demand for new Machinery and Equipment.

26. Alerts for equipment condemnation based on their life.

27. The system includes provisions for condemning equipment linked with utilization

The additional features required to be incorporated are:

- Integrate the SMTP server for auto alerts to authorities & vendors in case of AMC, CMC renewals

P. Billing Module

The existing features in the application are as below:

1. It captures payments made by patients for OPD, SPP, IPP, diagnosis, etc., at payment counters.
2. Payment details recorded in the system automatically collate and are forwarded to the Accounts department. Collected amounts can be sent separately for compilation.
3. The system automatically determines payment due from patients based on predefined rules and parameters.
4. It also verifies possible exemptions from payment based on patient category and registration details.

The additional features required to be incorporated are:

- An integrated HIS application is proposed to manage billing, consolidate, and export financial data across various hospital departments including PMJAY. The system should cover basic bookkeeping and integrate with existing accounting packages as needed
- Payment gateway to be incorporated so that patients can make online payments

Q. Human Resource Management

The existing features in the application are as below:

1. The system covers the following aspects of HR function within the domain of hospital administration:
 - i. Postings and Transfers
 - ii. Roster Management
 - iii. Trainings
 - iv. Leave
2. It maintains the Employee master, Hospital master, and Sanctioned Posts within the system to facilitate easy management of these functionalities. Integration with existing HR systems will be implemented to meet these functional requirements.

The additional features required to be incorporated are:

- Integrate with HRMS (Intra Haryana) & HRIS (NHM)

R. Medical Record Department (MRD)

An online module within the HIS core application tracks the movement of physical files throughout their lifecycle in hospital workflows. This module aids in fast identification and retrieval of files from officials' desks to the Medical Room or designated physical storage areas.

The module suggests the deposit of physical files in the record/storage room using a logical methodology. It maintains records of files deposited and retrieved. The hospital administration provides physical storage space, while the IA creates logical storage partitioning within the system. Physical files are identified using barcodes.

The manager or in-charge of the record/storage room receives requests from hospital officials via system alerts. They print barcodes based on system-entered details, affix them to files, deposit the files in the storage room, and update their status in the system using their own credentials. File retrieval is facilitated using a barcode reader connected to the system, which updates file status automatically.

The entire process is secured and audited through Audit Trail functionality in the HIS core application, ensuring files are not leaked or misused for personal gain.

Here is the detailed process for deposit and retrieval that should be implemented:

i. Creation & Storage of new Physical File:

- The concerned official of the Hospital or Record Room Manager enters the file details into the system.
- If the concerned hospital official does not enter the file details, a system alert notifies the Record Room Manager, who then enters the file details as per the alert.
- The system displays the designated storage location.
- The system generates a new barcode for the file and updates the status to "Barcode created."
- The concerned person collects the file from the hospital official and affixes the barcode onto the file.
- The file is handed over to the Record Room Manager, who deposits it in the record/storage room and updates the status in the system.
- A notification or system alert is sent to the concerned user.

ii. Retrieval of Physical File from Storage:

- The hospital official initiates a request through the system to the record room manager, providing file details.
- Upon receiving the request, the record room manager retrieves the file from the record/storage room and scans the barcode using a barcode reader. The system updates the status to "File Retrieved."
- The record room manager physically sends the file to the hospital official.
- After receiving the file, the hospital official updates the status in the system to "Delivery Accepted."

4.2.3 HIS Backend Support

It is proposed that all backend support services, including system support services, will be integrated into the core HIS solution. These services will be accessible through a user-friendly support services module, with access rights managed via the 'Admin' module using Role-Based Access Control (RBAC). Different types of users will have access to these services based on their assigned access rights.

Following are the different backend support modules defined for the proposed HIS:

A. Document Management

The solution supports storing various documents and reports in electronic formats such as word processing, spreadsheet, image, etc. A Document Management System (DMS) provides storage, versioning, metadata management, security features, archival capabilities, indexing, and retrieval functionalities.

It supports archival of digital documents in formats like PDF, PDF/A, Word, Excel, and images, with role-based access control offering multiple levels of access rights (read, create, modify, delete, etc.). The solution includes an inbuilt "Document Image Viewer" for displaying image documents without relying on native viewers.

The DMS facilitates search functionalities within the content, including metadata fields, content objects, documents, pages, and supports Full Text Search across image and electronic documents. It also incorporates extensive Audit Trails to log all user actions.

Additionally, the solution supports Image Assisted Indexing of Scanned Documents and allows direct upload of scanned documents to the DMS. It provides options to link with scanned old physical files repository and includes a search facility with various search criteria.

B. Content Management

A "Content Management System" (CMS) within the HIS core application allows Hospital administrators to dynamically update elements, sections, contents, forms, formats, notices, etc., that change regularly, without the constant need for a web developer. The CMS offers easy administration of the overall HIS Application, requiring nominated and authorized staff members to log on to a secure area of the application. They can then complete simple web forms and upload them to the centrally controlled database. This ensures that the changes are reflected throughout the application pages and sections as applicable. The CMS also supports designing formats for various reports, notices, and other communications like promotional messages, which can be uploaded directly to the HIS application.

C. Application Admin

It is essential that the UI interface for the Admin User provides functionalities for User Management, Rights Management, and Masters Management to control list and field values. This UI must align with the "ACCESS CONTROL" requirements set by the Government of Haryana (GoH) or Health Department, as agreed upon by HSHRC and the IA during the HIS application software acceptance. Impact analysis for any changes during Change Requests should be thoroughly analyzed, discussed, and approved by the Haryana State Authorities or HSHRC before implementation.

Maximum and/or nearly all the variables must be dynamically controlled through masters from Admin instead of being hard coded.

Admin USER will be strictly a single USER login for the HIS application software and the ACCESS policy shall be integrated and collaborative for the

Application Admin (User Management & Security)

Sr. No	User Management & Security
1	Audit Trails
2	Users & Group Management
3	Rights & Privilege Management

D. Audit Trails

Audit trail with detailed record showing who has accessed the system/application and what transactions / operations have been performed by the concerned user during a given period of time is in place. Audit trail displays the following details, but not limited to, with filter / sorting criteria options:

- a. Timestamp
- b. User Name
- c. Module – Sub Module – Screen – Section – Field Name
- d. Previous Value
- e. Current Value
- f. Remarks (if any)

It is must that the Audit Trail module does not have a Delete“ or „Edit“ right granted to any user irrespective of any type or hierarchy as created in the system. The „view“ rights should also be controlled through RBAC in Admin Module.

E. User & Group Management

User Management will be a management and authentication feature within the application that will provide administrators with the ability to identify and control the state of users that will have right to log into the “HIS” application and use it. The module will help create different types of new Users, Manage their designations, locations, Roles and Responsibilities, as well as their rights within the entire system. This will also provide the feature of activating or deactivating any users, including other User management features, but is not limited to, the ability to query and filter users that are currently logged into the network, and control user login counts and login times.

There should be facility to form „Groups“ and the Users can be assigned to desired Groups. These groups can be formed based on roles, responsibilities, type of work, etc. The properties of these groups can be assigned for better manageability of each User within the Group.

F. Rights & Privilege Management

Through the User authentication server „Rights Management Services“ (RMS), there will be a form of User authentication functionality that will allow various users to access the “HIS” system and work as per their defined Roles and Responsibilities. Rights Management Services will be used for restricting access to rights-protected content / sections / modules / screens / Fields, etc. to authorized users only. Rights to all active users will be granted based on their hierarchy and level in the organization, designation, assigned roles and responsibilities, location etc. among other parameters. It is also proposed that the new rights can be created through the Rights Management UI interface as well as existing rights be managed through the same. The access to this section of the application will be strictly based on “Role Based Access Control” (RBAC) for the Administrator(s) only as defined in the

ACCESS Policy. The details of any change in this module will be captured in the Audit Trail of the application. Also, there should be facility to assign/modify/delete rights globally for the desired Groups within the system.

G. MIS Reporting

This gives authorized Users the ability to have a customized view of the entire list of reports they use or wish to use. Required security is applied to this module providing a restricted access as per different category of Users within the Hospital.

This module is further linked to the Personalized Dashboard where the same links to these reports can be displayed in small portlets, so that any User may not always search for their frequently used reports from the Reports module, and they can add it to their own dashboard for ease of use. All the reports made available need to be controlled through „Admin“ module for variable access depending upon the nature and status of the USER. The access control list of the reporting servers needs to be mapped and configured with the admin access control policies.

H. Personalized Dashboard

The dashboard functionality enables each of the key Hospital staff (Doctors, Anaesthetists, Surgeons, CMO, etc.) to view their virtual personal space and manage their tasks, organize their work etc. based on their roles and responsibilities in the Hospital functions and assigned privileges. This should be strictly privilege restricted section based on Role Based Access Control (RBAC) mechanism defined through the ‘Admin’ module.

The following features are available for the personal Dashboard facility controlled through the ‘Admin’ module for all the key internal users:

- a. **Quick Links** – Links within the application as well as external links to access any application module or website other than HIS)
- b. **Pending Activities/Tasks** – A list of tasks assigned / to be performed by the concerned User, arranged sequentially, along with number and type of tasks. The standard sequence of completing the tasks for all users are First in First out (FIFO) sequence. To override the standard sequence, the concerned user will need to specify the reason and enter the details in the system. Audit trail captures any such change in the system.

An additional facility to view other Users tasks, if sufficient rights are provided (especially to senior hospital officials) should also be provided, but strictly controlled through ‘Admin’ module of application. Senior Hospital officials in some cases can view the work load and performance efficiency of any junior staff in handling particular set of tasks. They can reassign a certain task to themselves or to other staff members, due to any administrative reason, and get the task completed.

History of Completed Activities / Tasks – All the completed activities are displayed to the concerned User, in case they want to refer it in future. User friendly features like pagination or drill down to see further details of the completed tasks are provided, as required.

- c. **MIS reports** (Fixed and Adhoc / Customized reports) – which may be bookmarked from the Reporting module of the system; and
- d. **Red Flags** – notifications, alerts etc. as per pre-defined logic or escalation matrix

Note:

1. *This is mandatory requirement to be implemented for Haryana HIS.*
2. *The above features and functionalities are only indicative and additional features may be included in the Dashboard module by the HSHRC / actual users / module leaders. It is envisaged that the Dashboard functionality will be different for each functional module / department within a hospital as well as for each individual, catering to their specific needs, and they should be able to dynamically configure their dashboards as required. The IA must develop all the required functionalities in this module, as directed by the module leaders, and also by HSHRC from time to time.*
3. *Also, the personalized dashboards should be designed Role wise and should be different for each User. IA must take inputs from the actual Users to design the structure for module-based dashboard. The various functional requirements may also be referred for better understanding of the dashboard requirements.*
4. *The IA is required to analyze the re-engineering components in order to adequately build this functionality in all the processes of HIS. It is also a mandatory requirement that all the processes should be interlinked to share data / information, and also to 'Admin' module so that access rights and content can be dynamically controlled as and when required by HSHRC officials themselves.*

4.2.4 Integration Services

HMIS Core Application is envisaged to be a completely automated and integrated software application which envisaged to be used not only by internal Hospital users but also the state and district level decision makers as well as patients / citizens in future, to obtain various services provided by the Hospital / network of Hospitals.

The application shall be integrated with the private healthcare institutions within the state following a standards-based approach and using interface connectors that enable continuum of care. This shall enable and allow both the public and private institutions to share clinical and health information electronically cutting across heterogeneous systems utilizing the benefits of the contemporary frameworks like Health Information Exchange (HIE). Access to healthcare information shall inter alia address other attendant factors such as security, confidentiality and consent for sharing data. All other legalities and regulatory requirements shall be applicable to the participating institutions.

The system should have adequate functionality that would enable registration and exchange of healthcare data in respect of private clinics/nursing homes/labs and hospitals including doctors and facilities.

It is believed that the true sense of automation will only be achieved if the system is capable enough to exchange data / information to and from other external systems or departmental applications. It is proposed that a standard mechanism of data exchange be built and implemented by the IA to cater to any external systems requirement so that the impact on the HIS core application is minimal due to any external changes.

The system shall enable integration / data exchange to and from any external application / database which will happen only through a „Interface Component“ by using a standard data exchange protocol through a secure channel, utilizing the Interface component“ described above.

4.2.4.4.1 Integration with internal lab machines & radiological equipment

The application is presently integrated with 202 lab machines and 87 radiological

machines. The IA would be required to maintain the integration as well as integrate new machines as and when required

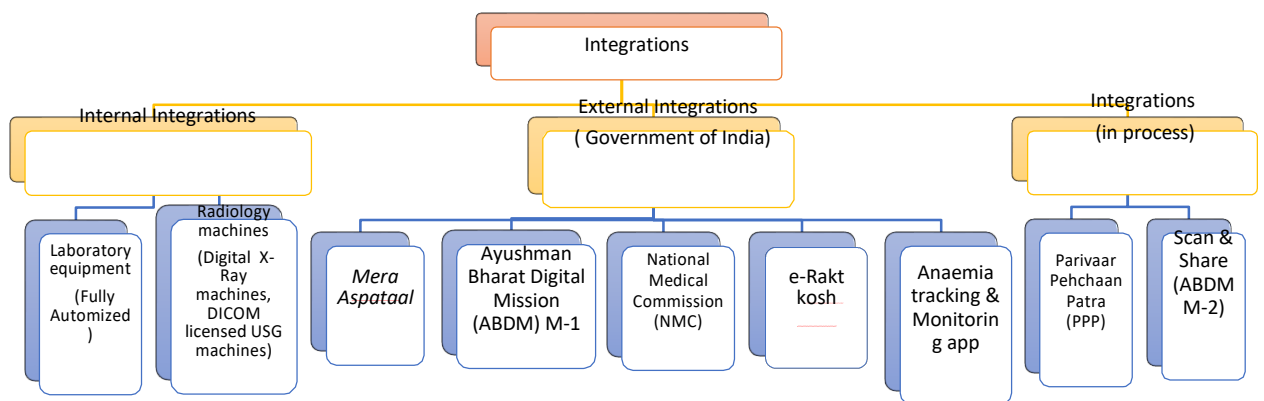
4.4.4.2 Integration with external applications and systems:

Following are the key external applications which are envisaged to be integrated with HIS, but not limited to:

- i. e-Raktkosh
- ii. Mera Asptaal
- iii. Drug procurement and supply chain management
- iv. Mother Child Tracking system (MCTS)
- v. Non-Communicable Diseases portal
- vi. IDSP portal
- vii. HMIS/Single reporting Surveillance System
- viii. Referral Transport / Ambulance Service
- ix. ANMOI app
- x. HRMS/HRIS
- xi. Other National & State Programs and Schemes (**Nikshay, SOCH {NACO}, iRAD, UDID, NIROGI, Medical Certificates**) etc.
- xii. Integration for Data Exchange between HIS and Laboratory/Radiology equipment
- xiii. Integrations as desired by the HSHRC
 - a. Integration with external systems will involve different levels of integration depending upon type and architecture of external applications. E.g. xml, csv, flat, API, web services etc.
 - b. Some of the applications are developed and implemented by NIC, will also need to be integrated.
- xiv. **Integration with services on Public Private Partnership (PPP), Dialysis, CT Scan, MRI, Cath Lab**

All integrations with existing software applications are expected to happen over a period of time.

The scope of integration may vary based upon the department’s need from time to time



4.2.4.3 Integration with SMS Gateway & SMTP server:

The SMS Gateway Service/ email will act as a common service, integrated with the core HIS application, and will be used to deliver SMS based services to all citizens / Patients and in some cases doctors and other Hospital staff. SMS Gateway will support both Push and Pull services wherein a common information service can be pushed to a group of people based on different criteria. A citizen / patient can also request for specific information at the individual level through Pull based SMS service/email by sending a specific keyword to the HIS portal / application.

4.2.5 Citizen/ Web Portal

Citizen web portal is part of the solution, which takes care of continuation of patient care.

Patient details such as, diagnoses, laboratory / radiology reports, prescription is available online for respective patients with their valid user credentials.

The main functionalities/modules in Citizen Portal are mentioned below, but not limited to:

- Provision for appointment based on doctor's availability and specialty
- Registration/password Retrieval
- Able to view their medical records made available by the hospital

Additional features to be incorporated:

- Access to patients to EHR
- Patient education on different services such as diagnosis, procedures and medication
- Prescription management
- Search/Advanced Search
- Reports/statistics

4.2.6 Electronic Health Record

The EHR provides access to information in the form of result data, text documents, scanned documents, images and waveforms from interfaced foreign systems and medical devices (if applicable).

The information is displayed within tabs and sub-tabs for different types of data groups like clinical summary, history, observations, etc.

In case of doctors on leave, information to be given to all concerned patients accordingly. Doctor's desk shall be customized as per the requirements of the concerned doctors.

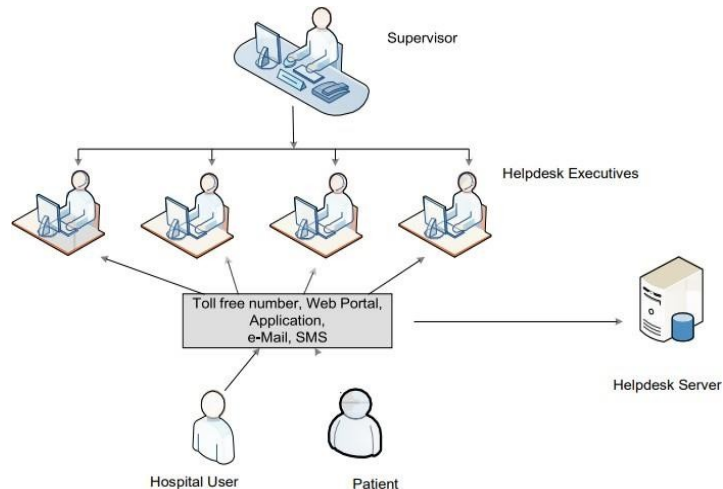
With the advent of ABDM, the EHR would have to be compliant to the standards laid down by NHA

4.2.7 Centralized IT Helpdesk / Incident Management

- i. A centralized IT Helpdesk is required to be set up as part of the scope. The IT helpdesk service should serve as a single point of contact for all ICT related incidents, information and service requests related to HMIS, ERP, Apps and as well as grievance redressal and tracking status of incidents. The key requirements for IT Helpdesk for incident management should include:
 - Facility for reporting issues / problems related to the IT infrastructure, Network or HMIS
 - Provide a service desk facility and to set up all necessary channels for reporting issues to help desk. The incident reporting channels will be the following:
 - a. Specific E-Mail account
 - b. HMIS Web Portal / Mobile App
 - c. SMS
 - Co-ordinate with infra service provider for resolution of any issues/problems related with infra services and/or disaster recovery site.
 - Shall operate from 8AM to 8PM on every business day i.e. 6 days a week; if necessary it should be also available on Holidays as per prior information and demand. The term Holiday would include all public / government holidays as well as weekends.
 - Shall also operate during late hours on demand; if necessary. The term late hours would mean time period of 8PM of current day to 8AM of the next day, on all working days and Sundays.
 - To implement a call logging system in line with the severity levels as per defined SLAs. The indicative call process is described below:
 - i. Helpdesk Executives

- ii. Helpdesk Server
- iii. Hospital User

- The Helpdesk is envisaged to undertake the following activities:



- Log issues / complaints / Grievances related to Application, IT infrastructure, Bio-Medical Infrastructure, Data Centre services, IT systems at client locations, grievances related to services availability and quality etc., as under different categories and issue an ID number against the issue / complaint / Grievance
- Assign severity level to each issue / complaint / Grievance
- Track each issue / complaint / Grievance to resolution
- Escalate the issues / complaints / Grievances, to State Authorities if necessary as per the escalation matrix defined in discussion with HSHRC.
- Provide feedback and resolution to the callers.
- Follow up on the collection of reports, revisit and recording general feedback / complaints on the services provided in the hospital facility.
- The services must be available in at least two languages, viz. Hindi and English. A call at the helpdesk will be defined as successful registration of the call and a complaint ticket is generated in the system, or successful dissemination of information sought by a User. All calls will be monitored as per the call logs generated from the system. It is also proposed that the issue /complaint/ Grievance statistics should be analyzed and also a knowledge base, based on frequently asked questions to aid the users, should be created in the long run.

Note: It is proposed to HAVE a centralized Helpdesk / Incident Management centre.

- The resources for IT support and the Helpdesk / Incident Management services may be responsible for both and Facility Management as well, to optimize the deployed manpower.
However, the SI/Consortium need to ascertain the exact requirement and model of operations for providing adequate support services for these two categories.

4.3 Creation of Haryana Health Data Lake and KPI Dashboards

HSHRC envisages to setup a Data Lake for supporting the state's healthcare system that is compliant to HIPAA, supporting complete view of individual and patient population health data using FHIR (Fast Healthcare Interoperable Resources) API based transactions. HSHRC would like to store patient medical history from multiple data sources in the normalized common data model (FHIR-based) format and leverage FHIR APIs to build transactional applications and patient 360 views. Further, HSHRC should be able to make predictions and identify trends with health data using machine learning models and tools for analytics.

- b. Few envisaged KPI Dashboards to be published include:

- Statewide Health KPI Status for each disease
 - Facilities and their utilization status
 - Disease Spread Pattern Analysis
 - Population Health Analytics
- c. The dashboards required will be decided mutually between HSHRC and the onboarded partner.

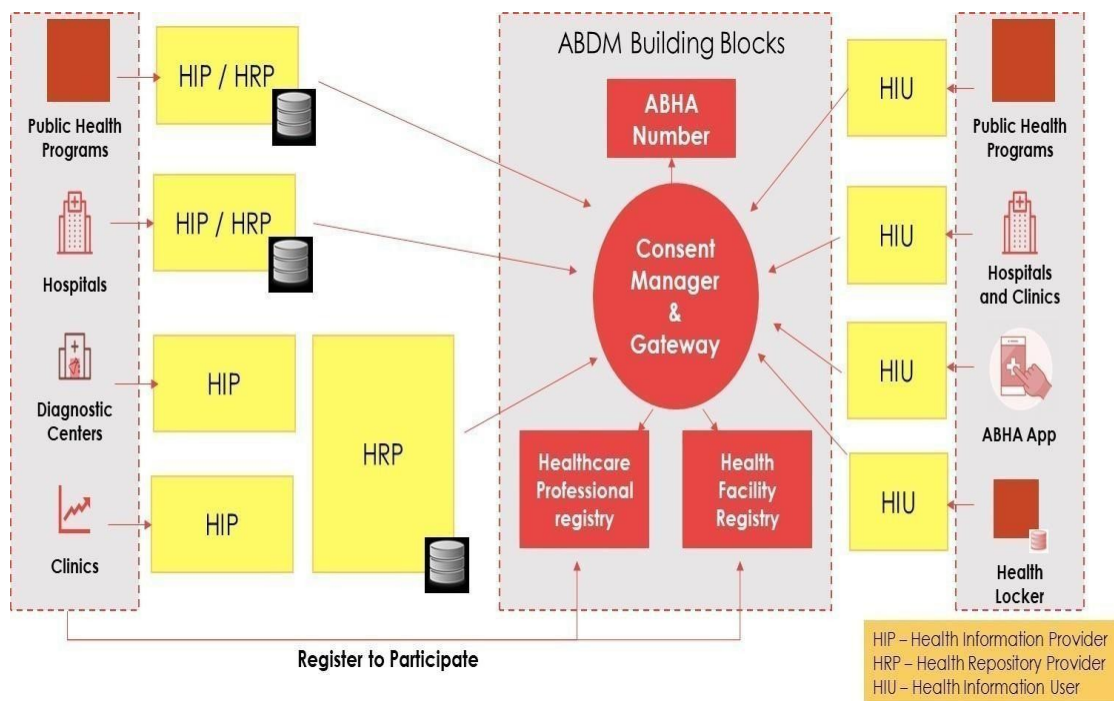
4.4 ABDM - Ayushman Bharat Digital Mission

With the objective of streamlining the digital health ecosystem of the entire nation ABDM is a significant step towards making a healthier future. ABDM is a voluntary program that is all set to reduce the gap between doctors, hospitals & labs, patients, and other healthcare provider organizations (pharmacies, insurance companies, etc.)

The ABDM is designed, developed, deployed, operated and maintained in accordance with the guiding principles as laid out in National Digital Health Blueprint. The ABDM building blocks are as follows:

- *ABHA Number* – which aids in standardizing the process of identification of individuals across healthcare providers, authenticating them and threading them to the health records with proper consent
- *Health Professional Registry* – a single updated repository of all the healthcare professionals with all their relevant details and areas of expertise
- *Health Facility Registry (HFR)* – It is a single repository of all digital health facilities of the country.
- *ABHA App (PHR)* – It is an electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be drawn from multiple sources while being managed, shared, and controlled by the individual.

Figure 4. ABDM Ecosystem

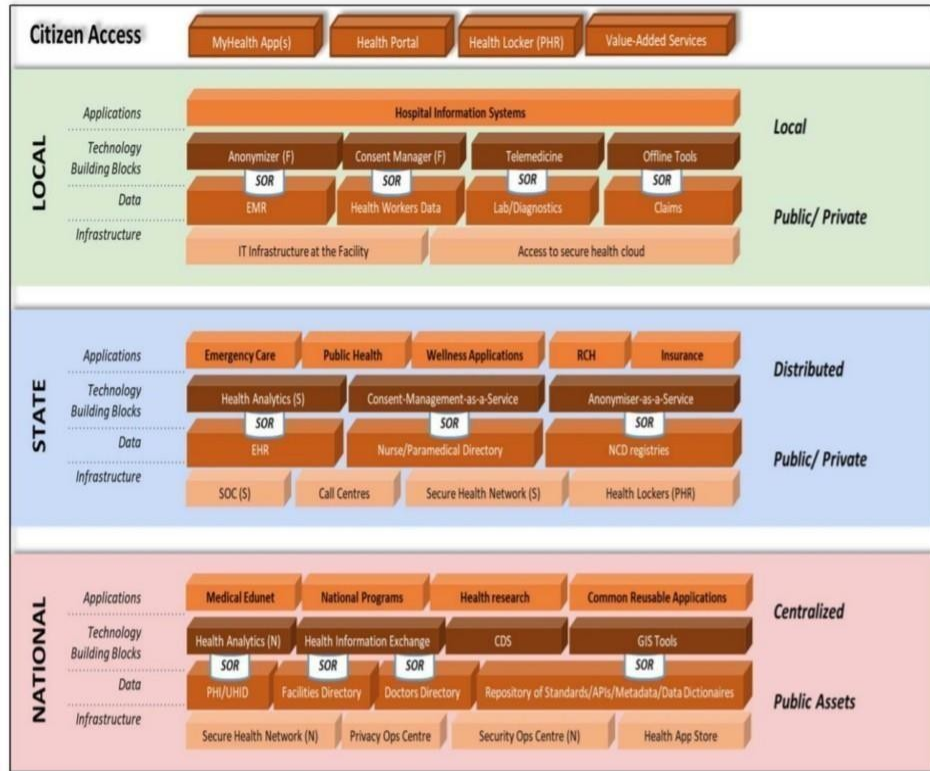


Note: Bidder should visit ABDM website for better understanding and details of mission

Bidder will be responsible for successful roll-out and adoption of ABDM in State. MSP should undertake below mentioned but not limited to indicative activities:

- Population of Health Facility Registry and Healthcare Professional Registry
- Undertake IEC activity in order to enhance adoption of ABDM building blocks
- Design and develop local and State level applications as per below mentioned ABDM architecture

Figure 5. ABDM Architecture (Reference – National Digital Health Mission Strategy Overview)



- BIDDER should complete integrations between consent manager, registries, HIU and HIP
- BIDDER should make all applications defined in scope of work; ABDM compliant
- BIDDER should complete ABDM sandboxing process for all application defined in scope of work (BIDDER should refer to link [ABDM Sandbox \(abdm.gov.in\)](http://abdm.gov.in))

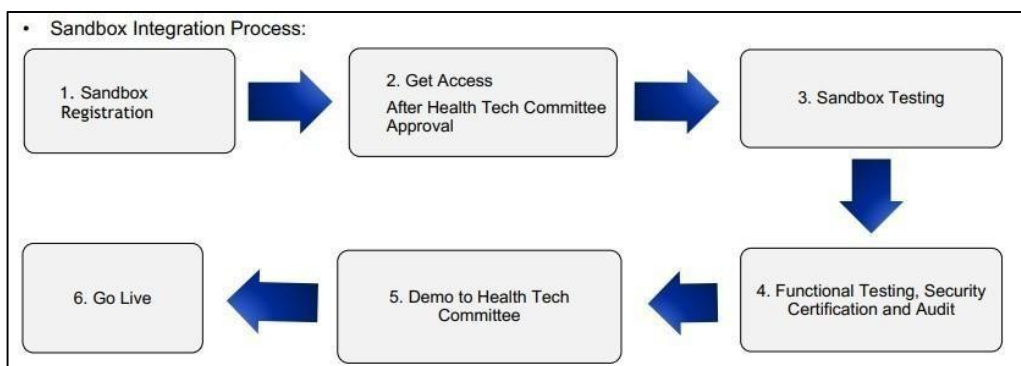


Figure 6. ABDM Sandboxing process

d. ABDM compliance

- The proposed solution should build upon the current setup, ensuring continuity and enhancement of these capabilities as per ABDM Level 3 guidelines.
- Currently, the HMIS setup is compliant with ABDM Level 1 standards. To achieve ABDM Level 3 compliance, BIDDER will be responsible for ensuring the same.
- The current HMIS setup is already compliant with ABDM 1 compliance standards and includes the following features:
 - Dashboard for Public Health Purposes to facilitate real-time data access and analytics.

- ✓ Privacy and Security Standards:
- ✓ Alignment with Health Data Management Policy.
- ✓ Access control mechanisms.
- ✓ Transport encryption for secure data transmission.
- ✓ Data encryption at rest for stored data protection.
- ✓ Audit trail to track data access and modifications.

ABDM Compliance 3 Requirements

- ✓ **Privacy and Security Standards:**
 - Alignment with Health Data Management Policy, including provisions for emergency access.
 - Robust access control mechanisms.
 - Transport encryption to secure data during transmission.
 - Data encryption at rest to protect stored data.
 - Comprehensive audit trail to monitor data access and modifications.
- ✓ **Availability of Solution as a SaaS Model. *(Mandatory for small Hospitals up to 25 beds)**
 - Ensure the solution is available as a Software as a Service (SaaS) model.
 - Include scalable storage solutions.
 - Implement a robust disaster recovery plan to ensure data integrity and availability.

4.5 Change Management

Migration change management is a critical process in the successful transition of a Health Information Management System (HMIS) from an on-premises environment to a MeitY empaneled CSP platform. This process ensures that the migration is planned, executed, and monitored effectively while minimizing risks and disrupt

4.6 Support Requirements:

The SI/Consortium shall provide Operation and maintenance (O&M) support to HSHRC for 3 years from the Project initiation phase. The O&M should continue till the end of the contract i.e. for 3 years after Project initiation. The SI/Consortium will (immediately post the Project initiation) start the Project with 7 months of Knowledge transition phase (KT – Shadow Support – Primary support) followed by Steady-state support till the end of the Contract period. SI/Consortium will provide on-site support.

The support will address all user level queries, fixing bugs, enhancements, changes to configurations, customizations, patch updates, upgrades, database administration, security etc. The Operation & Maintenance of the Overall System Solution (including but not limited to System Software, Application Software and other Infrastructure services) shall be for a period of 3 years including 7 Months Knowledge Transition phase.

Operation & Maintenance of Application Software and infrastructure a period of 3 years including 7 Months Knowledge Transition phase

- Compliance to SLA
- Application Software Maintenance, Problem identification and Resolution
- IT Infrastructure Operations and Maintenance as per requirements
- Co-ordinate with CSP for support related to all infrastructure services as mentioned in previous section.
- Other infrastructure operations and maintenance in compliance to Service Level specified in RFP

4.7 Manpower for IT Support at all project locations

It is proposed that Bidder should design the manpower requirement and look to deploy up to 1 resource deployed at each District Hospital and 2 resources at each Medical College, who will manage the support services at the district as well as all locations under it, as and when needed. Apart from this, additional staff of up to 10 resources will be placed in Panchkula HSHRC HQ to carry out incident management of all other locations.

Note: This is indicative manpower requirement to manage the IT support services at all locations within the project scope. However, the SI/Consortium may suggest an appropriate model with adequate resources deployed phase wise but not more than proposed manpower as stated above at any given point of time.

4.8 Facility Management Services

Facility Management Services should be provided by the SI/Consortium for all IT, non IT and other items / services being used by Hospitals for 3 years with the following objectives and envisaged outcomes that the SI/Consortium has to ensure throughout the contract period:

- Establish effective and efficient Infrastructure monitoring and management practices to ensure reliability, availability, quality of services and security of the Information systems
- Help Hospitals to focus on the core business activities, service delivery to citizens and administration
- Help Hospitals in freeing from the problems relating to overall administration, infrastructure, resources, security as well as performance management
- Exploit maximum benefit for the HIS out of the EMS tools being deployed, in terms of reduced response time and productivity of the users and thereby utilizing the investment for better services to the Hospitals
- Incorporate/adhere the security guidelines issued by the State authorities / HSHRC during the course of the contract
- Ensure compliance to the audits and the observations of regulatory bodies
- Ensure innovative use of available technology to effectively by improving response time and productivity for the business of the Hospitals
- Provide effective IT infrastructure, Applications support and management tools
- Enhance reliability and security of Information Systems through centralized management of IT Infrastructure adopting the necessary measures and practices like:
 - i. Dynamic Scalability
 - ii. Centralized and Simplified Management
 - iii. Improved quality of Data storage and retrieval with no risk of data loss
 - iv. Higher availability of systems and data - 24x7x365
 - v. Better management of security and access control
 - vi. Guaranteed Service Levels leading efficiency in processes and functions
 - vii. Reduced administrative burden for the Hospitals by avoiding necessity of vendor management, addressing the technical issues surrounding the IT Infrastructure
 - viii. Efficient and effective management of Information Security related Health care issues across Haryana
 - ix. Aggregation and optimal Utilization of IT Infrastructure (Hardware, Storage, Networking and Software) and Management Resource

Chapter 5

Technical Requirement Specifications

Technical Requirement Specifications

The current application solution should be made web enabled, built on enterprise application platforms with sufficient flexibility for customization based on HSHRC's needs. The proposed HIS solution must use standard relational database.

1. **Language Support:** All functionalities must be provided in English language. All the screens and templates should be in English.
2. **Dates:** All functionality MUST properly display, calculate, and transmit date data, in 21st-Century date data (DDMMYYYY) format.

5.1 Application and other standards

This section details the various Information Technology (IT) related standards that are to be considered while developing the HIS solution. The below mentioned components need to be taken care of while developing the technology components on HIS Solution:

1. Platform Flexibility
 - a. Web-centric, multi-tier architecture shall be used
 - b. Open Standards and Interoperability shall be considered; however, SI can choose latest best technology like micro soft visual studio or any to give a best solution
 - c. XML based standard shall be used wherever applicable
 - d. Compliance to SOA and Web-services
2. Interoperability
 - a. Usage of standard APIs
 - b. Service-oriented architecture (SOA) based
 - c. Support for multiple industry standard databases with ODBC, JDBC and Unicode compliance
3. Usability
 - a. Applications should comply with Guidelines for Indian Government Websites

5.2 Compliance with Industry Standards

The Solution shall be based on and compliant with industry standards (their latest versions as on date) wherever applicable. This will apply to all the aspects of solution including but not limited to design, development, security, installation, and testing. There are many standards that are indicated throughout this volume as well as summarized below. However, the list below is just for reference and is not to be treated as exhaustive.

Information access/ transfer protocols	SOAP, HTTP/HTTPS
Interoperability	Web Services, Open standards
Information Security	System to be ISO27001 compliant
Operational integrity & security management	System to be ISO17799 compliant
Service Management	ISO 20000 specifications

Project Documentation	IEEE/ISO specifications for documentation
Internet Protocol	IPv6 ready equipment
UHID	Unique Health Identifier, as a unique (primary or secondary) patient identifier. The UID should be used to identify a particular patient across all organizations (and their EMR systems); Aadhar number is recommended for use in EMR as either the primary or secondary, where the primary is an internal unique health identifier used by the healthcare provider organization
Medical standards	DICOM 3.0 Compliant
Imaging	Picture Archiving & Communications System (PACS)
HL7 Clinical Document Architecture - Interoperability standard for exchange of electronic health information	Likely to be used for exchanging the clinical documentation between two EHR solutions both within an organization and outside
HL 7 V2.x	Seamless handling of inbound and outbound HL7 messages from any system that has similar capabilities; V2.3 or above
HL 7 V3.0 RIM	Reference Information Model: Intermediate recommendation; to be replaced with HL7 FHIR when it is accepted by BIS/HL7-India
HIS Application	Web enabled application, Web 2.0
Universal standard for identifying medical laboratory observations	LOINC Coding, is Logical Observation Identifiers Names and Codes
WHO ICD 10/11 for Disease Classification	ICD-10 coding, is the international standard diagnostic classification for all general epidemiological, many health management purposes and clinical use
Clinical Healthcare Terminology	SNOMED-CT Coding (when available), is a Systematized Nomenclature of Medicine – Clinical Terms, Provide comprehensive

	clinical granularity, used to capture problem list, allergies, diagnosis, procedures etc. – will immensely aid in clinical analytics, clinical decision support systems, automated clinical care pathway management systems, support evidence based practice, etc.
ISO 18308	Reference EHR Requirements Specification, the latest version
CEN / TC 251 EN 13606	Reference Model & Archetypes, the latest version
ATC Pharmacologic-Therapeutic Classification Indian Drugs – MIMS/CIMS from CMP medica	Needs to be researched as there is no universal drug reference database. The WHO Drug Dictionary ATC – anatomic therapeutic classification – may be a good choice to begin with
International Classification of Traditional Medicine (ICTM)	Ayurveda, Yoga, Unani, Siddha, Homeopathy systems of medicine as distinct from the allopathic (Western) system of medicine
Investigations	Investigations coding, Results coding

The system shall adhere to all the IT standards published by the Department of Electronics & Information Technology, Government of India (www.deity.gov.in) and other applicable medical standards listed in the table above as approved by the Ministry of Health & Family Welfare, Government of India.

5.3 Performance Metrics

Some of the key considerations that the implementation agency should aim for while designing the deployment architecture is to ensure that the HIS project meets SLA requirements, standards, specifications and performance prescribed, by ensuring that the following are associated with clear, quantifiable metrics for accountability:

1. Performance
2. Availability
3. Security
4. Manageability
5. Scalability
6. Inter-operability & Integration
7. Standards and protocols

The solution must be designed to meet all functional, non-functional and management requirements as mentioned in the document. Some of the key acceptance criteria are defined in the table below.

Requirements
<ul style="list-style-type: none"> • Performance - The system should provide fast and steady response times (Quality of Service). The maximum user response time should be less than 3 seconds over WAN and less than 1 second over LAN, for the next screen to

Requirements

appear or the existing screen to refresh for submission of data. The speed and efficiency of the system should not be affected with growing volumes, especially during search operations, reporting, MIS, online processes and batch processes.

The system should be operational with good response time using low band width in the hospital of about 32Kb per user, especially for LAN and internet users.

The system should support high variance in frequency as the volumes are not expected to be constant and may be subjected to variances in user behavior due to festivals, seasons, economic state of the country, regulatory changes, behavior of intermediaries, etc.

- **High Availability – All the components of the solution must provide adequate redundancy to ensure high availability of the HIS applications. The systems shall be designed for 24x7 operations and meet all SLA requirements. Designing for availability assumes that the systems will fail, and therefore the systems must be configured to recover from component or server failures with minimum application outage. All the components of HIS should support SNMP protocol for the effective monitoring and management.**

The application should be available for 99.5% of the planned uptime. The accepted planned downtime should not be more than 60 minutes per month (2 alternate Sundays in a month at around midnight). The IA needs to indicate the critical components in the system and indicate the plans for fail-over mechanisms.

The overall availability of the application will be dependent on Cloud Service Provider services. Some of the cloud services are already in High Availability mode, however for other services there will be minimum availability of 99.5%. It is expected from the IA to architect and deploy the solution in a manner, keeping in view the SLA offered by the Cloud service provider, to achieve defined SLA.

- **Security – The implementation of HIS components for each of the project locations should comply with the standard guidelines of Information Security Management System (ISMS). The IA is expected to implement ISO 27001 for the project and should formulate standard security policy and procedures applicable for each of the entities separately.**

- **Manageability (Version Control and Management) – The proposed System must have versioning features to track and document and process revisions made. A tool may be used for version control. The admin control of the tool will always remain with HSHRC.**

- **Scalability – All components must support scalability to provide continuous growth to meet the requirements and demand of**

Requirements
<p>Haryana HIS. A scalable system is one that can handle increasing number of requests without adversely affecting the response time and throughput of the system. HIS solution should support vertical scalability (the growth within one operating environment) and horizontal scalability (leveraging multiple systems to work together in parallel) by the use of load balancers and High available servers. A scalable HIS solution shall easily be expanded or upgraded on-demand. Scalability is important because new proposed components shall constantly be deployed.</p>
<ul style="list-style-type: none"> Inter-operability - The entire system with all subsystems should be interoperable and must seamlessly integrate with other legacy applications and the applications being developed / already developed by Government of India as well as Government of Haryana for similar purposes. <p>Operating systems and storage technologies from several suppliers must interact well with each other. These systems should support the open architecture solutions such as XML, LDAP, SOAP, etc. where information/ data can be ported to any system, whenever desired.</p>
<ul style="list-style-type: none"> Access and Interface – The systems must be user-friendly, intuitive and equipped with help / support facilities.
<ul style="list-style-type: none"> Central Server Based Computing – The computing architecture must be Server based. The applications will reside in the servers and will be accessed to the users through other Browser based computing facility / technology.
<ul style="list-style-type: none"> Application Client– The clients should be supported on latest versions of all popular browsers such as Internet Explorer, Chrome, Netscape, Mozilla Firefox, etc. It should also be multi-channel, compatible to web as well as mobile / handheld devices.
<ul style="list-style-type: none"> Source codes – Please refer to Intellectual Property clause mentioned in the RFP
<ul style="list-style-type: none"> The system should be web 3.0 compliant to ensure the HIS application works on various platforms, browsers and resolution.

5.4 Acceptance Criteria

5.4.1 Security

The IA must take rigorous provisions to prevent unauthorized alteration or damage to HIS application, and all related applications and databases. The IA must describe in detail all measures to be taken, including the use of security infrastructure including end-point security, Security Policy and Procedures for each project location, applicability of the policies and security controls for physical, communication, assets, software licenses, equipment security etc. as per

the ISMS procedures. IA shall provide basic level of security by providing the end users with username and password to access the applications. IA shall deploy the application only after it has undergone User Acceptance Testing (UAT) and is security audited by the Haryana State Information Security Management Office (ISMO) for vulnerability assessment (VA) and penetration testing (PT). The UAT shall also include assessment and evaluation of all application SLA's However IA shall undertake and conduct all sorts of testing and follow a standard Software Testing Life Cycle approach (STLC) before deployment of application in a production environment in addition to assessment and certification through the ISMO. Content Management Software that is part of the portal shall be restricted to specific IP sources. Additional layer of security shall be provided to sensitive applications by deploying these behind Application Firewall. The ISMO shall also arrange for the Third-Party Audit (TPA) of the HIS Solution implemented by the Implementation Agency and the charges for hiring the services of TPA shall be borne by the HSHRC.

The Governance Framework established for the project shall ascertain what all measured risks that needs to be accepted; however, IA shall at each such occurrence/incident be responsible for providing resolution in terms of correction, prevention and remediation throughout the project tenure.

5.4.2 Backup and Recovery

The IA must design and successfully test backup and recovery capabilities as provided by the Data center Service Provider for the HIS application The IA must describe this functionality, the frequency of backup and provide reports to HSHRC. It is a must, that the facility to conduct such tests/audits should be provided to HSHRC or any other nominated agency on behalf of HSHRC for audit purposes, as and when required. At each hospital facility, IA shall be responsible for data storage, backup and recovery measure that will be taken at individual facility separately.

5.4.3 Uptime and Performance

The HSHRC shall provide the Data center services as mentioned in section 6.8 which shall include compute, storage, back up, security etc. and network capacity for the centralized infrastructure deployed at the Data Center on the basis of solution proposed by the IA. Therefore, IA must provide in their technical proposal Data Center BOQ. The IA must state the capacity that will be required for each of the IT Infrastructure component provided by Data Center Service provider.

5.4.4 Development / Customization Criteria

In order to achieve the high level of stability and robustness of the application, the system development life cycle must be carried out using industry standard's best practices and adopting the security constraints for access and control rights. The various modules / application should have a common 'Exception Manager' to handle any kind of exception arising due to internal / external factors. This will help ease of application maintenance and enhancements. Similarly, the modules/ application should be supported by the 'Session' and 'Transaction Manager' for the completeness of the requests.

The software application must be developed / customized in a suitable environment as agreed in the discussions with HSHRC. The IA must justify the choice of development environment. The application must be developed / customized and hosted utilizing industry standard with commercially available tools. The IA must list all tools to be used to develop, customize and maintain the application, as well as the hosting platform, hardware and software, and seek prior approval of HSHRC. IA shall propose and setup a dedicated 'Development / Customization' environment and provide remote monitoring access to HSHRC for the same.

It is proposed that the customization of HIS core application may be allowed to take place outside HSHRC / Government premises; however, it is proposed that for all the ongoing

upgradation / enhancements and maintenance activities needs to be done within the development environment set up by the IA within pre-decided premises only. The IA must comply with all the IT and admin requirements as defined by HSHRC.

Note: In case the State Authorities / HSHRC agrees to continue ongoing upgradation / enhancements and maintenance activities from outside location, the IA needs to define the environment and provide necessary controls / access for adequate monitoring to authorized officials.

The IA must take all reasonable care to protect the integrity of the software application during development / customization. Use of a version and library control tool is required. The IA must describe the development environment to be used and tools deployed for maintaining the version control of the software application. The access control of the version control tool must be provided to HSHRC or any agency nominated by HSHRC for periodic review of logs and Audit of the entire development process.

5.4.5 Project Management and Plan

The IA must provide an experienced Delivery Manager to oversee the development/customization of the application and serve as primary point of contact for HSHRC. The IA must follow an established Project Management methodology conforming to the best practices of the Project Management Institute. The IA must describe the methodology to be used.

Within one week of award of contract, the IA must provide HSHRC an Inception Report including a detailed Project Plan for the development / customization of the application along with the Performance Management System (PMS) tool. This Project Plan must include the Project Charter, a work breakdown structure showing all proposed milestones and deliverables, and a listing of all project issues and risks. Additionally, the IA will also be required to submit the detailed CVs of all resources being deployed for providing services to HSHRC and also the 'Resource Plotting' sheet as per project plan.

The IA must provide weekly status reports to HSHRC during the development effort as well as the entire project implementation and maintenance phase, for the entire contract period. These reports must be submitted by close of business each Monday and reflect status against the Project Plan as of close of business the previous Friday. Any falsification of these status reports or failure to inform HSHRC of issues impacting the deliverables or timeframe of the project may result in imposition of adequate penalty / action by HSHRC.

5.4.6 Version Control and Bug Fixing

The IA must make any modifications necessary for the duration of the contract to ensure that the system is compatible with current and supported versions and releases of the relevant operating system and other system software with all relevant documentation. It is a mandatory requirement that all relevant documentation be created, updated and maintained throughout the contract duration. The IA will also ensure that proper track of all bugs are maintained and are fixed as per various tests conducted on the application. It is desirable that the IA maintains a bug tracking tool for the purpose.

5.4.7 Future Changes / Application Upgrades

From time to time, changes in work process, legislations, policies, etc. may necessitate changes in the HIS application. The IA must make any and all such changes for the duration of the contract as defined in the "Change Control" procedure. When provided the specifications of the change required, IA must submit an estimate of work effort and cost for the change, as defined in the "Change Control" Life Cycle" to HSHRC for approval.

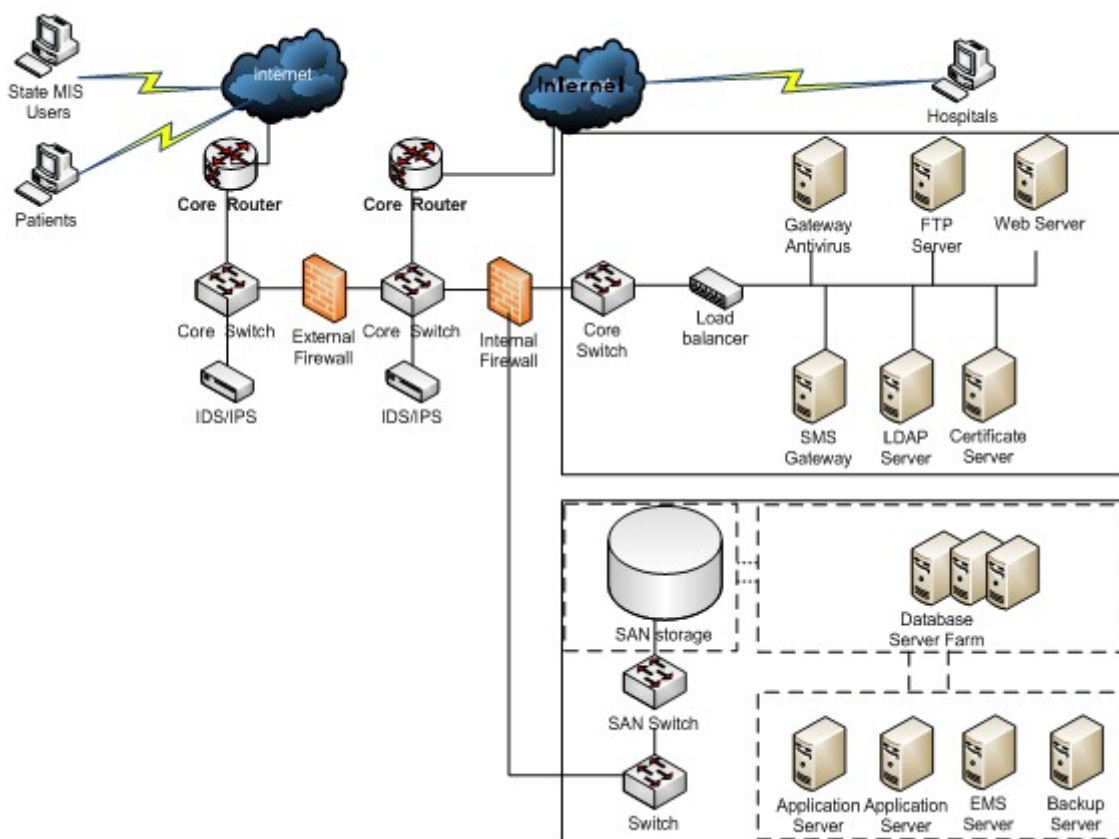
Note: The Change Control Life cycle needs to be discussed and agreed with HSHRC upon selection of the IA and contract signing

5.4.8 Technology Reference Architecture

The proposed overall solution framework for HIS is presented in this section, depicting the overall 'Logical' application structure showcasing the inter-relationships between different layers.

The 3-tier architecture (also referred to as multi-tier or N-tier architecture) has been proposed for the Application Solution. It is required that all the automated modules to be developed by IA should be complying with DeitY, GoI standards and guidelines. This would enable ease of interoperability and also be significantly more economical for the Haryana Health Department. It is recommended that IA should opt for Service Oriented Architecture (SOA) for implementing HIS application modules.

The logical deployment diagram is represented below:



Note: The above diagrams are only indicative and do not necessarily represent the physical servers. The functional / logical interactions of the various servers may remain the same; however the actual technical design and implementation would be done by the IA and shared with HSHRC for approval. Also, the overall implementation is proposed to be centralized, with core application being hosted at DC/Cloud and all other facilities are proposed to access the application through internet.

5.4.9 Testing Criteria

A thorough testing is proposed for the HIS application and its modules, as per standard process defined hereunder. HSHRC requires thorough and well-managed test methodology to be conducted. The bidder must build up an overall plan for testing and acceptance of system, in which specific methods and steps should be clearly indicated and approved by HSHRC. The IA is required to incorporate all suggestions / feedback provided after the elaborate testing of the HIS

application, within a pre defined, mutually agreed timeline.

The Implementation Agency must undertake the following:

- ✓ Outline the methodology that will be used for testing the system
- ✓ Define the various levels or types of testing that will be performed for system
- ✓ Provide necessary checklist/documentation that will be required for testing the system
- ✓ Describe any technique that will be used for testing the system
- ✓ Describe how the testing methodology will confirm to requirements of each of the functionalities.
- ✓ Indicate how one will demonstrate to HSHRC that all applications installed in the system have been tested

Competent Authority from HSHRC shall issue application security audit certificate to Implementation Agency after successful installation

The IA shall also propose in the solution a staging environment to be deployed at the Managed Services Data Center.

The IA shall conduct various type of testing on the new build/package before releasing it for deployment on the production environment according to standard Software Testing Life Cycle (STLC). These tests shall include unit testing, system testing, security testing, stress testing, reliability testing, performance testing, audit trail, multi-user capability, volume test, system integration testing, compatibility and configuration testing, GUI testing etc.

The test documentation shall include test procedures, test data and test results should be documented. Errors detected during testing should be logged, classified, reviewed, and resolved prior to release of the software. Software error data that is collected and analyzed during a development/customization life cycle may be used to determine the suitability of the software product for release and installation. Test reports should comply with the requirements of the corresponding test plans.

The acceptance tests must demonstrate that the Implementation Agency has met each and every requirement specified in the RFP and has delivered an effective operational system.

5.4.10 User Acceptance Testing (UAT)

HSHRC will form different user groups which shall be headed by a competent officer appointed by HSHRC for the purpose of UAT. These user groups would test the application for the functionality, reliability and all other related tests. Once the users are completely satisfied with the application, Implementation Agency should take a formal sign off from the competent officer appointed by HSHRC for acceptance of each module. Based on the sign off and user feedback, HSHRC with the assistance of Project Management Unit (PMU) or any other nominated agency would issue UAT certification to the Implementation Agency for that particular module/ sub-module. In addition to conducting a UAT testing, HSHRC through the ISMO shall conduct an application security audit including vulnerability assessment and penetration testing. User acceptance testing shall also include testing of application SLAs.

5.4.10.1 Acceptance Test Design and Execution

All the acceptance test criteria shall be specified by Implementation Agency and finalized under the technical guidance of Project Management Unit and the user representative authorized by the HSHRC. The test criteria should be comprehensive to address all aspects of testing the new systems. Extensive testing would be carried out by the User Representatives with technical support from Project Management Unit (PMU).

5.4.10.2 Fault Correction

The Implementation Agency will be responsible for correcting all faults found during the acceptance process at no extra cost to HSHRC. The Governance Framework established for the project shall ascertain what all measured risks that needs to be accepted; however IA shall at each such occurrence/incident be responsible for providing resolution in terms of correction, prevention and remediation throughout the project tenure.

HSHRC will undertake an exercise of application security audit of the HIS solution through ISMO, as soon as the IA declares the completion of system implementation.

The Governance Framework along with the ISMO shall establish appropriate processes for notifying the IA of any deviations from the norms, standards or guidelines at the earliest instance, after noticing the same, to enable the IA to take corrective action. Such an involvement and guidance by the agencies shall not, however absolve the IA of the fundamental responsibility of designing, developing/customization, installing, testing, and commissioning the various components of the HIS Solution to deliver the services in conformity with the RFP, SLA and the agreement. All changes suggested by the ISMO shall be implemented by the IA upon acceptance and approval by the HSHRC.

5.4.11 Managed backup and restore services

The backup and restore service is provided based on the size of data to be protected, in denominations of 1TB, as detailed below.

- ✓ Simplicity – Single Global Management Interface, Zero Scripting, Low Training curve
- ✓ Automation – Policy automation, Automatic Update/Upgrade, Automatic client discovery
- ✓ Technology – best in-class technology like source side de-duplication, SnapProtect, Reporting, Integrated e-Discovery
- ✓ Storage based backup solution.
- ✓ Source side de-duplication – with unique embedded de-duplication capabilities in the software, the data at source (on the Application and Database servers) can be deduped before it is sent over the network. This ensures reduced data transfer on the Local Area Network (LAN)
- ✓ Centralized Management for backup and recovery – Backup software is based on single/unified data management. Single console is used for all data management operations (e.g. backup / restore / archive-retrieve / reporting purposes). Master backup server configured to manage all the backup and recovery operations
- ✓ All data management operations can be performed using console locally or remotely
- ✓ Source side deduplication can be used on all the production servers to minimize the data transfer on the network and to reduce the space required for backup on disk
- ✓ Online backup agents can be used for backing up databases like SQL database
- ✓ As an insurance copy, the backed up data (in deduped format) can be replicated to DR site using the backup software capability
- ✓ With the help of source-side de-dupe and target side de-dupe, the overall space required for storing the backed up data can be significantly optimized
- ✓ Data can be retained on disk for quick recovery

Chapter 6

Training

Requirements

Chapter 5 Training Requirements

Introducing any change needs to consider the impact that change will have on all stakeholders – both within and outside the Hospitals. It is therefore necessary to formulate a change management strategy that encompasses the requirements of the end user and the workforce. Change management should start with the planning stage and continue with life of the project. It is essential to understand that change management is not a onetime activity. It is a continuous activity propagating to complete life of the project and touching all the stakeholders involved in the project.

This section focuses on the change management and capacity building approach and plan so as to be able to tackle the issues that might arise due to new processes within the new HIS system. Training for HIS solution will allow multiple stakeholders to participate in the day to day management of the solutions and ensure sustainable programs to cover basic system awareness programs in addition to HIS specific programs in order to ensure adoption of the system at each level.

6.1 Need for Change Management

Introducing radical reforms has to be necessarily accompanied by efforts to energize and orient the mindsets of the people – both within and outside the Hospitals. For instance, the Hospital staff should be skilled to operate and work in a significantly newer and different way. A well-calculated and well-designed strategy has to be followed for the people to be trained to work effectively in the new environment. It is necessary to formulate a change management plan with appropriate interventions for capacity building, training and stakeholder communications.

A successful Change Management Program will ensure:

1. A smooth transition to the new way of working
2. The organization/people support the changes implemented
3. Individuals know how the changes affect them and the role they have to play
4. Stakeholders to understand the benefits of the changes and internalize it
5. The new system and its underlying concepts are understood
6. People are aware of how roles and responsibilities are changing
7. Everyone is motivated and committed to the change program
8. The success and progress of the program is monitored and measured

6.2 Key Change Management Implications

With the migration of the HIS Solution, HSHRC will have several change implications emanating from the following changes:

1. Process and procedural (necessary introduction of some new process and systems emanating from the need of changing core functional information flow in a few cases)
2. Technical and technological (introduction of new technologies for enabling the new / unaddressed business requirements)
3. Organizational (transformation of existing organizational structure and redefined roles and responsibilities)

The following change implications can be clearly identified at the outset of the implementation of the new system:

Change Element	Change Implication	Change Issues
Process and Procedural	<ul style="list-style-type: none"> · Standardization of procedures · Redefined processes and new work methods · Elimination of certain activities / functions and addition of new ones · Redefined service levels 	<ul style="list-style-type: none"> · Reorientation of staff to new processes and work methods · Reorientation of staff to any applicable service levels · Loss of control over discretion on procedures by staff · Enhanced process driven systems with clear accountabilities and responsibilities
Technological	<ul style="list-style-type: none"> · Usage of technology and system enabled processes · Automated controls and validation · Reduction of paper work 	<ul style="list-style-type: none"> · Work systems changed from manual to automated work methods · Preparation for use of technology and system enabled processes · Orientation towards reduced paperwork processing system
Organizational / People	<ul style="list-style-type: none"> · Some change in roles and responsibilities · New skill set requirement for staff · Introduction of a incentives and reward system 	<ul style="list-style-type: none"> · Reluctance to work in tandem with external agencies involved in implementation · New work environment and changed peer relationships

6.3 Change Management Plan

It will be critical to assess those issues that will have the highest impact on the change management plan and manage them through appropriate interventions. Some of the interventions proposed are listed below:

1. Help to make staff realize the benefits of the new system
2. Identification and preparation of change agents (change champions) to deal with change at local level
3. Rationalized and planned work schedule and workload
4. Highlight the ease of working in the new system with better technology and simpler processes

6.3.1 Responsibilities of Change Management Teams

The key responsibilities of Change Management Teams which includes both the IA and HSHRC would be as follows:

1. Assessing and building staff capability to implement change quickly and effectively
2. Preparing key officers and their direct reports to meet the challenges and opportunities they will encounter as they implement new processes
3. Implement and monitor training plans
4. Helping to increase individual skills, and knowledge.
5. Developing and implementing change communication plans
6. Facilitation to concerned staff for transition to new roles

7. Work towards minimizing employee resistance to re-engineered processes and new organizational setup

6.3.2 Key Steps for Change Implementation

Intervention at various levels is needed to mitigate staff resistance to change and facilitate an environment which encourages staff to pro-actively volunteer within the new system.

Some of the strategies to ensure quick-wins would be:

1. The proposed changes highlighting the benefits in the system and creating a buy-in from staff
2. Provide with answers to key questions which users will encounter - “Helping them deal with their stakeholders”
3. Communicate to them the key requirements of the proposed system- “What we want from them” Creating forums for dialogue and exchange of ideas Exposure to other such computerization initiatives in similar set-ups Encourage Two-Way communication and feedback loops
4. Use communication mechanisms for providing the HSHRC staff with critical information, feedback mechanisms and support during the change of system
5. Assist with the operations of the project objectives as stated within the project charter
6. Ensure least resistance from staff with respect to proposed changes in the systems
7. Uniform and simple functionality / system for staff leading to rationalization of workload and accountability
8. Skill enhancement through training of the staff (functionality and technology)
9. Recognition to efficient staff through a recognition program

6.3.3 Training and Change Management Requirements

The IA shall provide training to the application users to efficiently use the system. IA shall conduct training after implementation of the HIS Application and Training will be provided by the selected IA to the Users within each Hospital / Health institution of Haryana.

To address the training needs, the change management team should prepare guidelines that identify the training needs of all stakeholders and provide suggestive training modules to address the training needs (Training Needs Analysis). Such guidelines will assist local change teams to formulate their own training plans and aid the progress of the implementation of the new system efficiently.

The specified Scope of Work that needs to be undertaken by the successful IA for imparting training to Hospital User and Administrators at all project locations is given below. The proposed training module is expected to help the actual Users and Hospital functionary to undertake their revised roles and responsibilities with ease and without any apprehensions.

The selected IA must assume the following responsibilities:

1. The IA shall provide training to the Hospital Administrators and workforce in two to three batches per day for a specified duration / working day. However, the training days can be revised by the Change Management Team or HSHRC, based on requirement.
2. It is proposed that the Hospital Users and Administrators would be divided in the following groups:

Band	Users
Group 1	State and District Level Administrators, CMO, PMO, etc.

Band	Users
Group 2	Doctors, Nurses, Paramedics, and other Technicians / Departmental in-charge of the Health institutions
Group 3	Operators, System Administrators, Other IT support staff, application and database management teams, etc.

- The IA needs to conduct a ‘Training Needs Analysis’ (TNA) and impart Training to the Users as per Groups provided above, according to their needs and requirements. The indicative Training Modules and Training plan are enlisted below:

#	Training Module	Indicative number of Days	Group			Frequency / year
			1	2	3	
1.	Sensitization / Orientation	2 days	Y	Y	Y	Once
2.	Basic Computing Training	2 days	N	Y	Y	Twice
3.	Process Training	3 days	Y	Y	N	Once
4.	Specialized Computer / Module Training	5 days	Y	Y	Y	Twice
5.	HIS Application Training	2 days - Application 3-5 days - Specific Modules	Y	Y	Y	Quarterly

- It would be the IA’s responsibility to set up the entire Infrastructure helpful in providing successful training to all Hospital staff and Health Administrators like, computer, network, LCD projector, printed course material and Utility Software CDs(optional) etc.
- The schedule and the training material for imparting training shall be developed by the IA in consultation with the Change Management Team at HSHRC and proper correspondence and acceptance needs to be taken from HSHRC also. The IA shall submit a softcopy (CD) and hardcopy of the training material to the Change Management Team before every training session.
- In case of modifications either in the Training Plans or substitutions of the regular trainers, proper correspondence with the Change Management Team shall be made.
- Training program shall be continuously monitored by the representatives of both the Change Management Team and HSHRC so as to ensure quality standards of the Training. It is the responsibility of the IA to prepare a feedback mechanism (i.e., printed feedback forms) and get it filled by the participating batch and submits the same on a regular basis to the Change Management Team.
- The IA shall provide audio-video content-based multimedia software as training material. The IA shall install and train the application users using the same. It is the responsibility

of the IA to prepare documents including User manuals, technical manuals, installation manual, and administration manuals, and provide the same to the Change Management team. The Change Management team needs to provide the necessary inputs for preparing the training material.

A detailed training schedule, including the dates, areas to be covered, time and the training literature (to be supplied by IA to the Change Management team) at various stages of the project cycle and feedback for effectiveness will be agreed to by all parties during the performance evaluation of the IA as per the Contract.

Trainings shall be provided as per the training schedule provided by the IA in consultation with the Change Management team. The key training modules provided are indicative for reference of IA and detailed training plan has to be proposed by IA. The IA must discuss the total number of Users to be trained for the proposed modules with Hospitals and ascertain the training requirements and mechanism accordingly.

Note:

1. *These are mandatory requirement as part of Haryana HIS solution.*
2. *There can be around 10% variation in the total strength of the participants. They have to be accommodated by IA without any additional charge.*
3. *In addition to that there should also be environment which would be used for training to the end users only after fetching sample data from production. Access to training environment should always be available to users from all locations. The users should be allowed to do dummy transactions before working on production. The training material should be available for downloading by users.*
4. *It is required that all the Users from different locations can access and download the proposed training modules (Audio Visual or Static content like PDF) and User Manuals using the HIS network. The performance of the system will be monitored for the same. The exact criteria for system performance related to training modules will be defined in the contract agreement.*

6.4 Audio Visual Training System and Online Help

6.4.1. Audio Visual Training system

It is envisaged that from time to time the users will need assistance in operating / navigating through the HIS application and processes. Though a periodic training for system usage is proposed for various types of Users, however any user may find it difficult to memorize the entire system functioning and its finer details of operational capability. Hence for better user experience, it is proposed that modules / section wise training material, especially in form of Audio-Visual content or animation, apart from PDF version, may be uploaded in each module / sub-module / section of the HIS application which can be played at any given point of time through the browser. The users will find it easy to understand the process and functionality better by seeing the audio-visual training content for that specific module / sub-module / section and work accordingly as required.

These Audio-Visual clips will have the functionality to start, stop, pause, back and forward options, so that User can play the training content as per his own free will and requirement. All these specific module / sub-module / section wise audio-visual training content should be integrated to form a complete training of the HIS application and processes, and uploaded on the HIS Web portal for free access, download and ready reference.

6.4.2 Online Help / Reference with Search option

It is also proposed that the training contents / User Manuals be made available to Users in downloadable (PDF) format so that the Users may refer / download it for their own personal reference as and when needed. It is required that the Downloadable training content should have

proper indexing and internal references, mapped with key words, in order to allow any User to search and reach the desired content with the help of those key words. It envisaged that any User will be able to search and read the directions / information for only the part required by him/her rather than looking through the entire PDF document and manually searching for the right content.

On entering the key words for search criteria, the system should pull out and display the links to the content as mapped. This feature should be dynamic with real time search availability, i.e. as soon as the key words are changed; a new set of content links with page / chapter references within the document should appear for selection. Once the selection is made by the User, the system should display the PDF content.

6.5 Training Evaluation

The training effectiveness should be measured based on following aspects:

1. **Pre Training Evaluation:** It is a method of judging the worth of a program before the program activities begin. The objective of this evaluation will be:
 - a. To determine the appropriateness of the context and content of training, and
 - b. To help in defining relevant training objectives as per TNA for individuals and groups
2. **Post Training Evaluation:** These will be the method of judging the worth of a program at the end of the program activities. The focus will be on the outcome. It will try to judge whether the transfer of training knowledge has taken place or not, and will also try to quantify the overall gains in learner skill development. This will have predictive validity for determining future use of newly developed skills on the job. The trainees could also be asked to go through a written examination on the various training they have undergone to find out the learning level.

Based on the level of measurement defined above, KPI (Key performance Indicators) Matrix has been formulated to measure the success and effectiveness of the capacity building initiatives. The matrix is done with the trainings, their objective and the respective level of KPI through which the effectiveness and change can be measured. The table below summarizes the details:

Type of training	Objective	Key Performance Indicator	Delivery Mode
Awareness and benefits of Sensitization training (Target audience: All User Groups identified)			
Sensitization / Orientation	Creation of awareness about e-Governance in Hospitals, the initiative underway, the roadmap for the project, the impact and benefits envisaged.	Learning level: Ability to analyze the project objectives and outcomes Result Level: Efficient service delivery to citizens / Patients, participation in number of projects ranging from planning, supervision	<ul style="list-style-type: none"> · Instructor led – classroom based · Web Based – Training Material

Type of training	Objective	Key Performance Indicator and implementation	Delivery Mode
Process Training (Target audience: User Groups 1, 2 in Hospitals)			
Process	Broad level enlightenment on business transformation strategies, process improvement techniques, process mapping and case studies. Broad level enlightenment on expected roles and responsibilities	Behavior level: Proactive involvement in formulation, implementation and acceptance of new processes Learning Level: %Usage of ICT for new roles and activities Result Level: Performance in monitoring and control of HIS application	<ul style="list-style-type: none"> · Instructor led – classroom based · Web Based – Training Material
Basic Computer awareness (Target audience: User Groups 2, 3 in Hospitals)			
Basics of software and other office application	Exposure to the functioning of the system and application software	Learning level: Proficiency in the usage of the application	<ul style="list-style-type: none"> · Instructor led – classroom based · Web Based – Training Material
Basics of Hardware/Networking	Exposure to the functioning of hardware and network equipments in the IT infrastructure	Learning level: Proficiency in the usage and maintenance of the infrastructure	<ul style="list-style-type: none"> · Instructor led – classroom based · Web Based – Training Material
Troubleshooting	Exposure to the functioning of system, knowledge on troubleshooting	Learning level: Proficiency in troubleshooting and problem redressal	<ul style="list-style-type: none"> · Instructor led – classroom based · Web Based – Training Material
Specialized Computer / Module training (Target audience: All User Groups identified)			
Office Suite / MIS / DSS	Exposure to the working of the office applications, MIS reports, Analytics and BI	Learning level: Proficiency in the usage of the	<ul style="list-style-type: none"> · Instructor led – classroom based

Type of training	Objective	Key Performance Indicator	Delivery Mode
	interfaces	application, and usage of information / data	<ul style="list-style-type: none"> · Web Based – Training Material
Operating Systems	Exposure to the functioning of the operating Systems	Learning level: Proficiency in the usage of the operating systems	<ul style="list-style-type: none"> · Instructor led – classroom based · Web Based – Training Material
Databases and Database management	Exposure to the working of databases and knowledge on database management	Learning level: % use of specialized technology skills	<ul style="list-style-type: none"> · Instructor led – classroom based · Web Based – Training Material
Network and Server management	Exposure to the working of hardware and network equipments and servers used and knowledge on their management	Learning level: % use of specialized technology skills	<ul style="list-style-type: none"> · Instructor led – classroom based · Web Based – Training Material
Troubleshooting	Exposure to the functioning of system, knowledge on troubleshooting	Learning level: Proficiency in troubleshooting and problem redressal	<ul style="list-style-type: none"> · Instructor led – classroom based · Web Based – Training Material
Technology standards	Broad level enlightenment on new technology standards and frameworks. Also on security and compliance initiatives	Learning level: % use of ICT	<ul style="list-style-type: none"> · Instructor led – classroom based · Web Based – Training Material
Role based system training on application software(Target audience: All User Groups identified)			
HIS application - Post Operationalization of the application that includes mechanism for demonstration, practical exercises and	Live exposure to the functioning of the application modules.	Learning level: Proficiency in the usage of the application	<ul style="list-style-type: none"> · Instructor led – classroom based · Web Based – Training Material

Type of training	Objective	Key Performance Indicator	Delivery Mode
evaluation of trainees.			

On the basis of the above defined KPIs, the skill set level of the Users can be measured and compared to the desired level of skill sets as per their domain area and position. The comparison will produce a deficit value which would help in the gap analysis. Based on this gap analysis and comparison with TNA, the future trainings can be prescribed. The % of deficits will indicate the success of trainings over the years.

***Note:** The IA is expected to submit a detailed training, change management, capacity building and communications plan to HSHRC. Any decisions by HSHRC on such matters will be final and binding on all parties.*

Chapter 7

Payment Schedule

Chapter 7 Payment Schedule

As this project is divided into two phases, phase 1 being moving out the existing HMIS, make it ABDM 3 Compliant, build up the required dashboards along with setting up the data lake and phase 2 being focused at modernization and usage of next gen tech, the proposed payment terms are to align smooth execution.

Scope & Deliverables	Timelines and Payment	
Award of Contract (T)	10 % of Contract Value - Advance Payment for Mobilization	
Migration of current HMIS, Run and Stabilize system,	T1 = T + 3 months	5 % of Contract Value after go live of Internet ready HMIS System
Complete knowledge transfer, Introduction of identified KPI Dashboards, setup the data lake environment	T2 = T1 + 3 months	5 % of Contract Value
ABDM Level 3 Completion	T3 = T2 + 1 month	5% of Contract value
Operations & Maintenance (Year 1) Introduction of Advance Tech like IOT, AI/ML including Gen AI based on SOW decided in course of time		15 % of Contract value in Quarterly Payment post submission of documents
Operations & Maintenance (Year 2) Introduction of Advance Tech like IOT, AI/ML including Gen AI based on SOW decided in course of time		20 % of Contract value in Quarterly Payment post submission of documents
Operations & Maintenance Introduction of Advance Tech like IOT, AI/ML including Gen AI based on SOW decided in course of time (Year 3)		20 % of Contract value in Quarterly Payment post submission of documents
Successful Completion of the Project		15 % of Contract value in Quarterly Payment post submission of documents

- Any payment will be released only after submission of PBG & post-signing of SLA & NDA as per the following payment terms. Performance Bank Guarantee (PBG) shall be submitted for 10% of the contract value (including taxes). The PBG should be valid till at

least 3 months beyond the expiry of contract period or such other extended period as HSHRC may decide.

2. Payments will be released only on satisfactory acceptance of the deliverables for each Task as per the following schedule (for both phases):
3. Acceptance of LOI / Work Order - T Day
4. Payment shall be made in Indian Rupees by RTGS / NEFT on Bank in the name of SI/MSP.
5. In case of disputed items, the disputed amount shall be withheld and shall be paid **only after settlement of the dispute.**
6. Any penalties / liquidated damages, as applicable, for delay and non-performance, as mentioned in this RFP document, shall be deducted from the due payments of the respective milestones.
7. **Taxes, as applicable, shall be deducted / paid, as per the prevalent rules and Regulations**
8. For facilitating Electronic Transfer of funds, the selected agency will be required to indicate the name of the Bank & Branch, account no. (i.e. bank name, IFSC Code and Bank A/c No.) and also forward a cheque leaf duly cancelled, to verify the details furnished. These details should also be furnished on the body of every bill submitted for payments by the agency.

Chapter 8

SERVICE LEVEL AGREEMENTS (SLAs)

Chapter 8 SERVICE LEVEL AGREEMENTS (SLAs)

8.1 Purpose –

The purpose of these Service Levels is to clearly define the levels of service which shall be provided by the Implementation Agency with respect to HIS project. in accordance with the performance metrics for Project Implementation and Operations as set out hereunder.

8.2 Commencement and duration -

The services would commence as per this Schedule from the date of commencement of the O&M phase and shall, unless terminated earlier in accordance with its terms or terminates for any reason or unless otherwise agreed by the Parties, expire on the date on which this Agreement expires, which shall be as per agreement from the Effective Date of commencement of the O&M phase.

8.3 Service Level Parameters - Definition of Terms

All the payments to the Implementation Agency are linked to the compliance with the SL metrics specified in this document. The table also specifies the limits and metrics form lower performance and breach levels, which will be entailing penalty to the Implementation Partner.

The following points clarify the manner in which the SL metrics will operate:

1. A set of parameters have been identified as key for ensuring the desired performance level for HIS project.
2. The table lists out the baseline performance level, method of measurement and how low / high performance will be treated.
3. The Implementation Partner will get the Payment on the quarterly basis if the baseline performance is complied, as per the payment terms and conditions specified in this document.

All the SLAs will be revisited at the end of first quarter after Go-Live, to analyze if any changes are required in certain parameters to make it more transparent, quantitative and robust.

The project Service Level Agreement are proposed to be performance based. For purposes of Service Level Agreement, the definitions and terms as specified along with the following terms shall have the meanings set forth below:

1. "Uptime" shall mean the time period for which the specified services / components with specified technical and service standards are available for HIS. Uptime, in percentage, of any component (Non IT & IT) can be calculated as:

$$\text{Uptime} = \{1 - [(\text{System Downtime}) / (\text{Total Time} - \text{Planned Maintenance Time})]\} * 100$$

2. "Downtime" shall mean the time period for which the specified services / components with specified technical and service standards are not available for HIS Users, the scheduled outages / Planned Maintenance time planned in advance for HIS core application, related infrastructure and link failures. This includes Servers, Routers, Firewall, Switches, all servers and any other IT and non-IT infrastructure, their subcomponents etc. at all Project locations etc. The planned maintenance time / scheduled downtime will include activities like software upgrades, patch management, security software installations etc.

3. The selected Implementation Agency will be required to schedule 'planned maintenance time' with prior approval of HSHRC. This will be planned outside working time. In exceptional circumstances, HSHRC may allow the Implementation Agency to plan scheduled downtime in the working hours. In any case this should not exceed 0.25% of the total time uptime i.e. ~ 3.5 min. However, the decision of HSHRC in all such matters will be final and binding on all parties.
4. "Incident" refers to any event / abnormalities in the functioning of the HIS application, Infrastructure and services that may lead to disruption in normal operations.
5. "Helpdesk Support" shall mean the 24x7x365 centre which shall handle Fault reporting, Trouble Ticketing and related enquiries during this contract.
6. "Response Time" shall mean the time incident is reported to the help desk and an engineer is assigned for the call.
7. "Resolution Time" shall mean the time taken after the incident has been reported at the helpdesk and the time when incidents resolved.

The resolution time shall vary based on the severity of the incident reported at the help desk. The severity would be as follows:

1. **Critical / High:** Incidents which impact the overall solution like outage of HIS Portal/application and which has a high impact on service delivery to Patients and respective Hospitals / departments. Incidents, whose resolution shall require additional investment in components or time or shall involve coordination with OEMs. Incidents for which no work around is available. Any incident which is affecting a majority of users.
2. **Medium:** Incidents which impact a limited number of users. The main HIS application is available but productivity of limited number user is getting affected. Example: HIS portal and application are up but certain users are unable to login /access / submit request / process service requests etc. Incidents, whose resolution shall require replacement of hardware or software parts, require significant interruption in working of that individual component. Acceptable work around is available. For example, installation of operating system, patches etc.
3. **Low:** Incidents whose resolution shall require changes in configuration of hardware or software, which will not significantly interrupt working of that component. Incidents like functionality enhancement and /or support for modifications or maintenance of source code, application version enhancement etc.

Indicative SLAs for Helpdesk/ Maintenance support calls for HIS Portal and Application:

Type of Incident	Response Time	Resolution time SLA
Critical	15 minutes from the call logged	1.5 hrs for critical incident
Medium	30 minutes from the call logged	<= 8 hrs from the time incident is logged at the helpdesk
Low	45 minutes from the call logged	<= 16 hrs from the time incident is logged at the helpdesk

SLA Table

Service Metric Parameter		SLA Baseline Points/Score as per Contract
A. Helpdesk		21
A. 1 (a)	S1/P1 Response Time	4
A. 1 (b)	S2/P2 Response Time	2
A. 1 (c)	S3/P3 Response Time	1
A. 2 (a)	S1/P1 Resolution Time	8
A. 2 (b)	S2/P2 Resolution Time	4
A. 2 (c)	S3/P3 Resolution Time	2
B. Software Application		30
B. 1	Average for a Request-response Cycle measured at user end	30
C Data Centre Services		15
C. 1	Uptime of Cloud Resource supplied (server/VM etc) (including the Hypervisor, VM and OS running on it)	10
C. 2	Failure of data backup of virtual machine (incremental backup)	2
C. 3	Failure of data backup of virtual machine (Full backup)	3
D. Training and Capacity Building		30
D. 1	Participant Pass rate (All Groups, All Trainings)	11
D. 2	Timelines (All Training)	8
D. 3	Average Trainer feedback rating	11
E. Miscellaneous		4
E. 1	Updates (Windows Anti-Virus, Patches)	1
E. 2	Compliance in documents Versioning, traceability, Updation	1
E. 3	Manpower Availability and Readiness	1
E.4	The SI/MSP shall submit the MIS reports as requested by the HSRC, broadly classified below but not limited to: -IMAC (Install, Move, Add, Change) Report -Exception report indicating calls completed beyond SLA, with calculation of non-performance deduction.	1
Total SLA Points / Score		100

SLA #	Service Metric Parameter	Baseline		Lower Performance Level – Category A		Lower Performance Level – Category B		Breach		Credit	Measurement
		Metric	Baseline Points Credited	Metric	Points Debited	Metric	Points Debited	Metric	Points Debited	Points Credited	
A	Helpdesk (Baseline Score = 21)										
1(a)	Instances of not meeting Issue Response time for Severity S1 instances (Applicable for channels)	0	4	Equivalent instances for S1 severity ranging between 1-2	2	Equivalent instances for S1 severity ranging between 3-4	3	Equivalent instances for S1 severity >4	4		Response time is defined as the time lapse between the time an incident is reported to the Helpdesk and an concerned engineer / team is assigned for the call accordingly.
1(b)	Instances of not meeting Issue Response time for Severity S2 instances (Applicable for channels)	0	2	Equivalent instances for S2 severity ranging between 1-2	0.5	Equivalent instances for S2 severity ranging between 3-4	1	Equivalent instances for S2 severity >4	2		

SLA #	Service Metric Parameter	Baseline		Lower Performance Level – Category A		Lower Performance Level – Category B		Breach		Credit	Measurement
		Metric	Baseline Points Credited	Metric	Points Debited	Metric	Points Debited	Metric	Points Debited	Points Credited	
1(c)	Instances of not meeting Issue Response time for Severity S3 instances (Applicable for channels)	0	1	Equivalent instances for S2 severity ranging between 1-2	0.5	Equivalent instances for S2 severity ranging between 3-4	0.75	Equivalent instances for S2 severity >4	1		
2(a)	Instances of not meeting Issue Resolution time for Severity 1 (Critical / High) (Applicable for channels)	0	8	Equivalent instances for S1 severity ranging between 1-2	2	Equivalent instances for S1 severity ranging between 3-4	4	Equivalent instances for S1 severity >4	8		i. Resolution time is defined as time from generation of ticket to time of closure of issue ticket as reported in the Helpdesk
2(b)	Instances of not	0	4	Equivalent	1	Equivalent	2	Equivalent	4		

SLA #	Service Metric Parameter	Baseline		Lower Performance Level – Category A		Lower Performance Level – Category B		Breach		Credit	Measurement
		Metric	Baseline Points Credited	Metric	Points Debited	Metric	Points Debited	Metric	Points Debited	Points Credited	
	meeting Issue Resolution time for Severity S2 (Medium) (Applicable for channels)			instances for S2 severity ranging between 1-2		instances for S2 severity ranging between 3-4		nt instances for S2 severity >4			
2(c)	Instances of not meeting Issue Resolution time for Severity S3 (Low) (Applicable for channels)	0	2	Equivalent instances for S2 severity ranging between 1-2	0.5	Equivalent instances for S2 severity ranging between 3-4	1	Equivalent instances for S2 severity >4	2		
B.	Software Application (Baseline Score = 30)										

SLA #	Service Metric Parameter	Baseline		Lower Performance Level – Category A		Lower Performance Level – Category B		Breach		Credit	Measurement
		Metric	Baseline Points Credited	Metric	Points Debited	Metric	Points Debited	Metric	Points Debited	Points Credited	
1	Average for a Request-response Cycle measured at user end.	<=5 sec for LAN users, <=10 secs for WAN users	30 for a quarter	>5 & <=10sec for LAN users, >10 & <=15sec secs for WAN users	10 for a quarter	>10 & <=15sec sec for LAN users, >15 & <=20sec secs for WAN users	15 for a quarter	> 15 sec for LAN users, > 20 secs for WAN users	30 for a quarter In case of total number of Quarterly non-adherence to the baseline exceeds 50; 20 points		i. Monthly MIS reports generated from the system deployed, maintained and operated by the Implementation Agency. The Implementation Agency shall deploy end-user scripts (for LAN User measurement) that shall do these measurements at an interval of 15 minutes every hour within a time period of 8.00 am to 4.00 pm. The services considered for the purpose of this SLA shall be finalized at the time of implementation. This measurement shall be maintained in separate repository. In case of WAN,

SLA #	Service Metric Parameter	Baseline		Lower Performance Level – Category A		Lower Performance Level – Category B		Breach		Credit	Measurement
		Metric	Baseline Points Credited	Metric	Points Debited	Metric	Points Debited	Metric	Points Debited	Points Credited	
											<p>the script-based measurements shall be done at the data center.</p> <p>ii. Primarily, transaction services will be considered both for the LAN and WAN measurement of this SLA.</p> <p>iii. Caching at client end shall be kept out of measurement.</p> <p>iv. The SLA shall be measured on weekly basis and credits shall be provided on prorated basis. The weekly credits or debits will be summed up for a quarter for calculation of credits or penalties.</p>

SLA #	Service Metric Parameter	Baseline		Lower Performance Level – Category A		Lower Performance Level – Category B		Breach		Credit	Measurement
		Metric	Baseline Points Credited	Metric	Points Debited	Metric	Points Debited	Metric	Points Debited	Points Credited	
C.	Data Centre Services = 15										
1	Uptime of Cloud Resource supplied (server/VM etc) (including the Hypervisor, VM and OS running on it)	>=99.5	10 for a quarter	<99.5 to >=98	5 for a quarter	<98 to >95	8 for a quarter	>95	10 for a quarter		i. Script based measurement at data center. Credits and debits shall be calculated on monthly basis (prorated as per quarter credits). The monthly credits or debits will be summed up for a quarter for calculation of credits or penalties.
2	Failure of data backup of virtual machine (incremental backup)	0	2	Equivalent instances for S2 ranging between 1-2	0.5	Equivalent instances for S2 ranging between 3-	1	Equivalent instances for S2 >4	2		ii. The Implementation Agency shall deploy scripts that shall do these measurements at an interval of 15 minutes every hour

SLA #	Service Metric Parameter	Baseline		Lower Performance Level – Category A		Lower Performance Level – Category B		Breach		Credit	Measurement
		Metric	Baseline Points Credited	Metric	Points Debited	Metric	Points Debited	Metric	Points Debited	Points Credited	
						4					within a time period of 8.00 am to 4.00 pm.
3	Failure of data backup of virtual machine (Full backup)	0	3	Equivalent instances for S2 ranging between 1-2	1	Equivalent instances for S2 ranging between 3-4	2	Equivalent instances for S2 severity >4	3		iii. Service shall refer to the services offered by the various components involved in the complete transaction route like HTTP server, Application server, LDAP, DB etc. So that unavailability of any one will have a bearing on the availability.
D.	Training and Capacity Building (Baseline Score = 30)										
1	Participant Pass rate (All groups, all trainings)	>=90%	11	85% to 89%	3	80% to 84%	8	<80%	12	Consistent Pass rate 95% or above = 2	Training Logs maintained by the Implementation Agency Score on Assessments done after completion of training. Tests designed by the Implementation Agency,

SLA #	Service Metric Parameter	Baseline		Lower Performance Level – Category A		Lower Performance Level – Category B		Breach		Credit	Measurement
		Metric	Baseline Points Credited	Metric	Points Debited	Metric	Points Debited	Metric	Points Debited	Points Credited	
											approved by HSHRC. Participants who do not pass have to be retrained once by the Implementation Agency at no additional cost.
2	Timelines (All trainings)	100%	8	90% to 99%	3	80% to 89%	5	<80%	8		Training Logs maintained by the Implementation Agency
3	Average Trainer feedback rating (on scale of 5, 5 being outstanding)	3.5	121	3 to 3.5	3	2.5 to 3	8	<2.5	11 (Implementation Agency must replace the trainer)	Consistent feedback > 4 1	Trainer evaluation sheet maintained by the Implementation Agency

SLA #	Service Metric Parameter	Baseline		Lower Performance Level – Category A		Lower Performance Level – Category B		Breach		Credit	Measurement
		Metric	Baseline Points Credited	Metric	Points Debited	Metric	Points Debited	Metric	Points Debited	Points Credited	
E.	Miscellaneous (Baseline Score = 3)										
1	Updates (Rules, Patches, Anti-virus, Anti-spyware, Anti-spam) within specified time period after approval	Upto 2 violations	1	3 – 4 violations	0.5	5 – 6 violations	0.75	>6 violations	1	No violations = 1	Quarterly Audit reports performed by HSHRC / any nominated agency by HSHRC
2	Compliance in document versioning, traceability (FRS, SRS, DB design, Architecture, User, Training)	100%	1	Up to one week beyond the end date	0.5	Up to two weeks beyond the end date	0.75	More than 2 weeks beyond end date	1		Random inspection by HSHRC

SLA #	Service Metric Parameter	Baseline		Lower Performance Level – Category A		Lower Performance Level – Category B		Breach		Credit	Measurement
		Metric	Baseline Points Credited	Metric	Points Debited	Metric	Points Debited	Metric	Points Debited	Points Credited	
	Manual etc.), Application version control, updates etc.										
3	Manpower Availability & Readiness	100% (as per requirement)	1	Upto 3 working days of delay / absence, calculated for each resource)	0.5	Upto 6 working days of delay / absence, calculated for each resource)	0.75	More than 6 working days of delay / absence , calculated for each resource)	1		Attendance Logs

SLA #	Service Metric Parameter	Baseline		Lower Performance Level – Category A		Lower Performance Level – Category B		Breach		Credit	Measurement
		Metric	Baseline Points Credited	Metric	Points Debited	Metric	Points Debited	Metric	Points Debited	Points Credited	
4	The SI/MSP shall submit the MIS reports as	100% (as per requirement)	1	Up to 3 working days of delay / absence, calculated for each resource)	0.5	Up to 6 working days of delay / absence, calculated for each resource)	0.75	More than 6 working days of delay / absence , calculated for each resource)	1		
Total			100								

SLA Calculations:

#	SLA Range / Score	Deduction / Penalty
1	< 100 & >=85 (Lower Performance SLA - Category A)	0.5% for every point between < 100 and >=85
2	<85 & >=70 (Lower Performance SLA - Category B)	1% for every point between <85 and >=70
3	-100 to <70	Penal action in case of breach for continuous 2 Quarters
Example: SLA Score of 75 will lead to penalty of (0.5% of 15 + 1% of 10) = 17.5%		
#	SLA Range / Score	Additional Credit
1	1 to 15 (101 to 115)	1% for every point between 1 to 15
Example: SLA Score of 105 will lead to credit of (100% of 100 + 1% of 5) = 105%		

Note:

- In case of one defaulted SLA, if penalty on multiple SLA comes into effect then penalty on the SLA with maximum penalty will only be applicable i.e. penalty will be charged only on one SLA and not on multiple SLA for a single default*
- At any given point of time during the entire contract period, the total credits and the corresponding amount will not exceed more than 15% of the total project cost proposed by the bidder. The extra credits and corresponding amount will be paid along with the EQIs limited to the maximum amount as stated above.*

Chapter 9

Exit

Management

Chapter 6 Exit Management

EXIT MANAGEMENT SCHEDULE

9.1 Purpose

1. This Schedule sets out the provisions, which will apply prior to the expiry of the Agreement or termination of the Agreement is initiated.
2. It sets out the provisions which will ensure that HSHRC will be able to offer the services to its Stakeholders without any interruptions on expiry or termination of the Agreement.
3. Continuity and performance of the Services at all times including the duration of the Agreement and post expiry of the Agreement is a critical requirement of HSHRC. It is the prime responsibility of the Implementation Agency to ensure continuity of service at all times of the Agreement including exit management period and in no way any facility/service shall be affected/degraded. Further, Implementation Agency is also responsible for all activities required to train and transfer the knowledge to the Replacement Implementation Agency to ensure similar continuity and performance of the Services post expiry of the Agreement. Implementation Agency will be required to carry out a gap analysis of the facilities and arrangements made by the Replacement Implementation Agency and specifically inform HSHRC. This Schedules sets out the mechanisms for Exit Management Services which the Service Provider has to provide on termination or prior to expiration or of the Agreement to allow the orderly and efficient transition of the Services to HSHRC or its nominee.
4. It sets out the mechanisms for managing the knowledge enablement services the Service Provider has to provide to allow HSHRC to create an understanding of the operations and technology of the systems for itself or its nominees or any designated agencies.
5. The Parties shall ensure that their respective associated entities carry out their respective obligations set out in this Exit Management Schedule.
6. Notwithstanding anything contained in this Agreement, the task of Implementation Agency with reference to the Exit Management is deemed to be complete only when HSHRC issues a satisfactory completion certificate for the Exit Management.

9.2 Initiation and Duration of Exit Management Period

1. The provisions for Exit Management Services are invoked at least six months prior to the expiry of the Contract or on the day of notice of termination in case of termination

and exit management period shall continue valid till the time exit management services are executed to the satisfaction of HSHRC.

2. In case IA desires to close or shut down its business then in that case, IA shall inform HSHRC at least six (6) months before closing its business. Failure on the part of IA in informing HSHRC about its intention to close its business shall make HSHRC entitled to claim compensation and invoke the Performance Bank Guarantee.
3. However, if HSHRC in the intervening period invokes the provisions of the Contract and extends the term of the Contract for the particular service, the provisions of this schedule will not come into effect at that time but at the expiry of such extended period.
4. The exit management services will be available to HSHRC or its nominees or the Replacement SP till all tasks set out in the Exit Management Plan (which has been duly approved in writing by HSHRC) have been completed to the satisfaction of HSHRC.
5. The objective is to ensure that HSHRC will be able to offer the services to its stake holders without any interruptions on expiry or termination of the Agreement will be the key determinant to assess the completion of Exit Management Services

9.3 Transfer of Assets

1. Implementation Agency shall transfer all rights, titles and interests in the System Software to HSHRC or its nominees within 30 days from their acquisition (or at such time on or before the Go-Live date as specified by HSHRC on its sole discretion) along with all artifact including but not limited to licenses, user manuals, versions/enhancements, standard operating procedures and other information. Further, IA undertakes that the licenses of all the System Software for the purpose of the Project should be procured in the name of HSHRC and executes such deeds and documents as may be necessary for the aforesaid purposes including completing all legal or other formalities required in this regard.
2. Implementation Agency shall transfer all rights, titles and interests in the Application Software to HSHRC or its nominees on Go-live Date of each phase(s) along with all artifact including but not limited to licenses, user manuals, versions/enhancements, standard operating procedures and other information and execute such deeds and documents as may be necessary for the aforesaid purposes including completing all legal or other formalities required in this regard
3. Implementation Agency shall transfer all rights, titles and interests in the Hardware to POs or its nominees within 30 days from the Go-Live date of each phase(s) along with all artifact including but not limited to licenses, user manuals, versions/enhancements, standard operating procedures and other information and

execute such deeds and documents as may be necessary for the aforesaid purposes including completing all legal or other formalities required in this regard.

4. In case the Agreement is terminated, HSHRC shall take over all the System Software, Application software and Hardware used for the purpose of Project. All the remaining Assets, which still remain to be transferred at the time of exit, shall be transferred by IA to HSHRC/POs latest by the last day of the exit management period to HSHRC/PO and IA shall hand over the possession of the Assets and related documents and information.
5. It is hereby clarified that in respect of the System and Application Software, ownership includes all updates and enhancements of that software.
6. In case the Assets to be transferred are mortgaged to any financial institutions by the Implementation Agency, the Implementation Agency shall ensure that all such liens and liabilities have been cleared beyond doubt, prior to such transfer. All documents regarding the discharge of such lien and liabilities shall be furnished to the HSHRC.
7. Implementation Agency hereby agrees that, even after the Assets has been transferred and/or handed over to HSHRC/POs, operation and management responsibilities in respect of these Assets shall be borne by the IA during the term of the agreement. Pursuant to this Article, all operation and management responsibility relating to the Asset shall be transferred to HSHRC, on the last day of the exit management period.
8. In case the Assets reaches the '*end of the support*', '*end of the sale*' and '*end of the life*' during the term of the Agreement, Implementation Agency will be duty bound to replace such Assets during the term of the Agreement and exit management period with no additional cost.
9. IA warrants and represents that it shall procure and manage the comprehensive insurance for all the Assets during the term of the Agreement even after the Assets has been transferred and/or handed over to HSHRC/POs and shall bear all the risk on Assets for the entire term of the Agreement.
10. The Implementation Agency will pass on to HSHRC and/or to the Replacement Implementation Agency, the subsisting rights in any leased properties/ licensed products/insurance policies/warranties/ AMCs/CMCs on terms not less favorable to HSHRC/POs/ Replacement Implementation Agency, than that enjoyed by the Implementation Agency
11. Payment to the outgoing Implementation Agency shall be made to the tune of last set of completed transactions, subject to SL requirements and for any Capex component that has been accepted by HSHRC but is pending for payment.

9.4 Cooperation and Provision of Information

During the exit management period:

1. the Implementation Agency will allow HSHRC access to information reasonably required to define the then current mode of operation associated with the provision of the services to enable HSHRC to assess the existing services being delivered;
2. promptly on request by HSHRC, the Implementation Agency shall provide access to and copies of all information held or controlled by them which they have prepared or maintained in accordance with the MSA, the Project Implementation, and the Operation and Management SLA relating to any material aspect of the Services (whether provided by the Implementation Agency or sub-contractors appointed by the Implementation Agency). HSHRC and its agent(s) shall be entitled unlimited and complete access to all such information and joint control of the project operation along with the Implementation Agency. Such information and joint operations control shall include all services rendered and other performance data. The Implementation Agency shall permit the HSHRC and/or any Replacement Implementation Agency to have reasonable access to its employees and facilities involved in the operations as required by the HSHRC to understand the methods of delivery of the services employed by the Implementation Agency and to assist appropriate knowledge transfer.

9.5 Confidential Information, Security and Data

1. The Implementation Agency will promptly on the commencement of the exit management period supply to HSHRC the following:
 - a. information relating to the current services rendered and performance data relating to the performance of sub-contractors in relation to the services;
 - b. documentation relating to Project's Intellectual Property Rights;
 - c. Project data and confidential information and all current and updated Project data as is reasonably required for purposes of Project or its nominated agencies transitioning the services to its Replacement Implementation Agency in a readily available format specified by the HSHRC;
 - d. documentation relating to consortium partners;
 - e. all other information (including but not limited to documents, records and agreements) relating to the services reasonably necessary to enable Project or its nominated agencies, or its Replacement Implementation Agency to carry out due diligence in order to transition the provision of the Services to Project

or its nominated agencies, or its Replacement Implementation Agency (as the case may be).

2. Before the expiry of the exit management period, the Implementation Agency shall deliver to HSHRC all new or up-dated materials from the categories set out in Article above and shall not retain any copies thereof.
3. Before the expiry of the exit management period, unless otherwise provided under the MSA, HSHRC shall deliver to the Implementation Agency all forms of Implementation Agency confidential information, which is in the possession or control of Project or its users.

9.6 Employees

1. Promptly on request at any time during the exit management period, the Implementation Agency shall, subject to applicable laws, restraints and regulations (including in particular those relating to privacy) provide to the HSHRC a list of all employees (with job titles) of the Implementation Agency dedicated to providing the services at the commencement of the exit management period;
2. To the extent that any Transfer Regulation does not apply to any employee of the Implementation Agency, HSHRC, or its Replacement Implementation Agency may make an offer of employment or contract for services to such employee of the Implementation Agency and the Implementation Agency shall not enforce or impose any contractual provision that would prevent any such employee from being hired by the HSHRC or any Replacement Implementation Agency.
3. HSHRC or Replacement Implementation Agency designated by it shall retain the right for hiring a minimum of 7 key personnel of the outgoing Implementation Agency spearheading the Project, as identified by HSHRC, as well as an appropriate number of support personnel deployed by the outgoing Implementation Agency, so as to provide for continuity. Implementation Agency is hence required to incorporate suitable provisions/ conditions in the appointment orders issued to its personnel, including a service bond to this effect.

9.7 Transfer of Certain Agreements

On request by the HSHRC, the Implementation Agency shall effect such assignments, transfers, licenses and sub-licenses as the HSHRC may require in favor of the HSHRC, or its Replacement Implementation Agency in relation to any equipment, lease, maintenance or service provision agreement between Implementation Agency and third party lessors, vendors, and which are related to the services and reasonably necessary for the carrying out of replacement services by the HSHRC or its Replacement Implementation Agency.

9.8 Rights of Access to Premises

1. At any time during the exit management period, where Assets are located at the Implementation Agency's premises, the Implementation Agency will be obliged to give reasonable rights of access to (or, in the case of Assets located on a third party's premises, procure reasonable rights of access to) the HSHRC, and/or any Replacement Implementation Agency in order to make an inventory of the Assets.
2. The Implementation Agency shall also give the HSHRC or its nominated agencies, or any Replacement Implementation Agency right of reasonable access to the Implementation Agency's premises and shall procure the HSHRC or its nominated agencies and any Replacement Implementation Agency rights of access to relevant third party premises during the exit management period and for such period of time following termination or expiry of the MSA as is reasonably necessary to migrate the services to the HSHRC or its nominated agencies, or a Replacement Implementation Agency.

9.9 General Obligations of the Implementation Agency

1. The Implementation Agency shall provide all such information as may be necessary to effect as seamless a handover as practicable in the circumstances to the HSHRC or its nominated agencies or its Replacement Implementation Agency and which the Implementation Agency has in its possession or control at any time during the exit management period.
2. For the purposes of this Schedule, anything in the possession or control of any Implementation Agency, associated entity, or sub-contractor is deemed to be in the possession or control of the Implementation Agency.
3. The Implementation Agency shall commit adequate resources to comply with its obligations under this Exit Management Schedule.
4. The Implementation Agency shall be involved in joint control of the project operations from the date the notice of exit comes into effect or three months in the case of a normal termination of this Agreement.
5. The Implementation Agency shall train, oversee and assist any new Agency by HSHRC or its own personnel as part of the exit management activities and the same shall be carried out consistent with the exit management plan to the satisfaction of HSHRC.
6. The Implementation agency shall clearly transfer all knowledge related to the project and its operations and specifically share with HSHRC and its authorized agent(s) so nominated, the learnings of the project and approach that was adopted in managing project performance, meeting risks and how specific technical situations were handled

during the past. These should be as far as possible through a documented form supported by other interactive methods.

9.10 Exit Management Plan

1. An Exit Management Plan shall be furnished by Implementation Agency in writing to the HSHRC or its nominated agencies within 90 days from the Effective Date of this Agreement, which shall deal with at least the following aspects of exit management in relation to the MSA as a whole and in relation to the Project Implementation, and the Operation and Management SLA.
 - a. A detailed program of the transfer process that could be used in conjunction with a Replacement Implementation Agency including details of the means to be used to ensure continuing provision of the services throughout the transfer process or until the cessation of the services and of the management structure to be used during the transfer; additionally, such transfer process shall identify how each item of dependency and risk shall be handled as part of this transfer;
 - b. plans for the communication with such of the Implementation Agency's sub-contractors, staff, suppliers, customers and any related third party as are necessary to avoid any material detrimental impact on Project's operations as a result of undertaking the transfer;
 - c. at the sole discretion of HSHRC, proposed arrangements for the segregation of the Implementation Agency's networks from the networks employed by Project and identification of specific security tasks necessary at termination;
 - d. Plans for provision of contingent support to Project and Replacement Implementation Agency for a reasonable period after transfer.
2. The Implementation Agency shall re-draft the Exit Management Plan annually thereafter to ensure that it is kept relevant and up to date.
3. Each Exit Management Plan shall be presented by the Implementation Agency to and approved by the HSHRC or its nominated agencies. As part of this requirement the Implementation Agency shall provide all supporting information and reasonable access to verify / audit the submissions made in the Exit Management Plan including but not limited to what has been described in para 1 (b) above, at any time during the validity of the Agreement.
4. The terms of payment as stated in the Terms of Payment Schedule include the costs of the Implementation Agency complying with its obligations under this Schedule.
5. In the event of termination or expiry of MSA, Project Implementation, or Operation and Management SLA, each Party shall comply with the Exit Management Plan.

6. During the exit management period, the Implementation Agency shall continue to deliver the Services.
7. Payments during the Exit Management period shall be made in accordance with the Terms of Payment Schedule.

Chapter 10: Miscellaneous

Chapter 7 Miscellaneous

Article 1: Scope of Work

10.1.1 Scope of Work

- a. Services to be provided by the Implementation Agency under the Agreement are as per scope of work given in Chapter 2 vol. I of the RFP.
- b. The range of the works and services can be varied, reduced or increased by HSHRC in accordance with the Change Control Schedule and HSHRC shall have the option to purchase such works and services from the Implementation Agency, without the need to go for a separate procurement process.
- c. The Project engagement which includes the Project Pilot Phase and the Project Implementation Phase will be governed by the testing criteria as per Volume I of the RFP which will have the Nodal Agency and/or a technically competent agency or agencies for conducting the acceptance and testing certifications simultaneously with the triggering of the Project Pilot Phase.

10.1.2 Interpretation of the Scope of Work

1. The HSHRC retains the right of the final say in the interpretation of the scope of work. The possible variations to the processes from the way they are specified in the scope of work should not be considered as deviations or extensions to the original process specifications.
2. All the responsibilities with respect to requirements in the RFP will be duly met by the Implementation Agency. Any gap that is found in a deliverable with respect to the above, will have to be addressed by the Implementation Agency without any additional cost to HSHRC.
3. The final acceptance of the integrated solution and infrastructure components should be as per the performance and service level requirements and specifications of the infrastructure alone would not be the determining factor.
4. The provision of Services to the Stakeholders with certainty and speed is the essence of the Agreement between the Parties.
5. The Implementation Agency represents that it is a competent and efficient provider of a variety of information technology and business process management services.

Implementation Agency will keep abreast of the relevant technical, managerial and operational requirements applicable to the provision of the Services and best practices in this area and will share their knowledge with the HSHRC, regarding matters which would assist the Nodal agency, in its use of the Services, provided that Implementation Agency shall not be obligated to share other client information or Confidential Information of Implementation Agency not relevant to this Agreement.

6. The Services shall be performed by the Implementation Agency pursuant to terms under the Service Levels defined in Schedule VII of this agreement.
7. The Implementation Agency shall perform the Services in a good professional manner commensurate with professional industry and technical standards which are generally in effect for international projects and innovations pursuant thereon similar to those contemplated by this Agreement.
8. In providing the Services, Implementation Agency shall ensure not to cause any unnecessary disruption to the HSHRC and POs normal business operations.
9. No Party to this Agreement will at any time perform, or omit to perform, any act which they are aware, at the time of performance, will place the other Party in default under any insurance policy, mortgage or lease, governing activities at any location provided by the HSHRC.

10.1.3 Approvals and required consents

1. The Parties will cooperate reasonably to obtain, maintain and observe all relevant and customary regulatory and governmental licenses, clearances and applicable approvals (hereinafter the "Approvals") necessary for the Implementation Agency to provide the Services. The costs of such Approvals shall be borne by the Implementation Agency.
2. All parties will give each other, co-operation and information reasonably required to meet their respective obligations under this Agreement.
3. HSHRC shall use reasonable endeavors to assist Implementation Agency obtain the Approvals. In the event that any Approval is not obtained, the Implementation Agency and HSHRC will co-operate with each other in achieving a reasonable alternative arrangement as soon as reasonably practicable for HSHRC, to continue to process its work with as minimal interruption to its business operations as is commercially reasonable until such Approval is obtained, provided that the Implementation Agency shall not be relieved of its obligations to provide the Services and to achieve the Service Levels until the Approvals are obtained if and to the extent that the Implementation Agency's obligations are dependent upon such Approvals.

10.1.4 Access to Implementation Agency to Project Site

1. For so long as the Implementation Agency provides Services from any Project location on a non-permanent basis and to the extent necessary for the Implementation Agency to provide the Services and at no cost to the Implementation Agency, HSHRC and POs, shall, subject to compliance by the Implementation Agency with any safety and security guidelines which may be notified by HSHRC to the Implementation Agency in writing, provide the Implementation Agency with:
 - a. Reasonable access, in the same manner granted to hospital employees, to hospital locations twenty-four hours a day, seven days a week; and
 - b. Access to office equipment as mutually agreed and other related support services in project location and at such other hospital locations, if any, as may be reasonably necessary for the Implementation Agency to perform its obligations hereunder and under this Agreement.
 - c. Reasonable accommodation to locate the Servers and UPS infrastructure/equipment(s) as mutually agreed in such location and at such other hospital location, if any, as may be reasonably necessary for the Implementation Agency to perform its obligations hereunder.
2. Locations and items shall be made available to the Implementation Agency on an "as is, where is" basis by HSHRC as per the time schedule agreed upon between the parties. The Implementation Agency agrees to ensure that its employees and consortium partners use these locations solely for performing the bona fide Project activities and do not use the location, services and items:
 - a. for the transmission of any material which is defamatory, offensive or abusive or of an obscene or menacing character; or
 - b. In a manner which constitutes a violation or infringement of the rights of any person, firm or company (including but not limited to rights of copyright or confidentiality).

Article 2 - Extension of the Term

1. HSHRC may choose to extend the Term for a maximum period of two years in mutual consultation with the IA with all the terms and conditions of original Agreement. In the event that no such agreement is arrived at, HSHRC may call for a fresh tender at the end of the Term. The bid process for this term shall commence one year before the expiry of the Term.
2. If Term of the Agreement is extended by HSHRC due to any failure on the part of the Implementation Agency to complete/achieve the milestones before the scheduled date or the extended date, as the case may be, for various specified activities as given in the RFPs, HSHRC may, in its sole discretion, extend the Term of the Agreement for a reasonable period on the terms and conditions as it deem fit including the levy of penalty.

Article 3 – Financial Issues

10.3.1 Terms of Payment and Service Credits and Debits

1. In consideration of the Services and subject to the provisions of this Agreement, HSHRC shall pay the charges and the service credits to the Implementation Agency for the Services rendered in pursuance of this Agreement, in accordance with the Terms of Payment Schedule
2. All payments are subject to the application of necessary service debits and liquidated damages defined and provided for in this Agreement. It is clarified here that the HSHRC will calculate a financial sum and debit the same against the terms of payment as defined in the Terms of Payment Schedule as a result of the failure of the Implementation Agency to meet the Service Level, such sum being determined in accordance with the terms set out in this Agreement.
3. Except as agreed between the Parties in writing, HSHRC shall not be required to make any payments in respect of the Services other than those covered by the terms of payment as stated in the Terms of Payment Schedule .For the avoidance of doubt the Payments shall be deemed to include all ancillary and incidental costs and charges arising in the course of delivery of the Services including consultancy charges, infrastructure costs, project costs, implementation and management charges and Operations and Maintenance cost and all other related costs including taxes, cesses, levies and any other impositions.
4. The HSHRC shall be entitled to deduct the taxes at source (TDS) from the amounts due and payable to the Implementation Agency wherever applicable. HSHRC shall provide Implementation Agency with the original TDS Certificate on payments under this Agreement.
5. The Implementation Agency shall pay for all other taxes, cesses, levies and any other impositions in connection with this Agreement.
6. The Service Tax incurred on the services provided to HSHRC shall be borne by HSHRC.
7. The HSHRC shall cooperate in providing exemption certificates or information reasonably requested by the other Party.
8. In the event of any increase or decrease of the rate of taxes due to any statutory notification/s during the Term of the Agreement the consequential effect shall be to the account of the IA.

10.3.2 Invoicing and Settlement

The provisions of the Invoicing shall be according to the Payment Schedule

10.3.3 Liquidated Damages

1. If Implementation Agency fails to complete/achieve the milestones before the scheduled date or the extended date for various specified activities given in the RFP, the HSHRC, at its discretion, may without prejudice to any other right or remedy available to HSHRC under the Agreement, recover from the Implementation Agency 1% of the corresponding milestone payment of delayed/undelivered stores/ services mentioned above for every week or part of a week of delay, subject to the maximum value of the Liquidated Damages being not higher than 10% of the value of corresponding milestone payment of the delayed/undelivered services in the form of Liquidated Damages and no further proof regarding loss would be required.
2. HSHRC may without prejudice to its right to affect recovery by any other method, deduct the amount of liquidated damages/penalties from any money belonging to the Implementation Agency in its hands or which may become due to the Implementation Agency. Any such liquidated damages shall not in any way relieve the Implementation Agency from any of its obligations to complete the works or from any other obligations and liabilities under this Agreement.
3. In the event, the Implementation Agency fails to meet the responsibilities including target performance metrics as stipulated in the Service Level or any damages caused by the Implementation Agency including its employees, contractors, sub-contractors, consortium partners to the HSHRC properties, personnel, data etc, the Implementation Agency shall be liable for penalty stipulated in the Service Level and additional penalty towards such damages.

10.3.4 Performance Bank Guarantee

1. A PBG of 10% of value of the contract has to be furnished by the successful bidder in the form of a Bank Guarantee, through NEFT / RTGS, and details submitted as per the format provided in this RFP, from Indian Public Sector Banks or Scheduled Banks authorized by the Government to conduct Government transaction.
2. The Performance Guarantee shall remain valid for a period of 30 days from the date of successful discharge of all contractual obligations at the end of the period of the Agreement including but not limited to the exit management obligations
3. HSHRC shall without prejudice to its other rights and remedies, reserve the rights to invoke the entire performance bank guarantee and/or even terminate the Agreement

if Implementation Agency fails to perform the responsibilities and obligations as set out in the RFP to the complete satisfaction of HSHRC.

4. In case the PBG has been invoked but HSHRC opts to continue with the agreement then within a period of 15 days from the date of invocation of the PBG, the IA will provide a fresh PBG on the same terms and conditions as applicable to the invoked PBG.

10.3.5 Insurance

IA warrants and represents that it shall maintain adequate standard forms of comprehensive insurance including liability insurance and any other insurance for the personnel, assets, Data, Software, Hardware etc and further agrees to provide to HSHRC on request copies of such policy of insurance and evidence that the premiums have been paid.

Article 4 - Breach, Rectification and Termination

10.4.1 Termination on ground of breach of obligations

1. Because time is the essence of the contract, in case, for reasons prima facie attributable to the Implementation Agency, there is a delay of more than 8 weeks in the initial Phase by the Implementation Agency prior to the acceptance testing and certification stage, HSHRC may terminate this Agreement after affording a reasonable opportunity to the Implementation Agency to explain the circumstances leading to such a delay. Further, HSHRC may also invoke the Performance Guarantee of the Implementation Agency
2. In the event that the Implementation Agency is in breach of its obligations under this Agreement or the SLA, HSHRC may terminate this Agreement upon notice to the other Party. Any notice served pursuant to this Article shall give reasonable details of the breach, which could include the following events and the termination will become effective: Because time is the essence of the contract, in case, for reasons prima facie attributable to the Implementation Agency, there is a delay of more than 8 weeks in the initial Phase by the Implementation Agency prior to the acceptance testing and certification stage, HSHRC may terminate this Agreement after affording a reasonable opportunity to the Implementation Agency to explain the circumstances leading to such a delay. Further, HSHRC may also invoke the Performance Guarantee of the Implementation Agency. Pursuant to the termination, Implementation Agency shall transfer all the assets to HSHRC as set out in Schedule II, clause 16.3, in this agreement.
3. If there is breach which translates into default in providing Services during the Operation and Management phase by the Implementation Agency pursuant to this Agreement, continuously for more than two weeks, then HSHRC, will serve a fifteen days' notice for curing such breach. In case the breach continues after the notice period, the HSHRC will have the option to terminate the Agreement at the end of the notice period.

10.4.2 Termination on ground of Change of Control

1. IA shall give 60 days' advance written notice to HSHRC where a change of control of the Implementation Agency has occurred whereby the Implementation Agency has merged, amalgamated or been taken over, due to which the majority shareholding of the Implementation Agency has been transferred to another entity. In case the aforesaid notice is not served to HSHRC, then HSHRC can terminate this Agreement forthwith.

2. Even if the IA has served a 60 days' advance written notice to HSHRC where a change of control of the Implementation Agency has occurred whereby the Implementation Agency has merged, amalgamated or been taken over, due to which the majority shareholding of the Implementation Agency has been transferred to another entity and such new entity is not acceptable to the HSHRC then HSHRC can terminate this Agreement forthwith.
3. HSHRC can terminate this agreement if amalgamated company doesn't fulfill all the pre-qualification, evaluation criteria and finally for award of project.
4. Notwithstanding the aforesaid right to terminate this agreement, HSHRC will also have the right to press for actual damages in the applicable court of law.

10.4.3 Termination on other grounds

Without prejudice to any other rights and remedies available to HSHRC, HSHRC may serve written notice on Implementation Agency at any time to terminate this Agreement in the following events:

1. In the event of a reasonable apprehension of bankruptcy of the Implementation Agency
2. In the event of fraud by the Implementation Agency or employees/agents/ sub-contractors/ partners of the Implementation Agency,
3. If the performance of the system/services is degraded significantly at any given point in time during the Agreement and if the immediate measures are not implemented and issues are not rectified to the complete satisfaction of HSHRC or an agency designated by them, then HSHRC will have the right to take appropriate corrective actions including termination of the Agreement. It is to be noted that if the Penalty applicable in two consecutive quarters during the currency of the Agreement degrades between SLA Score of (minus) -100 upto 70; then HSHRC shall have the right to terminate the Agreement
4. On account of a Force Majeure Event without any additional liabilities to the Implementation Agency, if the force majeure period continues for more than 30 days.

10.4.4 Effects of Termination

1. In the event that the HSHRC terminates this Agreement pursuant to this Article, the Performance Guarantee furnished by Implementation Agency may be forfeited.
2. Upon termination of this Agreement, the Parties will comply with the Exit Management Schedule.
3. In the event that HSHRC terminates this Agreement, the compensation will be decided in accordance with the Terms of Payment Schedule of this Agreement.

4. If the Service Provider fails to complete/achieve the milestone before the scheduled date for various activities given in the RFPs, HSHRC, at its discretion, may without prejudice to any other right or remedy available to HSHRC under the Agreement or law, recover from the Implementation Agency the Liquidated Damages as specified in Clause 7.3 of the Agreement and penalties as specified in the Agreement.

Article 5 - Protection and Limitations

10.5.1. Warranties

1. The Implementation Agency warrants and represents to the HSHRC that:
 - a. it has full capacity and authority and all necessary approvals to enter into and to perform its obligations under this Agreement;
 - b. this Agreement is executed by a duly authorized representative of Implementation Agency;
 - c. it shall discharge its obligations under this Agreement with due skill, care and diligence so as to comply with Article IV
 - d. there are no actions, suits or proceedings pending or to its best knowledge, threatened against or affecting it before any court, administrative body or arbitral tribunal which might materially and adversely affect its ability to meet or perform any of its obligations under this Agreement;
 - e. it has the financial standing and capacity to undertake the project in accordance with the terms of this Agreement;
 - f. the execution, delivery and performance of this Agreement will not conflict with, result in the breach of, constitute a default under, or accelerate performance required by any of the terms of its memorandum of association and articles of association or any Applicable Laws or any covenant, contract, agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;
 - g. it has no knowledge of any violation or default with respect to any order, writ, injunction or decree of any court or any legally binding order of any government authority which may result in any Material Adverse Effect on its ability to perform its obligations under this Agreement no fact or circumstance exists which may give rise to such proceedings that would adversely affect the performance of its obligations under this Agreement;
 - h. it has complied with the Applicable Laws in all material respects and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have a Material Adverse Effect on its ability to perform its obligations under this Agreement;
 - i. no representation or warranty by it contained herein or in any other document furnished by it to the HSHRC or its nominee including the Proposal or to any government authority contains or will contain any untrue or misleading of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading;

- j. no sums, in cash or kind, have been paid or will be paid, by it or on its behalf, to any person by way of fees, commission or otherwise for securing the Agreement or entering into this Agreement or for influencing or attempting to influence any officer or employee of the HSHRC in connection therewith.
2. In the case of the SLA, the Implementation Agency warrants and represents to the HSHRC, that:
- a. the Implementation Agency has full capacity and authority and all necessary approvals to enter into and perform its obligations under the Agreement and to provide the Services;
 - b. the Agreement has been executed by a duly authorized representative of the Implementation Agency;
 - c. the Implementation Agency is experienced in managing and providing works similar to the Services and that it will perform the Services with all due skill, care and diligence
 - d. the Services will be provided and rendered by appropriately qualified, trained and experienced personnel;
 - e. Implementation Agency has and will have all necessary licenses, approvals, consents of third parties and all necessary technology, hardware and software to enable it to provide the Services;
 - f. the Services will be supplied in conformance with all applicable laws, enactments, orders and regulations;
 - g. Implementation Agency will use its reasonable endeavors to ensure that the equipment, software and hardware supplied and/or used in the course of the provision of the Services are brand new updated, operational and functional; and
 - h. if Implementation Agency uses, in the course of the provision of the Services, components, equipment, software and hardware manufactured by any third party which are embedded in the Deliverables or are essential for the successful use of the Deliverables, it will pass-through third-party manufacturer's warranties relating to those components, equipment, software and hardware to HSHRC to the extent possible. In the event that such warranties cannot be enforced by the HSHRC, the Implementation Agency will enforce such warranties on behalf of the HSHRC and pass on to the HSHRC, the benefit of any other remedy received in relation to such warranties.
3. Warranties regarding the Project Assets: Without limiting the warranty obligations set out in the RFP, the Implementation Agency warrants that:
- a. The Project Assets purchased by it on behalf of HSHRC pursuant to the Agreement conform to technical specifications prescribed in the RFP and shall

perform according to the said technical specifications. The Implementation Agency further warrants that such assets are of latest version, non-refurbished, unused and recently manufactured. They shall not be nearing end of sale/ end of support;

- b. The Project Assets shall be free from all encumbrances and defects/ faults arising from design, material, manufacture or workmanship or from any act or omission of the Implementation Agency that may present a snag/fault, under normal use of the same.
4. Representations and warranties of HSHRC represents and warrants to the Implementation Agency that:
- a. It has full power and authority to execute, deliver and perform its obligations pursuant to the Agreement;
 - b. It has taken all necessary action to authorize the execution, delivery and performance of this MSA
 - c. In the event that any occurrence or circumstance comes to the attention of the either Party that renders any of its aforesaid representations or warranties untrue or incorrect, such Party shall immediately notify other Party of the same. Such notification shall not have the effect of remedying any breach of the representation or warranty that has been found to be untrue or incorrect nor shall it adversely affect or waive any obligation of either Party under the Agreement.

10.5.2 Third Party Claims

1. Implementation Agency undertakes to indemnify the HSHRC from and against all losses, claims or damages on account of bodily injury, death or damage to tangible personal property and otherwise caused by its negligence/ fraud/willful misconduct, arising in favor of any person, corporation or other entity (including the Indemnified Party) attributable to the Indemnifying Party's performance or non-performance under this Agreement or the SLA.
2. The indemnities set out in agreement above shall be subject to the following conditions:
 - a. the Indemnified Party, as promptly as practicable, informs the Indemnifying Party in writing of the claim or proceedings and provides all relevant evidence, documentary or otherwise;
 - b. the HSHRC shall, at the cost of the implementing Agency, give the implementing Agency all reasonable assistance in the defense of such claim including reasonable access to all relevant information, documentation and

personnel provided that the HSHRC may, at its sole cost and expense, reasonably participate, through its attorneys or otherwise, in such defense;

- c. if the Implementing Agency does not assume full control over the defense of a claim as provided in this Article, the implementing Agency may participate in such defense at its sole cost and expense, and the HSHRC will have the right to defend the claim in such manner as it may deem appropriate, and the cost and expense of the HSHRC will be included in losses;
- d. all settlements of claims subject to indemnification under this Article will: (a) be entered into only with the consent of the Indemnified Party, which consent will not be unreasonably withheld and include an unconditional release to the Indemnified Party from the claimant for all liability in respect of such claim; and (b) include any appropriate confidentiality agreement prohibiting disclosure of the terms of such settlement;
- e. the HSHRC shall account to the Implementing Agency for all awards, settlements, damages and costs (if any) finally awarded in favor of the Implementing Agency which are to be paid to it in connection with any such claim or proceedings;
- f. the HSHRC shall take legally permissible steps that the Implementing Agency may reasonably require to mitigate or reduce its loss as a result of such a claim or proceedings; and
- g. in the event that the Implementing Agency is obligated to indemnify an HSHRC pursuant to this Article, the Implementing Agency will, upon payment of such indemnity in full, be subrogated to all rights and defenses of the HSHRC with respect to the claims to which such indemnification relates;

10.5.3 Limitation of Liability

Implementation Agency's cumulative liability for its obligations and liabilities (including for damages arising out of breach, negligence, or tort) shall not exceed the actual, direct damage, up to a 100% of the total contract value hereunder for the subject of the claim; The cap indicate shall not apply for its liability for:

1. The bodily injury (including death) and damage to real property and tangible personal property caused by Implementation Agency's negligence/ fraud/willful misconduct and/or
2. The intellectual property infringement claims.
3. Implementation Agency shall not in any event be liable for any indirect or consequential damages except with respect to the bodily injury (including death) and damage to real and tangible personal property caused by Implementation Agency's negligence/ fraud/willful misconduct.

4. Neither this Agreement nor the services delivered by Implementation Agency under this Agreement grants or creates any rights, benefits, claims, obligations or causes of action in, to or on behalf of any person or entity (including any third party) other than between the respective Parties to this Agreement, as the case may be.
5. Notwithstanding what has been stated elsewhere in this Agreement and the Schedules attached herein, HSHRC shall not be liable to Implementation Agency for any indirect or consequential damages.
6. Any claim or series of claims arising out or in connection with this Agreement shall be time barred and invalid if legal proceedings are not commenced by the relevant Party against the other Party within such period as may be permitted by applicable law without the possibility of contractual waiver or limitation.
7. The HSHRC shall be entitled to claim the remedy of specific performance under this Agreement.

10.5.4 Data Protection

1. In the course of providing the Services the Implementation Agency may be compiling, processing and storing proprietary Project Data relating to the users.
2. The Implementation Agency and each user are responsible for complying with its respective obligations under the Constitution of India, applicable data protection laws and regulations governing the Project Data, and including and not limited to the Copyright Act, 1957 and any amendments thereof and the Information Technology Act, 2000, and any amendments thereof.
3. As a processor of Project Data, the Implementation Agency will process Project Data in accordance with the terms of this Agreement or the SLA.
4. The Implementation Agency shall not transfer any Project Data to any entity unless otherwise authorized by the HSHRC in this regard.
5. Upon reasonable written request from a Party to the MSA, the other Party to the Agreement will provide the requesting Party with such information that it has regarding the Project, Data and its processing which is necessary to enable the requesting party to comply with its obligations under the applicable data protection law or regulation.

10.5.5 Audit, Access and Reporting

Access to Books of Accounts, Audit and Reporting

1. Implementation Agency shall provide access to the auditors of the HSHRC or the authorized representatives of the HSHRC to the following or any such material required, under circumstances to determine, compensation, unlawful payments, employment of suspected personnel for the Project, availability and grant of the authorization to the authorized representatives of IA etc.: -

- a. Books of accounts.
 - b. IA's contracts relevant to this project
 - c. Recruitment and employment practices.
 - d. The project management techniques and tools.
 - e. The documentation standards and version control tools.
 - f. Statutory Books and Registers
-
2. IA shall provide access to the auditors of the HSHRC or the authorized representatives of the HSHRC to all the information which is in possession or control of the IA and which related to the Services as set out in the Audit, Access and Reporting Schedule and which is reasonably required by the HSHRC as per the Audit, Access and Reporting Schedule.
 3. IA should provide the HSHRC or its authorized representatives necessary Information/right to inspect the documents or Information as per Schedule III.

Article 6 – Intellectual Property & Application Source Code

10.6.1 Intellectual Property and Source Code

1. A copy of the project artefacts shall be kept in the custody of the HSHRC, with tool-based version control and supporting technical document. Implementation Agency shall continue to own the IPR in the materials existing prior to commencement of the Services. In the event of any enhancement or modification, IPR of the enhancement or modification shall rest with the Client.
2. The Client, shall retain exclusively all right, title and interest in the license, trademark patents, copyrights, trade secrets, operating practices/ procedures or other intellectual property rights (“Intellectual Property Rights/IPR”) relating to the Project Assets and related solutions, including but not limited to, portal application, portal infrastructure, database, forms and the compilations any computer code, web-based services, or materials comprising commercially released, pre-release or beta products (whether licensed for a fee or no charge) and any derivatives of the foregoing to which the Client has sovereign rights and nothing herein shall or will be construed or deemed to grant to the IA any right, title, license, sub-license, proprietary right or other claim against or interest in, to or under (whether by estoppels, by implication or otherwise) to the aforesaid rights.
3. For all the reusable components whose source code and IPR vest with the original owner, the licenses for such COTS /applications shall be in the name of HSHRC. HSHRC shall retain exclusive and irrevocable intellectual property rights to the customized enhancements of the COTS/ application in perpetuity, forms and the compilations of the Project and nothing herein shall or will be construed or deemed to grant to the Implementation Agency any right, title, license, sub-license, proprietary right or other claim against or interest in, to or under (whether by estoppels, by implication or otherwise) to the aforesaid rights.
4. Without limiting the generality and except to the extent otherwise expressly agreed by the Parties to this Agreement or the SLA in writing, nothing contained in this Agreement shall or will be construed or deemed to grant to the Implementation Agency any right, title, license or other interest in, to or under (whether by estoppels, by implication or otherwise) any logo, trademark, trade name, service mark or similar designations of HSHRC or PO or Project or its respective affiliates/nominees or any confusingly similar designations of Project .
5. Subject to any sole or exclusive rights granted by HSHRC to a third party prior to the Effective Date, HSHRC grants to the Implementation Agency and any consortium partners to the Implementation Agency solely in their performance of obligations

under this agreement, non-exclusive, revocable, limited, paid-up, license during the Term of this Agreement, but not the right to sub-license, to use the Project Data including the right to copy, perform, display, execute, reproduce, modify, enhance and improve the Project Data to the extent reasonably necessary or useful for the provision of Services hereunder. Implementation Agency shall not use the Project Data to provide services for the benefit of any third party, as a service bureau.

6. Implementation Agency shall indemnify, defend and hold harmless HSHRC/POs and their respective officers, employees, successors and assigns, from and against any and all losses arising from claims by third parties that any Deliverables (or the access, use or other rights thereto) created by Implementation Agency pursuant to this Agreement, or any equipment, software, information, methods of operation or other intellectual property (or the access, use or other rights thereto) provided by Implementation Agency or sub-contractors to the Implementation Agency pursuant to this Agreement (i) infringes a copyright , (ii) infringes a patent , or (iii) constitutes misappropriation or unlawful disclosure or use of another Party's trade secret/confidential information under the laws of India (collectively, "Infringement Claims"); provided, however, that this will not apply to any Deliverables (or the access, use or other rights thereto) created by (A) HSHRC; (B) third parties (i.e., other than Implementation Agency or Implementation Agency's sub-contractors) at the direction of HSHRC.
7. HSHRC/POs shall have no liability or obligation to Implementation Agency or any other Party to the extent the Infringement Claim is based upon any use of the equipment, software, information, methods of operation or other intellectual property (or the access, use or other rights thereto) for the benefit of any Party (including any use by Implementation Agency or its nominees outside the scope of the Services) other than for Project.
8. Notwithstanding any provisions of this Agreement to the contrary, the foregoing remedies constitute the Parties' sole and exclusive remedies and each Party's entire liability, with respect to Infringement Claims.
9. If Implementation Agency uses in the course of the provision of the Services any Third-Party System it will use all commercially reasonable endeavours to pass through to HSHRC such third party's warranties relating to such Third-Party Systems. In the event that such warranties cannot be passed through to or enforced by HSHRC or POs, the Implementation Agency will enforce such warranties on HSHRC's/POs behalf and account to HSHRC for so doing.
10. All rights, title and interest in and to, and ownership in, Proprietary Information of Project which is provided by Implementation Agency, and all modifications, enhancements and other derivative works of such Project Proprietary Information ("Project Proprietary Information"), as a result of Services rendered by the

Implementation Agency hereunder shall remain solely with Implementation Agency shall be entitled to use such Project Proprietary Information only during the Agreement Term and only for the purposes of providing the Services or to the extent necessary for Implementation Agency's normal operational, repair and maintenance purposes related to the Services. HSHRC shall retain ownership of all Intellectual Property Rights related to Project Proprietary Information.

11. The Implementation Agency will upon the award of the Project in its favour, declare the status of all the Implementation Agency Proprietary Information along with documentary support sufficient to establish its sole legal rights in the aforesaid Proprietary Information to HSHRC, which shall be entitled to use such Implementation Agency Proprietary Information only in connection with the Services or to the extent necessary for Project's normal operational, repair and maintenance purposes related to the Services. However, additionally, any software that may be acquired from third parties during the term of the agreement and that which may be developed by the Implementation Agency during the course of the Agreement specifically for Project shall be considered as Project Proprietary Information and. The Implementation Agency shall be entitled to use such Project Proprietary Information only during the Agreement Term and only for the purposes of providing the Services or to the extent necessary for Implementation Agency's normal operational, repair and maintenance purposes related to the Services. To the extent that the Implementation Agency Proprietary Information is incorporated within the Deliverables, Implementation Agency and its employees engaged hereby grant to HSHRC a perpetual, irrevocable, non-exclusive, transferable, paid-up right and license to use, copy, modify (or have modified), transport to Project facilities, and prepare from them, use and copy derivative works for the benefit of and internal use of Project such Implementation Agency Proprietary Information and such rights shall survive this contract period. HSHRC's rights pursuant to the preceding sentence include the right to disclose such Implementation Agency Proprietary Information to third party contractors solely for use on Project provided that all such third-party contractors execute, deliver and comply with any customary confidentiality and nondisclosure agreements reasonably required by HSHRC.
12. With respect to ownership of the Deliverables, the Parties agree that the following shall apply:
 - a. All the deliverables provided to HSHRC by Implementation Agency during the course of its performance under this Agreement, which includes but is not limited to customized Software application as defined in this Agreement, in which, subject to the foregoing provisions of this Article, all right, title and interest in and to such Deliverables, shall, as between Implementation Agency and HSHRC, immediately upon creation vest in HSHRC. To the extent that the Implementation Agency Proprietary Information is incorporated within the Deliverables, Implementation

Agency and its employees engaged hereby grant to HSHRC a worldwide, perpetual, irrevocable, non-exclusive, transferable, paid-up right and license to use, copy, modify (or have modified), transport to HSHRC at facilities and locations provided by HSHRC, and prepare from them, use and copy derivative works for the benefit of and internal use of Project, of such Implementation Agency Proprietary Information. However, nothing herein shall or will be applicable as a right to the Implementation Agency, if the Project Proprietary Information as owned by HSHRC is incorporated in such Deliverables.

- b. If Implementation Agency proceeds to apply for, or assign to any third party, any patent rights relating to Implementation Agency Proprietary Information referred to in the above clause, Implementation Agency will ensure that HSHRC's rights including Project Proprietary Information as provided herein are preserved.
 - c. Implementation agency shall provide product enhancements and updates including any localization features free of cost during the duration of this Agreement
 - d. Any licenses in relation to the solution and its operation provided to HSHRC under this Agreement shall be in favour of government of Haryana
 - e. Any licenses provided under this agreement shall be used for deployment and/or operation in a virtualized and/or cloud computing environment of Haryana government owned or that of a third-party service provider as may be decided by HSHRC or its nominated agency from time to time, for the purpose of meeting the requirements under the HIS Project and its operational requirements.
13. HSHRC hereby grants to Implementation Agency a non-exclusive and revocable right and license to access and use the Project Proprietary Information solely for the purpose of providing Services to HSHRC. Such right and license shall terminate upon the expiration or termination of this Agreement.
14. Upon the expiration or any termination of this Agreement (and also in respect of the SLA), Implementation Agency shall undertake the actions set forth below in this Article to assist HSHRC to procure replacement services equivalent to Services provided hereunder.
- a. The Implementation Agency undertakes to negotiate in good faith with HSHRC and any relevant Replacement Implementation Agency in respect of commercial terms applying to all Implementation Agency Intellectual Property Rights and which the HSHRC and any relevant Replacement Implementation Agency require to enable them to provide or receive services substantially equivalent to the Services hereunder.
 - b. In respect of Implementation Agency's usage of third-party Intellectual Property Rights, Implementation Agency undertakes to assist HSHRC to secure such consents

or licenses from such third parties as are necessary to enable Project to receive services substantially equivalent to the Services hereunder. The obligations of the Implementation Agency under this Article shall be considered part of the services performed by the Implementation Agency under the Exit Management Services.

10.6.2 Application Source Code

For the purpose and scope of this project the Application Source Code complete in all respects so as to be used independently along with associated documentation is required to be submitted in soft copy by the IA to HSHRC. Application Source Code refers to any software which is designed, developed, tested and deployed for the purpose of rendering service for this project includes customised components of third-party software/proprietary software's/tools deployed for this Project.

Article 7 - Assets

10.7.1 Purpose

1. This Article sets out the provisions relating to management of Assets deployed or developed for the purpose of the Project, in terms of ownership, usage, maintenance and transfer.
2. The provisions of this Article are applicable to all the Assets related to the Project both physical assets and assets of intellectual property.

10.7.2 Acquisition of Assets

1. The Implementation Agency shall conduct proper testing and analysis of the proposed Assets to ensure that they fulfill the requirements of the Project, pursuant to the Agreement
2. The Implementation Agency shall submit the testing results, its analysis and its own recommendation about the Listed Assets to HSHRC for approval
3. The Implementation Agency shall ensure that all the Listed Assets comply with all the requirements pursuant to the Agreement.

10.7.3 Ownership of Assets

1. The ownership of the assets namely, HIS software and System Software in the form of licenses obtained in favor of Governor of Haryana through the Director General Health Services
2. The ownership of the assets namely, entire hardware procured for the purpose of this project, would be acquired in the name of the IA.

10.7.4 Usage

Implementation Agency undertakes that it shall:

1. Use the Assets exclusively for the purpose of providing the Services as appropriate;
2. Not sell, lease, offer for sale, assign, mortgage, pledge, sub-let or lend out any of the Assets;
3. Use the Assets only in accordance with the terms hereof;
4. To provide all updates/ enhancements and improvements to meet the current needs of the Project;
5. Not knowingly or negligently use or permit any of the Assets to be used in contravention of any statutory provisions or regulation or contrary to law;

6. To ensure the acquired and existing hardware is configured to access the application software;
7. Take all reasonable and proper care of the entire hardware and software, network or any other information technology infrastructure components used for the Project;
8. Keep all the Assets in as good and serviceable condition and/or the intangible Assets suitably upgraded subject to the relevant standards as stated in Volume I of the RFP as at the date the Implementation Agency takes control of and/ or first uses the Assets and during the entire Term of the Agreement;
9. Ensure that any instruction manuals supplied by the manufacturer of the Assets for use of the Assets and provided to the Implementation Agency will be followed by the Implementation Agency and any person who will be responsible for the use of the Assets;
10. Take such steps as may be properly recommended by the manufacturer of the Assets and notified to the Implementation Agency or as may, in the reasonable opinion of the Implementation Agency, be necessary to use Assets safely;
11. To the extent that the Assets are under the control of the Implementation Agency, keep the Assets suitably housed and meet statutory requirements from time to time applicable to them;
12. Procure permission from HSHRC and any persons duly authorized by him/ her to enter any land or premises on which the Assets are for the time being sited so as to inspect the same, subject to any reasonable third-party requirements;
13. Obtain and/ or maintain standard forms of comprehensive insurance policy including liability insurance, system and facility insurance and any other insurance for the personnel, Assets, data, software etc.;
14. To provide a well-prepared documentation for user's manual, a clear plan for training, educating and hand holding the users and shall form part of handholding phase until bringing up to speed;
15. Provide comprehensive warranty support services for the assets as defined in Vol 1 of RFP;

10.7.5 Maintenance

During the Term of the Agreement, the Implementation Agency shall:

1. Take all reasonable and proper care of the Assets used for the Project and other facilities leased / owned by the Implementation Agency exclusively in terms of the delivery of the Services as per this Agreement in proportion to their use and control of such Assets which will include all upgrades/ enhancements and improvements to meet the current needs of the Project.
2. Keep all the Assets in as good and serviceable condition and/or the intangible Assets suitably upgraded subject to the relevant standards as stated in Volume I of the RFP as at the date the Implementation Agency takes control of and/ or first uses the Assets and during the entire Term of the Agreement;

3. Ensure that any instruction manuals supplied by the manufacturer of the Assets for use of the Assets and provided to the Implementation Agency will be followed by the Implementation Agency and any person who will be responsible for the use of the Assets;
4. Take such steps as may be properly recommended by the manufacturer of the Assets and notified to the Implementation Agency or as may, in the reasonable opinion of the Implementation Agency, be necessary to use Assets safely.
5. To the extent that the Assets are under the control of the Implementation Agency, keep the Assets suitably housed and meet statutory requirements from time to time applicable to them;
6. Procure permission from HSHRC and any persons duly authorized by him/ her to enter any land or premises on which the Assets are for the time being sited so as to inspect the same, subject to any reasonable third-party requirements;
7. Obtain and/ or maintain standard forms of comprehensive insurance policy including liability insurance, system and facility insurance and any other insurance for the Assets and data;

10.7.6 Training

1. Train the team identified by HSHRC, which will be in place during hand-holding and it will be responsible for trouble shooting all post-implementation maintenance activities;
2. To provide a well-prepared documentation and a clear plan for the training, educating and hand holding the users and shall form part of handholding phase until bringing up to speed;

10.7.7 Transfer of Assets

1. The transfer of Assets will take place as elaborated in the Exit Management Schedule as set out in this Agreement.

Article 8 – Others

10.8.1 Confidentiality

- Confidential Information: The Implementation Agency recognizes that during the term of this Agreement, sensitive data will be procured and made available to it, its sub-contractors, consortium partners, agents and others working for or under the Implementation Agency. Implementation Agency understands that disclosure or usage of the data by any such recipient may constitute a breach of this Agreement and applicable laws which causing harm to the POs, HSHRC and other concerned departments. The function of the HSHRC requires the Implementation Agency, its consortium members, sub-contractors and others working for or under the Implementation Agency to demonstrate utmost care, sensitivity and strict confidentiality in the same manner as they protect their own proprietary and confidential information of similar importance but at all times using at least a reasonable degree of care. Any breach of any confidentiality obligation set out in this Agreement will result in the POs, HSHRC or other concerned department and/or their nominees receiving a right to seek injunctive relief and damages without any limit, from the Implementation Agency and/or also seek termination of this Agreement
- Implementation Agency agrees and undertakes as to any Confidential Information disclosed by the HSHRC or received by the Implementation Agency during negotiations, location visits, meetings or rendering of Services in connection with this Agreement:
 - a. to take such steps necessary to protect the Confidential Information from unauthorized use, reproduction and disclosure as the IA takes in relation to its own Confidential Information of the same type, but in no event less than reasonable care; and
 - b. to use such Confidential Information only for the purposes of this Agreement or as otherwise expressly permitted HSHRC in writing;
 - c. process the personal data and/or sensitive personal data only for the purposes of this Agreement and in accordance with the instructions of HSHRC and implement such technical and organisational measures against unauthorised or unlawful processing of the personal data and against its accidental destruction, damage or loss as is required under the law and comply with all relevant data protection legislation in force from time to time.
 - d. not subcontract the processing of the personal data or sensitive personal data or transfer any of the personal data or sensitive personal data for the purpose

other than mentioned in the Agreement without the prior written consent of HSHRC and it will notify POs, HSHRC or the concerned department if it receives any complaint or access request by an individual in respect of his or her personal data and comply with the reasonable directions of POs, HSHRC or the concerned department in regard to such complaint or request. not, without the HSHRC's prior written consent, to copy the Confidential Information or cause or allow it to be copied, directly or indirectly, in whole or in part, except as otherwise expressly provided in this Agreement, or as needed for the purposes of this Agreement, provided that any proprietary legends and notices (whether of the HSHRC or of a Third Party) are not removed or obscured; and

- e. Not, without the HSHRC's prior written consent, to disclose, transfer, publish or communicate the Confidential Information in any manner to any person.
- ✓ The restrictions of this Article shall not apply to Confidential Information that:
 - a. is or becomes generally available to the public through no breach of this Article by Implementation Agency; was in the Implementation Agency's possession free of any obligation of confidence prior to the time of receipt of it by the Implementation Agency hereunder;
 - b. is rightfully obtained by the Implementation Agency from third parties authorized at that time to make such disclosure without restriction;
 - c. is identified in writing by the HSHRC as no longer proprietary or confidential;
 - d. is required to be disclosed by law, regulation or court order or to be furnished to the Parliament and/or its Committees pursuant to a statutory, legal or parliamentary obligation placed upon the Implementation Agency, provided that the Implementation Agency gives prompt written notice to the HSHRC of such legal and regulatory requirement to disclose so as to allow the Discloser reasonable opportunity to contest such disclosure.
- ✓ To the extent that such disclosure is required for the purposes of this Agreement, Implementation Agency may disclose Confidential Information to:
 - a. its employees, agents and independent contractors and to any of its affiliates and their respective independent contractors or employees as is strictly necessary for the performance of this Agreement and only to the extent necessary for the performance of this Agreement but all of them should in turn be bound to maintain the confidentiality referred to herein on their part. However, the IA shall not subcontract the processing of the personal data or sensitive personal data or transfer any of the personal data or sensitive

personal data for the purpose other than mentioned in the Agreement without the prior written consent of HSHRC; and

- b. its professional advisors and auditors, who require access for the purposes of this Agreement as is strictly necessary for the performance of this Agreement and only to the extent necessary for the performance of this Agreement, whom the relevant Party has informed of its obligations under this Article and in respect of whom the relevant Party has used commercially reasonable efforts to ensure that they are contractually obliged to keep such Confidential Information confidential on terms substantially the same as set forth in this Article.
- ✓ Implementation Agency hereby undertakes to indemnify POs, HSHRC and other Government departments in respect of any claims of whatever kind made against them which may arise from any negligent act, error or omission, breach of terms and conditions relating confidentiality including but not limited to use of personal data and/or sensitive personal data as contemplated under this Agreement and all the relevant legislation in force from time to time or from any wilful misconduct by the Implementation Agency, its servants, agents, sub-contractor or associates. The provisions of this Article shall survive the expiration or any earlier termination of this Agreement.
- ✓ Confidential Information shall be and remain the property of the HSHRC and nothing in this Article shall be construed to grant Implementation Agency any right or license with respect to the HSHRC's Confidential Information otherwise than as is expressly set out in this Agreement.
- ✓ Subject as otherwise expressly provided in this Agreement all Confidential Information in tangible or electronic form under the control of the Implementation Agency shall either be destroyed, erased or returned to the HSHRC promptly upon the earlier of: (i) the written request of the HSHRC or, (ii) termination or expiry of this Agreement. Notwithstanding the forgoing, Implementation Agency may retain, subject to the terms of this Article, a reasonable number of copies of the HSHRC's Confidential Information solely for confirmation of compliance with the confidentiality obligations of this Agreement.
- ✓ Implementation Agency shall keep confidential all the details and information with regard to the Project, including systems, facilities, operations, management and maintenance of the systems/ facilities. The HSHRC may permit the Implementation Agency to come into possession of confidential public records as per the needs of the Project and the Implementation Agency shall maintain the highest level of secrecy, confidentiality and privacy with regard thereto. This Article shall not permit the disclosure or use by Implementation Agency of any electronic health record, personal

or sensitive personal data of patients / end users, other HIS related data, financial (including business plans), statistical, product, personnel or customer data of HSHRC. Implementation Agency agrees not to disclose the source of the Residuals.

- ✓ Any breach of the confidentiality obligation by the Implementation Agency, as mentioned in this Agreement, will be treated as serious default on the part of IA and HSHRC shall have the right to invoke the Performance Bank Guarantee (PBG) and/or also seek termination of this Agreement. Implementation Agency agree that monetary damages would not be a sufficient remedy for any breach of this Article by Implementation Agency and that the HSHRC shall be entitled to equitable relief, including injunction and specific performance as a remedy for any such breach. Such remedies shall not be deemed to be the exclusive remedies for a breach by Implementation Agency, but shall be in addition to all other remedies available at law or equity to the HSHRC.
- ✓ Implementation Agency shall be prohibited from using the HIS related data in whatever manner, for purposes other than handling transactions through the HIS system. Implementation Agency shall undertake, on behalf of its agents and employees, that no HIS related data shall be copied in any manner (paper and electronic) and transferred to any entity (human or machine) other than that being through the HIS system for delivering job responsibilities defined for each individual and it shall not in any way subject to publication or advertisement by the IA.
- ✓ The HSHRC shall retain all rights to prevent, stop and if required take the necessary punitive action against the Implementation Agency regarding any forbidden disclosure.
- ✓ The Implementation Agency shall ensure that all its employees deployed in the project, execute individual non-disclosure agreements, which have been duly approved by the HSHRC, with respect to this Project.

10.8.2 Blacklisting of IA

HSHRC shall have the option to Blacklist the Implementing Agency including consortium partners(if any) wherever applicable for a period of 5 (five) years effective from the date of blacklisting for the government contracts in the State of Haryana under any of the following grounds:

- ✓ Submission of Bids that contain false information or falsified documents, or the concealment of such information in the Bids in order to influence the outcome of eligibility screening or any other stage of bidding or misrepresentation of facts.

- ✓ Any unsolicited attempt by a bidder to unduly influence the outcome of the bidding in his favor through unethical means, bribery, fraud etc.
- ✓ Failure by the IA to fully and faithfully comply with its contractual obligations relating to transfer of assets and successful completion of exit management as specified in the Agreement.
- ✓ Abandonment of project works or non-responsiveness for unreasonable length of time detrimental to the outcomes of the project.

10.8.3 Security & Safety

1. The Implementation Agency will comply with the directions issued from time to time by HSHRC and the standards related to the security and safety as stated in chapter 5 of RFP Volume I, insofar as it applies to the provision of the Services.
2. Each Party to the Agreement shall also comply with Project's Information Security Management Office (ISMO) standards and policies in vogue from time to time at each location of which the HSHRC makes the Implementation Agency aware in writing insofar as the same apply to the provision of the Services.
3. The Parties to the Agreement shall use reasonable endeavors to report forthwith in writing to each other all identified attempts (whether successful or not) by unauthorized persons (including unauthorized persons who are employees of any Party) either to gain access to or interfere with the Project's data, facilities or Confidential Information.
4. The Implementation Agency shall upon request by HSHRC or its nominee(s) participate in regular meetings when safety and information technology security matters are reviewed.
5. The Parties under the Agreement shall promptly report in writing to each other any act or omission which they are aware that could have an adverse effect on the proper conduct of safety and information technology security at Project's locations.

10.8.4 Personnel

1. Personnel assigned by Implementation Agency to perform the Services shall be employees of Implementation Agency, and under no circumstances will such personnel be considered employees of POs and/or HSHRC and IA agrees that no right of any employment with POs and/or HSHRC shall accrue or arise, by virtue of engagement of employees, agents, contractors, subcontractors etc. by IA, pursuant to this Agreement. Implementation Agency shall have the sole responsibility for supervision and control of its personnel and ensuring that they carry out their assigned

job in a professional manner. Further, HSHRC shall be responsible for the payment of such personnel's entire compensation, including salary, remuneration, claims, wages, withholding of income taxes and social security taxes, worker's compensation, employee and disability benefits and the like and shall be responsible for all employer obligations under all applicable laws.

2. Implementation Agency shall ensure that sufficient Implementation Agency personnel are employed to perform the Services, and also that such personnel have appropriate qualifications to perform the Services. The HSHRC shall have the right to require the removal or replacement of any Implementation Agency personnel performing work under this Agreement based on the assessment of the HSHRC that the person in question is incompetent to carry out the tasks expected of him/her or found that person does not really possess the skills /experience/qualifications as projected in his/her profile or on the ground of security concerns or breach of ethics. In the event that the HSHRC requests that any Implementation Agency personnel be replaced, the substitution of such personnel shall be accomplished pursuant to a mutually agreed upon schedule but not later than 3 working days.
3. The Implementation Agency shall also be responsible to train certain employees of HSHRC with regard to the Services being provided by the Implementation Agency as and when required by the Project during the Term of this Project. The parameters of the training required for these employees shall be communicated by HSHRC to the Implementation Agency periodically and shall be in accordance with the latest procedures and processes available in the relevant areas of work and as specified in the Chapter 8 of the volume I of the RFP.
4. In the event HSHRC identifies any personnel of Implementation Agency as "Key Resources", then the Implementation Agency shall not remove such personnel without the prior written consent of HSHRC under the applicable terms of this Agreement.
5. Except as stated in this Article, nothing in this Agreement will limit the ability of Implementation Agency or any Implementation Agency freely to assign or reassign its employees; provided that Implementation Agency shall be responsible, at its expense, for transferring all appropriate knowledge from personnel being replaced to their replacements. HSHRC shall have the right to review and approve Implementation Agency's plan for any such knowledge transfer. Implementation Agency shall maintain the same standards for skills and professionalism among replacement personnel as in personnel being replaced.
6. Each Party shall be responsible for the performance of all its obligations under this Agreement and shall be liable for the acts and omissions of its employees and agents in connection therewith.

7. In case of any claim under any acts, rules and regulations including but not limited to wages, salary, medical/ health insurance, provident fund compensation, accident claims and the like and/or prosecution of any nature on account of any loss, damage, accident (including but not limited to death of any, labourers and employees including those engaged on daily wages or any other basis) during and/or in the course of and/or after the expiry of the Term of the Project or otherwise, the IA shall be exclusively liable for the same and shall, forthwith settle the claims. In the event the aforesaid liabilities and claims are not settled conclusively by the IA, then at its option HSHRC may settle the same and deduct the amounts thus spent from any of the outstanding payments of the IA lying with the HSHRC.

10.8.5 Independent Contractor

Nothing in this Agreement shall be construed as establishing or implying any agency or joint venture between the Parties to this Agreement and, except as expressly stated in this Agreement, nothing in this Agreement shall be deemed to constitute any Parties as the agent of any other Party or authorizes either Party (i) to incur any expenses on behalf of the other Party, (ii) to enter into any engagement or make any representation or warranty on behalf of the other Party, (iii) to pledge the credit of or otherwise bind or oblige the other Party, or (iv) to commit the other Party in any way whatsoever without in each case obtaining the other Party's prior written consent.

10.8.6 Assignment

All terms and provisions of this Agreement shall be binding on and shall inure to the benefit of HSHRC and Implementation Agency and any assignment or transfer of this Agreement or any rights hereunder by the Implementation Agency shall be strictly prohibited.

10.8.7 Trademarks, Publicity

Neither Party may use the trademarks of the other Party without the prior written consent of the other Party. Neither Party shall publish or permit to be published either along with or in conjunction with any other person any press release, information, article, photograph, illustration or any other material of whatever kind relating to this Agreement without prior approval in writing from the other Party.

10.8.8 Notices

1. Any notice or other document, which may be given by either Party under this MSA/Agreement, shall be given in writing in person or by pre-paid recorded delivery post or by facsimile transmission.
2. In relation to a notice given under this Agreement, any such notice or other document shall be addressed to the other Party's principal or registered office address as set out below:

HSHRC

Address:

Tel:

Fax:

Email:.....

Implementation Agency:

Address:

Tel:.....

Fax:.....

Email:.....

3. Any notice or other document shall be deemed to have been given to the other Party (or, if relevant, its relevant associated company) when delivered (if delivered in person) if delivered between the hours of 9.00 am and 5.30 pm on a working day at the address of the other Party set forth above or if sent by fax, provided the copy fax is accompanied by a confirmation of transmission, or on the next working day thereafter if delivered outside such hours, and 7 days from the date of posting (if by letter).
4. Either Party to this Agreement may change its address, telephone number, facsimile number and nominated email for notification purposes by giving the other reasonable prior written notice of the new information and its effective date.

10.8.9 Variations and further Assurance

1. No amendment, variation or other change to this Agreement shall be valid unless authorized in accordance with the change control procedure as set out in the Change Control Schedule and made in writing and signed by the duly authorized representatives of the Parties to this Agreement.
2. Each Party to this Agreement agrees to enter into or execute, without limitation, whatever other agreement, document, consent and waiver and to do all other things which shall or may be reasonably required to complete and deliver the obligations set out in this Agreement.

10.8.10 Severability and Waiver

1. If any provision of this Agreement, or any part thereof, shall be found by any court or administrative body of competent jurisdiction to be illegal, invalid or unenforceable the illegality, invalidity or unenforceability of such provision or part provision shall not affect the other provisions of this Agreement or the remainder of the provisions in question which shall remain in full force and effect. The relevant Parties shall negotiate in good faith in order to agree to substitute for any illegal, invalid or unenforceable provision a valid and enforceable provision which achieves to the greatest extent possible the economic, legal and commercial objectives of the illegal, invalid or unenforceable provision or part provision.
2. No failure to exercise or enforce and no delay in exercising or enforcing on the part of either Party to this Agreement of any right, remedy or provision of this Agreement shall operate as a waiver of such right, remedy or provision in any future application nor shall any single or partial exercise or enforcement of any right, remedy or provision preclude any other or further exercise or enforcement of such right, remedy or provision or the exercise or enforcement of any other right, remedy or provision.

10.8.11 Compliance with Laws and Regulations

Each Party to this Agreement accepts that its individual conduct shall (to the extent applicable to it) at all times comply with all applicable laws, rules and regulations. For the avoidance of doubt, the obligations of the Parties to this Agreement are subject to their respective compliance with all applicable laws and regulations.

10.8.12 Ethics

Implementation Agency represents, warrants and covenants that it has given no commitments, payments, gifts, kickbacks, lavish or expensive entertainment, or other things of value to any employee or agent of HSHRC, or its nominated agencies in connection with this agreement and acknowledges that the giving of any such payment, gifts, entertainment, or other things of value is strictly in violation of HSHRC's standard policies and may result in cancellation of this Agreement.

10.8.13 Entire Agreement

This Agreement, all schedules appended thereto and the contents and specifications of all the Volumes of the RFP constitute the entire agreement between the Parties with respect to their subject matter, and as to all other representations, understandings or agreements which are not fully expressed herein.

10.8.14 Survivability

The termination or expiry of this Agreement for any reason shall not affect or prejudice any

terms of this Agreement, or the rights of the Parties under them which are either expressly or by implication intended to come into effect or continue in effect after such expiry or termination.

10.8.15 Force Majeure

1. Neither Party to this Agreement shall be liable to the other for any loss or damage which may be suffered by the other due directly to the extent and for the duration of any cause beyond the reasonable control of the Party unable to perform ("Force Majeure") events such as but not limited to acts of God not confined to the premises of the Party claiming the Force Majeure, flood, drought, lightning, fire caused by natural forces, earthquakes, strike, lock-outs beyond its control, Labour disturbance not caused at the instance of the Party claiming Force Majeure, Acts of government or other competent authority, war, terrorist activities, military operations, riots, epidemics, civil commotions etc. No failure, delay or other default of any contractor or sub-contractor to either Party shall entitle such Party to claim Force Majeure under this Article.
2. The Party seeking to rely on Force Majeure shall promptly, within 2 days, notify the other Party of the occurrence of a Force Majeure event as a condition precedent to the availability of this defense with particulars detailed in writing to the other Party and shall demonstrate that it has taken and is taking all reasonable measures to mitigate the events of Force Majeure.
3. In the event the Force Majeure substantially prevents, hinders or delays the Implementation Agency's performance of Services necessary for Project's implementation or the operation of Project's critical business functions for a period in excess of 5 days, the HSHRC may declare that an emergency exists. However, when the situation arising out of force majeure comes to an end in the assessment of HSHRC, the following conditions shall apply:
 - a. **Prior to commencement of operations:** If the event of Force Majeure had occurred prior to commencement of operations and continues for a period in excess of 10 (ten) days, then the HSHRC will grant a period of 7 (seven) days to the Implementation Agency to resume normal activities under this Agreement. In case the default continues, and Implementation Agency does not resume normal activities under this Agreement, the HSHRC will have the option to invoke the Performance Security and /or terminate this Agreement forthwith, without any liability (except the payments due to the Implementation Agency for the Services already rendered) after intimating the Agency of the same in writing.
 - b. **Post commencement of operations:** If Force Majeure had occurred post commencement of operations and continues for a period in excess of 5 (five) days then

HSHRC will grant a period of 7 (seven) days to the Implementation Agency to resume normal services under the Agreement. In case the default continues, the HSHRC, if considers necessary, may grant an extension of time to the Implementation Agency for rectifying the situation. However, the HSHRC will deduct for each day of the extension period a percentage proportionate to the number of days and the affected area/s from the next payable Quarterly Charges. If there is any other further delay despite the extended period, the HSHRC will have the option to invoke the Performance Security and/or terminate the Agreement.

4. All payments pursuant to termination due to Force Majeure event shall be in accordance with the Terms of Payment Schedule
5. Notwithstanding the terms of this Article, the failure on the part of the Implementation Agency under the SLA or terms under the SLA to implement any disaster contingency planning and back-up and other data safeguards in accordance with the terms of the SLA or this Agreement against natural disaster, fire, sabotage or other similar occurrence shall not be an event of Force Majeure.

10.8.16 Publicity

All media releases, public announcements and public disclosures by the Implementation Agency relating to this Agreement or its subject matter, including promotional or marketing material, shall be co-ordinated and approved by HSHRC prior to release of the same. No media releases, public announcements and public disclosures by the Implementation Agency relating to this Agreement shall be issued by the IA without the prior written consent of HSHRC

Article 9 – Disputes Resolution & Jurisdiction

10.9.1 Dispute Resolution

Except where otherwise provided in the Agreement, any dispute arising out of or in connection with this Agreement including but not limited to all questions and disputes relating to the meaning of the specifications, design, drawings and instructions here-in before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the Agreement, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the services and deliverables or the execution or failure to execute the same whether arising during the progress of the Project or after the cancellation, termination, completion or abandonment thereof shall in the first instance be dealt with in accordance with the escalation procedure as set out in the Governance Schedule

If any dispute or difference whatsoever as mentioned above arising between the Parties to this Agreement out of or relating to the Agreement, which cannot be resolved through the application of the provisions of the Governance Schedule, shall be dealt in accordance with the provisions set forth herein.

1. Dispute Resolution Board

Any dispute arises between HSHRC and the Implementation Agency in connection with or arising out of the Agreement or the execution of the Project including but not limited to as mentioned above, whether during the execution of the Project or after its completion and whether before or after the repudiation or other termination of the agreement, including any disagreement by either party with any action, inaction, opinion, instruction, determination, certificate or valuation, the matter in dispute shall, in the first place, be referred to the Dispute Resolution Board (here in after called “**the Board**”).

The Board shall consist of member representatives nominated by ED HSHRC and Implementation Agency respectively. The Board at its discretion may co-opt any other officer if in its opinion it may help in resolving the dispute.

2. Arbitration

Either party, not satisfied with the decision of the Board may refer such dispute or differences whatsoever to a sole arbitrator, as mutually decided between the Parties within 30 days from the date of decision made by the Board. However, if Parties fails to decide the sole arbitrator within a period of 30 days from the date of decision passed by the Board, arbitrator shall be appointed as per the provisions of the Arbitration and Conciliation Act, 1996. If neither party refers the disputes to

arbitration within 30 days of the date of such decision, the Board's decision will be final and binding.

The venue of such arbitration shall be at Panchkula-Chandigarh, as may be decided by arbitrator. The language of arbitration proceedings shall be English. The arbitrator shall make a reasoned award (the "Award"), which shall be final and binding on the parties. The arbitrator shall state the specific reasons for their findings in writing. Arbitration proceeding shall be governed as per the Arbitration and Conciliation Act, 1996.

The cost of arbitration shall be shared equally by the Parties to the Agreement. However, expenses occurred by each party in connection with preparation, presentation should be borne by the parties itself.

Pending the submission of and/or decision on dispute, differences of claim or until the arbitral award is published; the parties shall continue to perform all of their obligations under this contract without prejudice through a final adjustment in accordance with such award.

10.9.2 Jurisdiction

This Agreement shall be governed as per Indian Law. Courts at Panchkula, Haryana shall have jurisdiction in relation to this Agreement.

Article 10 – Amendment

The Parties acknowledge and agree that amendments to this Agreement shall be made through mutual agreement between the parties in writing in accordance with the procedure this Agreement is executed and signed.

IN WITNESS WHEREOF the Parties have by duly authorized representatives set their respective hands and seal on the date first above written in the presence of:

WITNESSES:

1. (Name, Designation, Organization, and Signature)

2. (Name, Designation, Organization, and Signature)

HSHRC

[IMPLEMENTATION AGENCY]

Signed

Signed

For and on behalf of the

For and on behalf of the

Government of Haryana

_____ (Company name) _____

By: _____ (signature) _____

By: _____ (signature) _____

____ (Name and designation) _____

____ (Name and designation) _____

An authorized signatory duly nominated pursuant to Board Resolution No. _____ dated _____ of the [Implementation Agency]

Article 11 – Change Control Note

CHANGE CONTROL SCHEDULE**11.1 Purpose**

This Schedule applies to and describes the procedure to be followed in the event of any proposed change to the Agreement, the format for change request is provided in Annexure A to this Schedule. Such changes shall include, but shall not be limited to, changes in the scope of services provided by the Implementation Agency and changes to the terms of payment as stated in the Terms of Payment Schedule.

HSHRC and the Implementation Agency recognize that frequent change is an inevitable part of delivering services and that a significant element of this change can be accomplished by re-organizing processes and responsibilities without a material effect on the cost. The Implementation Agency will endeavor to the best of its ability and in accordance with prevailing market practices, to effect change without an increase in the terms of payment as stated in the Terms of Payment Schedule and HSHRC will work with the Implementation Agency to ensure that all changes are discussed and managed in a constructive manner.

11.2 Change Control Note (“CCN”)

1. Change requests in respect of the MSA, the Project Implementation, or the Operation and Management SLA will emanate from the Parties' respective Project Manager who will be responsible for obtaining approval for the change and who will act as its sponsor throughout the Change Control Process and will complete Part A of the CCN attached as Annexure A hereto. CCNs will be presented to the other Party's Project Manager who will acknowledge receipt by signature on the CCN.
2. The Implementation Agency and HSHRC, while preparing the CCN, shall consider the change in the context of the following parameter, namely whether the change is beyond the scope of Services, technical and functional requirements including ancillary and affiliated services required and as detailed in Volume I of the RFP and as may be detailed out and agreed upon in any subsequent project documentation and is suggested and applicable only after the testing, commissioning and certification of the “Go Live” as set out in this Agreement.
3. It is hereby also clarified that the payment for the changes brought in after project certification and ‘Phase Go Live’ date will be calculated on the basis of man-month rate quoted by the Implementation Agency in its bid and estimated man-month effort to be submitted by the Implementation Agency prior to taking up the change of control event and accepted by HSHRC.

11.3 Quotation

1. The Implementation Agency shall assess the CCN and complete Part B of the CCN. In completing Part B of the CCN the Implementation Agency shall provide as a minimum: a description of the change which should also provide Name of functionality/feature being changed, current functionality/feature (prior to change), new functionality/feature (post change);
2. a list of deliverables required for implementing the change;
3. a timetable for implementation;
4. an estimate of the timelines or effort of any proposed change including the methodology that is used for computing such effort and/or assessing the proposed changes that shall inter alia include a classification such as minor or major change
5. the unit of measure to cost the change;
6. an estimate of any proposed change including the reasonableness of proposed effort that is computed in a transparent value;
7. any relevant acceptance criteria;
8. an assessment of the value of the proposed change including a justification for reasonableness;
9. Material evidence to prove that the proposed change is not already covered within the scope of the Project, or MSA. For purposes of clarity, meeting with obligations related to the scope of project, or MSA as agreed upon and any consequential changes as a result of implementing a mutually agreed CCN shall not be treated as a change.
10. Description of the circumstances which influenced the origin of this change.
11. Alternative options possible to address the change if any and the implications of these alternative options.
12. Detailed break up of various categories of activities to be performed for implementing a proposed change along with details on where re-usable components are used to reduce the efforts.
13. Details on software change estimation method used for the calculation of change effort estimation to provide information on how change is classified in various categories, what all items that require efforts and how efforts are estimated.
14. Underlying Assumptions.

15. Any other details that HSHRC would require to assess the effort estimated provided by the Implementation Agency.
16. Prior to submission of the completed CCN to the HSHRC, or its nominated agencies, the Implementation Agency will undertake its own internal review of the proposal and obtain all necessary internal approvals. As a part of this internal review process, the Implementation Agency shall consider the materiality of the proposed change in the context of the MSA, the Project Implementation, Operation and Management SLA affected by the change and the total effect that may arise from implementation of the change.
17. Materiality of the proposed change will be established by the HSHRC.

11.4 Costs

In the event the Implementation Agency is unable to meet the obligations as defined in the CCN then the cost of getting it done by third party will be borne by the Implementation Agency.

11.5 Reporting

Change requests and CCNs will be reported monthly to each Party's Project Managers who will prioritize and review progress.

11.6 Obligations

The Implementation Agency shall be obliged to implement any proposed changes once approval in accordance with above provisions has been given, with effect from the date agreed for implementation and within an agreed timeframe.

ANNEXURE A

CHANGE CONTROL NOTICE

Change Control Note	CCN Number:
Part A: Initiation	
Title:	
Originator:	
Sponsor:	
Date of Initiation:	
Details of Proposed Change	
(To include reason for change and appropriate details/specifications. Identify any attachments as A1, A2, and A3 etc.)	
Authorized by HSHRC	Date:
Name:	
Signature:	
Received by the Implementation Agency	Date:
Name:	

Change Control Note	CCN Number:
Signature:	
Change Control Note	CCN Number:
Part B : Evaluation	
<p>(Identify any attachments as B1, B2, and B3 etc.)</p> <p>Changes to Services, charging structure, payment profile, documentation, training, service levels and component working arrangements and any other contractual issue.</p>	
Brief Description of Solution:	
Impact:	
Deliverables:	
Timetable:	
Charges for Implementation: (including a schedule of payments)	
Other Relevant Information: (including value-added and acceptance criteria)	
Authorized by the Implementation Agency	Date:

Change Control Note	CCN Number:
Name:	
Signature:	
Change Control Note	CCN Number :
Part C : Authority to Proceed	
Implementation of this CCN as submitted in Part A, in accordance with Part B is: (tick as appropriate)	
Approved Rejected Requires Further Information (as Follows, or as Attachment 1 etc.)	
For HSHRC and its nominated agencies	For the Implementation Agency
Signature	Signature
Name	Name
Title	Title
Date	Date