Request for Proposal (RFP) Document for Implementation of Integrated Health Management System 2.0 (iHMS 2.0) for the State of Rajasthan

NIB Reference No.: F4.2(611)/RISL/Tech/2023/4884 **Dated: 05-October-2023**

E-Proc Tender ID:

UBN: **RIS2324GLOB00069** **NIB code RIS2324A0069**

Mode of Bid Submission	Online though eProcurement/ e-Tendering system at http://eproc.rajasthan.gov.in
Tendering Authority/ Purchaser	Managing Director, RajCOMP Info Services Limited (RISL), First Floor, C- Block, Yojana Bhawan, Tilak Marg, C-Scheme, Jaipur (Rajasthan)
Date Time & Place of Pre-bid meeting	**23rd October 2023 at 11:30 AM** Board Room, First Floor, C-Block, Yojana Bhawan, Tilak Marg, C-Scheme, Jaipur, Rajasthan
Last Date & Time of submission of eBid	**20th November 2023 at 2:00 PM**
Date & Time of Opening of Technical e-Bid	**22nd November 2023 at 5:00 PM**

Cost of Tender Document: Rs. 5000/- Only (Rupees Five Thousand Only)

Name of the Bidding Company/ Firm:			
Contact Person (Authorised Bid Signatory):			
Correspondence Address:			
Mobile No.		**Telephone Fax Nos.:**	
Website:			
Contact Email Address:			

RajCOMP Info Services Limited (RISL)

1st Floor, Yojana Bhawan, Tilak Marg, C-Scheme, Jaipur (Rajasthan)

Phone: 91 (141) 2229394, 5103902 Fax: 91 (141) 2228701

Website: http://risl.rajasthan.gov.in, Email: info.risl@rajasthan.gov.in

Table of Contents

Abbreviations and Definitions

Definition	Description
Agreement	The Agreement to be signed between the successful bidder and RISL
AMC	Annual Maintenance Contract
Authorized Signatory	The bidder's representative/ officer vested (explicitly, implicitly, or through conduct) with the powers to commit the authorizing organization to a binding agreement. Also called signing officer/ authority having the Power of Attorney (PoA) from the competent authority of the respective bidding firm
AWC	Anganwadi Centre
BDH	Bhamashah Database Hub
Beneficiary	'Beneficiary' means a person who is a beneficiary under NFSA, RSBY and who has opted for voluntary inclusion under the scheme
Bidder / Tenderer	"Bidder" means any firm/ agency/ company/ contractor/ supplier/ vendor responding to Invitation for Bids / Request for Proposal / Notice Inviting Tender and which is participating in the Bid. Also called offer or quoter
BoM	Bill of Material
BSBY	Bhamashah Swasthya Bima Yojana
CDR	Clinical Document Repository
CHC	Community Health Centre
CLMC	Comprehensive Lactation Management Centre
CMC	Contract Monitoring Committee
CMMI	Capability Maturity Model Integration
CMS	Content Management System
Contract	The "Contract" means a legally enforceable agreement entered into between RajCOMP Info Services Limited (RISL) and the Selected Bidder(s) with mutual obligations.
Contract/Project Period	The expected Contract/ Project Period is Four (4) years which shall commence from the date of signing of Agreement till Completion of one year of development/ customization period and three years of Support & Maintenance period of Integrated Health Management System Software Solution after Go-live of the project
COTS	Commercial Off the Shelf
CR	Change Request
CRMS	Change Request Management System
Day	"Day" means a Calendar Day
DH	District Hospital

Definition	Description
DHM	Donor Human Milk
DICOM	Digital Imaging and Communications in Medicine
DMHFW	Department of Medical, Health & Family Welfare, Government of Rajasthan
DMS	Document Management System
DoIT&C	Department of Information Technology and Communication
EHR	Electronic Health Record/ Shared Electronic Health Record means an electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization
EMD	Earnest Money Deposit
EMR	Electronic Medical Record
EMS	Enterprise Management System
Episode	Any interaction of patient/ individual with iHMS (multiple interactions of a patient/ individual will be treated as multiple episodes)
ETL	Extract, Transform & Load
e-SAFE	e-Governance Security Assurance Framework
Executing Authority	The authority responsible for the execution of this RFP. The executing authority has been identified as RISL / DoIT&C.
FBNC	Facility-Based New-born Care
FMS	Facility Management Services
FRS	Functional Requirement Specification
G2C	Government to Customer
G2G	Government to Government
GoI	Government of India
GoR	Government of Rajasthan
HCV	Hepatitis C Virus
HEV	Hepatitis E Virus
HIE	Health Information Exchange or Health Exchange Platform
HIMS	Hospital Information Management System
HIS	Hospital Information System
HMS	Health Management System
HIV	Human Immunodeficiency Virus
IA	Implementing Agency

Definition	Description
ICD	International Classification of Diseases
ICT	Information and Communication Technology
IHMS 2.0 / iHMS 2.0	Integrated Health Management System 2.0 is an electronic movement of health-related information among organization according to nationally recognized standards. For this project iHMS 2.0 is combination of Health Exchange Platform and Electronic Medical Record system as detailed in this RFP
Implementing Authority	The authorized entity responsible for the implementation of this RFP. The Department of Medical & Health, Govt of Rajasthan has been identified as the Implementing Authority.
INR	Indian Rupee
IP	Inpatient
IPD	In Patient Department
ISO	International Organization of Standardization
IT	Information Technology
ITB	Instruction to Bidders
IUCD	Intra Uterine Contraceptive Device
JSY	Janani Suraksha Yojana
LCBS	Least Cost Based Selection Method (L1)
LD	Liquidated Damages
LoI	Letter of Intent
M&H Dept	Same as DHFW
MBSY	Mukhya-Mantri Balika Sambal Yojana
MCCD	Medical Certificate of Cause of Death
MCH	Medical College Hospital (a hospital attached to a Medical College)
MCIT	Ministry of Communications & Information Technology, Government of India
ME Dept	Medical Education Department, Government of Rajasthan
MLC	Medico Legal Case
MMU	Mobile Medical Unit
MMV	Mobile Medical Van
Monitoring Authority	The authorized entity responsible for the monitoring of the activities as laid out in this RFP. The PMU is identified as the Monitoring Authority.
Month	Refers to Calendar Month
MSDG	Mobile Services Delivery Gateway

Definition	Description
MSU	Mobile Surgical Unit
MUAC	Mid Upper Arm Circumference
NHM	National Health Mission
NICU	Neonatal Intensive Care Unit
NIT	Notice Inviting Tender
NMS	Network Management System
NPCI	National Payments Corporation of India
NSV	Non-Scalpel Vasectomy
OP	Outpatient
OPD	Out-Patient Department
OT	Operation Theatre
PACS	Picture Archiving and Communication System
PAN	Permanent Account Number
Parastatal	Organizations Owned or Controlled, wholly or partially by the government
PBG	Performance Bank Guarantee
PC	Procurement Committee
PDA	Personal Digital Assistant
PHC	Primary Health Centre
PHR	Personal Health Record 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
PMU	Project Monitoring Unit
Project Site	The “Project Site”, wherever applicable, means the designated place or places where the project implementation is to be carried out
PSD	Performance Security Deposit
Purchaser/Tendering Authority	Person or entity that is a recipient of a good or service provided by the selected Bidder under a purchase order or contract or sale. Also called buyer. RajCOMP Info Services Limited (RISL) in the RFP document.
QFMSP	Quarter's Facility Management Services Payment
RFP	Request for Proposal, an early stage in procurement process, issuing an invitation for bidders, through a bidding process, to submit a proposal on a specific commodity or service

Definition	Description
RISL	RajCOMP Info Services Ltd
RMRS	Rajasthan Medicare Relief Society
RSDC	Rajasthan State Data Centre
RSWAN	Rajasthan State-wide Area Network
RTI	Right To Information
SAN	Storage Area Network
SDH	Sub District Hospital
SH	Satellite Hospital
Services	"Services" means the services to be delivered by the successful bidder and as required to run the project successfully as per the contract. A service is the intangible equivalent of an economic good. It involves all the services mentioned in "Scope of Work".
SNCU	Sic New-born Care Unit
Supplier/ SI/ Vendor/ Successful Bidder/ Service Provider/ Contractor/ Selected Bidder	System Integrator, the bidder who will be finally selected and who gets into an agreement with the RISL for completing the services/ work mentioned in this bidding document.
SLA	Service level agreement is a negotiated agreement between two parties wherein one is RISL and the other is the Selected Bidder. It is a service contract where the level of service is formally defined
SoW	Scope of Work
SSDG	State Service Delivery Gateway
State Government	Government of Rajasthan
STQC	Standardization Testing and Quality Certification, Government of India
TC	Technical Committee
TIN	Tax Identification Number
ToT	Training of Trainers
TPA	Third Party Auditor
UAT	User Acceptance Testing
UPI	Unified Payments of India
UIDAI	Unique Identification Authority of India
VAT	Value Added Tax
VDRL	Venereal Disease Research Laboratory (screening test for syphilis)
WO/PO	Work Order/Purchase Order

1. Invitation for Bids (IFB) and Notice Inviting Bid (NIB)

Unique Bid Ref. No.	**RIS2324GLOB00069**
NIB Code	**RIS2324A0069**
NIB Reference No.	F4.2(611)/RISL/Tech/2023/4884 dt. 05-10-2023
Name & Address of the Procuring Entity	• Name: RajCOMP Info Services Limited (RISL) • Address: First Floor, C-Block, Yojana Bhawan, Tilak Marg, C-Scheme, Jaipur-302005 (Rajasthan)
Name & Address of the Project Officer In-charge (POIC):	• Name: Shri. Akhilesh Mittal • Designation: Technical Director, DoITC • Address: Ground Floor, C-Block, Yojana Bhawan, Tilak Marg, C-Scheme, Jaipur-302005 (Rajasthan) • Email: amittal@rajasthan.gov.in
Subject Matter of Procurement	• Implementation of an Integrated Health Management System 2.0 (iHMS 2.0) for the State of Rajasthan
Bid Procedure	Single-stage Two part (envelop) open competitive e-Bid procedure at https://eproc.rajasthan.gov.in
Bid Evaluation Criteria (Selection Method)	Least Cost Based Selection (LCBS) - L1
Websites for downloading Bidding Document, Corrigendum's, Addendums etc.	• Websites: https://sppp.raj.nic.in,https://eproc.rajasthan.gov.in, https://www.rajasthan.gov.in,https://risl.rajasthan.gov.in • Bidding document fee: Rs. 5,000/- (Rupees Five Thousand Only) in Cash/ Demand Draft in favour of "Managing Director, RISL" payable at "Jaipur". • RISL Processing Fee: Rs. 2,500/- (Rupees Two Thousand Five Hundred Only) in Cash/ Demand Draft in favour of "Managing Director, RISL" payable at "Jaipur".
Estimated Procurement Cost	Rs. 35 Crore (Rupees Thirty-Five Crores only)
Bid Security (EMD) and Mode of Payment	• Amount (INR): Rs. 70.00 Lacs (Rupees Seventy Lacs only) i.e., 2% of the estimated procurement cost, Rs. 17.50 Lacs (0.5%) for S.S.I. unit of Rajasthan, Rs. 35.00 Lacs (1%) for Sick Industries, other than S.S.I., whose cases are pending with Board of Industrial & Financial Reconstruction • Mode of Payment: Banker's Cheque or Demand Draft or Bank Guarantee, in specified format, of a Scheduled Bank in favour of "Managing Director, RISL" payable at "Jaipur"
Period of Sale of Bidding Document (Start/End Date)	• Start Date: 05-October-2023 5:00 PM • End Date: 20-November-2023 2:00 PM
Period of Submission of Pre-Bid Queries	• Start Date: 05-October-2023 5:00 PM • End Date:12-October-2023 5:00 PM
Date/ Time/ Place of Pre-bid Meeting	• 23-October-2023 at 11:30 AM • Board Room, First Floor, C-Block, Yojana Bhawan, Tilak Marg, C-Scheme, Jaipur, Rajasthan
Manner, Start/ End Date for the submission of Bids	• Manner: Online at e-Proc website (https://eproc.rajasthan.gov.in) • Start Date: 06-November-2023 5:00 PM

	• End Date: 20-November-2023 2:00 PM
Submission of Banker's Cheque/ Demand Draft for Tender Fee, Bid Security, and Processing Fee*	From 20-November-2023 2:00 PM To 20-November-2023 5:00 PM
Date/ Time/ Place of Technical Bid Opening	• Date: 22-November-2023 Time: 5:00 PM • Place: RISL, Board Room, First Floor, C-Block, Yojana Bhawan, Tilak Marg, C-Scheme, Jaipur-302005, Rajasthan
Date/ Time/ Place of Financial Bid Opening	Will be intimated later to the Technically qualified bidders
Bid Validity	90 days from the bid submission deadline

Note:

1) Bidder (authorised signatory) shall submit their offer on-line in Electronic formats both for technical and financial proposal. However, DD for Tender Fees, RISL Processing Fees and Bid Security should be submitted physically at the office of Tendering Authority as prescribed in NIB and scanned copy of same should also be uploaded along with the technical Bid/ cover.
2) *In case, any of the bidders fails to physically submit the Banker's Cheque/ Demand Draft for Tender Fee, Bid Security, and RISL Processing Fee up to as mentioned in NIB, its Bid shall not be accepted. The Banker's Cheque/ Demand Draft for Bidding document fee, RISL Processing Fee and Bid Security should be drawn in favour of "Managing Director, RajCOMP Info Services Ltd." payable at "Jaipur" from any Scheduled Commercial Bank.
3) To participate in online bidding process, Bidders must procure a Digital Signature Certificate (Type III) as per Information Technology Act-2000 using which they can digitally sign their electronic bids. Bidders can procure the same from any CCA approved certifying agency, i.e., TCS, Safecrypt, Ncode etc. Bidders who already have a valid Digital Signature Certificate (DSC) need not procure a new DSC. Also, bidders must register on http://eproc.rajasthan.gov.in (bidders already registered on http://eproc.rajasthan.gov.in before 30-09-2011 must register again).
4) RISL will not be responsible for delay in online submission due to any reason. For this, bidders are requested to upload the complete bid well advance in time so as to avoid 11th hour issues like slow speed, congestion of web site due to heavy load or any other unforeseen problems.
5) Bidders are also advised to refer "Bidders Manual Kit" available at e-Procurement website for further details about the e-Tendering process.
6) Training for the bidders on the usage of e-Tendering System (e-Procurement) is also being arranged by DoIT&C, GoR on a regular basis. Bidders interested in training may contact e-Procurement Cell, DoIT&C for booking the training slot.
Contact No: 0141-4022688 (Help desk 10 am to 6 pm on all working days) e-mail: eproc@rajasthan.gov.in
Address: e-Procurement Cell, RISL, Yojana Bhawan, Tilak Marg, C-Scheme, Jaipur
7) The procuring entity reserves the complete right to cancel the bid process and reject any or all of the Bids.
8) No contractual obligation whatsoever shall arise from the bidding document/ bidding process unless and until a formal contract is signed and executed between the procuring entity and the successful bidder.
9) Procurement entity disclaims any factual/ or other errors in the bidding document (the onus is purely on the individual bidders to verify such information) and the information provided therein are intended only to help the bidders to prepare a logical bid-proposal.
10) The provisions of RTPP Act 2012 and Rules thereto shall be applicable for this procurement. Furthermore, in case of any inconsistency in any of the provisions of this bidding document with the RTPP Act 2012 and Rules thereto, the later shall prevail.

-Sd/-

Managing Director

2. Background Information

2.1. Project Background

Government of Rajasthan has designed and launched a comprehensive Integrated Health Management System in the year 2017 for capturing data on health and health-related events and parameters. This comprehensive Integrated Health Management System (iHMS) was a superset of Hospital Management System and ensured capturing all health-related data and events of a person in the form of an Electronic Health Record. The project also aimed to build a telemedicine and PACS solution (Picture Archival and Communication System) through which outreach of quality health services are enhanced, and services reach till last mile.

This IHMS 1.0, is partially deployed in Medical College Hospitals / District Hospital / CHCs / PHCs. Till March 2023, about 980+ of facilities are using this software. Use of this software has resulted in accelerated processes and has increased the efficiency of hospitals for patient management.

This Software Application for Integrated Health Management System was made available to all government hospitals and health centres from Medical College Hospitals & Dental College Hospitals through to the Sub-centres, and also be available to ANMs / ASHAs for Outreach Centers. It was also made available to interested private institutions (Dispensaries, Nursing Homes, Small / Big / Corporate hospitals, Private Laboratories, private Blood Banks, private Radio-imaging Centers, private Ambulance providers, etc.) and to research institutions for their involvement in this intervention. The Software Application aimed to capture data related to an individual from all possible sources of data entry and collate and consolidate the same in the form of an Electronic Health Record, which any individual / hospital would be able to access / generate using his / her Aadhaar / Jan Aadhaar Card; general information would be available for viewing in public domain and majority information would be accessible to authorized persons / hospitals after due authentication.

As per the declaration announced in the 2023-24 Annual Budget of Government of Rajasthan "□□□□□□□□□□□□ □□□□□□□□□ □□□□□□□□□□ □□□□ □□□□□, **Rajastha**n Government Health Scheme (RGHS) □□□ □□□□□□□□□□□□ □□□□□□ □□□□□□□□□ □□□□□ □□ □□□□□□□□ □□□□□ □□□□□□□□ □□ □□□□□ □□□ □□□□□□□ □□ □□□□□□□ □□ □□□□□ □□□□□□□□□ □□□□□□□□□□ □□□□ □□□ □□□□□□□□ □□ □□□□□□□ □□□□□□□□□ □□□□□ □□□□ □□ □□□ □□□□□□□□ □□□ □□ IT □□□□□□□ Integrated Health Management System (IHMS) □□ □□□□□□□ □□□ □□□□ □□□□□□□□□ □□□□□□□□□□ □□□ □□□□□□□□ □□□□ □□□□□□□ □ □□□□□□ □□□□, □□□□□□ □□□ □□□ □□□□□□□□□□ □□□□□□□□□□ □□□□□□□□□□ (CHCs) □□ □□□□ □□□□ □□□□□□□□□□□ □□| ", it was decided to substitute the existing IHMS 1.0 with an enhanced Integrated Health Management System 2.0 with the concept of single health platform for the state of Rajasthan.

IHMS Version 2 shall replace currently running IHMS 1.0 of DMHFW and EHR portal. Legacy data of these software shall be migrated to the newly designed Integrated Health Management System 2.0 which will cater to all types of functional requirements of DMHFW in a seamless manner.

RISL / DoIT&C has been given the task of getting an integrated patient centric application platform which enables hospitals, physicians, laboratories, pharmacies, and other health services providers to participate and deliver faster, more accurate, safer, higher quality and less redundant medical care to patients in the state. The application would be used by any

hospital of Rajasthan (government or private), private Laboratories, private Blood Banks and private Radio Diagnosis and Imaging Centers and also research institutions.

2.2 Project Objectives:

The overall objective of the project is to bring all Hospital applications on a single platform and to link the health record of patient with his / her unique identity i.e., Aadhaar/ Jan Aadhaar number and provide Electronic Health Record across the state of Rajasthan. Further the project is aimed to deliver below mentioned objectives: -

To facilitate implementation of Integrated Health Management System-

- To design a web-based and mobile based application for implementation of Integrated Health Management System.
- To link the web-based application for Integrated Health Management System with
  - Rajasthan Digital Stack.
  - Facilitate exchange of clinical and administrative (patient level- granular & aggregate) data among health information systems, electronic health records across participating organizations/hospitals for improving quality of care and evidence-based decision making.
  - Provide patients and providers access to the patient-level clinical information in
  - one place to improve care quality and ensure continuity of care.
  - Provide national, state, district level aggregate information on health parameters
  - readily available for identifying disease/ conditions requiring immediate attention, crafting timely health systems response and better coordination of public health activities.
  - Promote adoption of electronic health records by health service providers
  - To provide Faculty, Students and other care givers, an academic management solution
  - Support scientist, researchers, faculty & students to experiment, research, collaborate within Hospitals and outside to push the frontier of research.
  - Enable usage of advancements in Digitization in Education, knowledge sharing, 24/7 access to learning materials (Admission to Alumni)

2.3 Stakeholders (Audience/ Beneficiaries)

#	Stakeholders	Benefits
1	Residents	Automation / IT application for processes for IHMS2.0 will help patients in following ways: • Access to Online Electronic Health Record using his / her Jan Aadhaar / Aadhaar Card after proper verification process • Online registration from anywhere through Application Portal in case of outpatient consultation or planned hospitalization. • Reduction in time for registration of beneficiary. • Complete track record of patients and treatment. • Improved medical care provided by hospitals by seeking guidance through telemedicine, thereby helping prevent needless travel by patients for seeking medical care through distant hospitals. • Online availability of information on: o List of government and private hospitals.

#	Stakeholders	Benefits
		o List of specialty services available at respective government and private hospitals. o Availability of bed for admission to a hospital, whether government or private. o List of investigations available at respective government and private hospitals and in Laboratories / Radio imaging Centers. o Days of availability of doctors for consultation at respective government and private hospitals. o Referrals of patients to higher level hospitals.
2	Hospitals	• Better linkage between government and private hospitals through telemedicine and by way of referrals. • Better utilization of unutilized bed capacity of private hospitals as the patients will be able to identify availability of vacant beds in different hospitals. • Improved effectiveness and efficiency of hospital services as almost all services would be available through a single software. • Access to Online Electronic Health Record of an individual after proper verification process. • Access to Imaging studies of an individual generated at any healthcare facility.
3	Doctors	• Increased effectiveness and efficiency of patient care on account of capturing of vital information in Electronic Health Record. • Enhanced skills of doctors in remote, peripheral areas by way of guidance from specialists through telemedicine network.
4	Hospital staff	• Online registration of beneficiaries which will increase efficiency and effectiveness of delivery of health services. • Easy access to patient records by way of Electronic Health Record / Electronic Medical Record after proper verification process • Online generation and retrieval of patient history. • Availability of real time MIS (daily, weekly, monthly) on number of patients registered and treated by government and private hospitals. • Efficient processes removing redundant and time taking processes and saving time for health facility staff.
5	Training Institutions and Researchers	• Improved quality of research on account of availability of large volume of data on persons, wellness / risk factors / their illnesses.
6	Department of Medical, Health and Family Welfare	• Availability of real time data to plan and make policies for providing better health services to residents across the State through a single application. • Monitoring and studying trends in medical care services provided by different levels of government and private hospitals and the trend in referral / outcome of patients.
7	Department of Medical Education	Automation / IT application for processes for IHMS2.0 will help the Department of Medical Education, in following ways:

#	Stakeholders	Benefits
		• Automation of healthcare processes using a single unified healthcare application in medical colleges and associated hospitals. • Automation of administrative processes in the management of medical education and research activities.

2.4 Expected Project Outcomes

The expected outcomes to be achieved from the project are as follows:

- Availability of online Electronic Health Record (EHR) of individuals linked to their Jan Aadhaar Card / Aadhaar Card after proper verification process.
- Efficient processes of registration of patients for outpatient / inpatient care at the Hospitals.
- Real time IHMS 2.0 for improved decision making for improving access, effectiveness and efficiency of medical care provided by government and private hospitals.
- Establishment of a network hospitals linked as Telemedicine Centers with PACS.
- Improve patient experience by promoting proactive, user friendly and efficient system for patients, staff, doctors & faculty
- Support scientist, researchers, faculty & students to experiment, research, collaborate within Hospital and outside to push the frontier of research.
- Enable usage of advancements in Digitization in Education, knowledge sharing, 24/7 access to learning materials (Admission to Alumni)
- Streamlined and simplified processes at each healthcare facility at all levels, enabling transparency, availability, efficiency, and quality
- Enable data and fact-based decision making, administration and overall governance
- Judicious utilization of available resources with an aim to increase efficiency in healthcare service delivery.
- Establishment of a system of inventory management of Medical Equipment and their management.
- Establishment of a system of inventory management of Drugs and their distribution to patients based on recommendations of the treating doctor(s).
- Establishment of a system of management of ambulances and vehicles by participating hospitals.
- Smooth and efficient referral of patients by government and private hospitals.
- Improving transparency in functioning and efficiency of medical care services for better monitoring by Department of Medical, Health and Family Welfare.
- Efficient and transparent service delivery mechanism through Web Portal, Mobile Application, Payment Gateway, and SMS.
- Extended reach to all stakeholders (residents, government hospitals, DHFW, etc.)
- Establishment of a central VNA-PACS system which shall serve as the repository for imaging studies generated at various imaging facilities in the state. The imaging studies shall be linked to the Jan Aadhaar / Aadhaar of the patient.
- Establishment of a central Clinical Document Registry which shall serve as the repository for EHR records generated at various healthcare facilities in the state. The EHR record shall be linked to the Jan Aadhaar / Aadhaar of the patient.

- Extended integration of all state and national level health portals for seamless transfer of health information amongst the state and national health entities.

3. Pre-Qualification / Eligibility Criteria (Preliminary Qualification)

The pre-qualification / eligibility criteria for IHMS2.0 solution provider is given below:

S No	Basic Requirement	Specific Requirements	Documents Required
1.	Legal Entity	The Company / Lead Proponent and non-lead member (in case of consortium) should be an entity registered in India under the Company Act, 1956/2013 (or) a firm registered under the Limited Liability Partnership Act, 2008 (or) a firm registered in India under the Partnership Act, 1932 (or) a registered legal entity under Rajasthan Shops & Commercial Establishments Act, 1958 (or) a Parastatal Body / Organization, as applicable, and must have a registered office in India. (Note: A self-certified declaration regarding the non-applicability of registration to any Act should be submitted by the bidder)	Copy of Certificate of Incorporation / Registration In case of a consortium, the Lead Proponent would need to submit an agreement with the other member of consortium (i.e., Consortium Agreement) for the contract clearly indicating the division of work and their relationship
2.	Turnover from IT/ ITeS Projects	The Sole Bidder / Consortium should have average annual turnover of at least INR 80 (Eighty) Crores during last five financial years (2018-19 to 2022-23) from IT/ ITeS projects.	Certificate issued by Statutory Auditor/ CA for annual turnover certificate with Registration Number / Seal
3.	Net worth	Lead Bidder and each member (in case of consortium) should have a positive Net Worth as on 31st March 2023.	Certificate issued by Statutory Auditor/ CA with Registration Number/ Seal
4.	Technical Capability & Experience	The Lead bidder / Consortium should have experience in ongoing or completed projects in IT Transformation project / ICT Project / IT & ITES projects with any Government / State Government / PSUs in the last 5 years in India comprising minimum of One (1) similar work of value not less than INR 28 crores **OR** two (2) similar works of value not less than INR 17 crores each **OR** three (3) similar works of value not less than INR 14 crores each	• Project Reference format as per Annexure – 8.11 **AND** • Work Completion Certificates from the client. **OR** • Work Order + Self Certificate of Completion (Certified by the Statutory Auditor/ CA indicating the value of payment received against the work order(s)) (In the above case the value of

S No	Basic Requirement	Specific Requirements	Documents Required
			payment received shall be greater than or equal to the amount mentioned in the eligibility criteria). OR • Work Order + Completion Certificate from the client indicating the amount of payment made against the work order. OR • Work Order + Phase Completion Certificate from the client indicating the amount of payment made against that Phase. (In the above case the value of payment received shall be greater than or equal to the amount mentioned in the eligibility criteria). (Note: The Work Order/ Completion certificate / Phase Completion Certificate should clearly depict the date, scope of work and the value of project. Only software development along with maintenance plus support cost will be considered. Hardware, hosting or any other such cost will not be considered.)
5.	HMIS Project Experience	The Lead Bidder / Consortium must have experience in ongoing or completed at least one (1) HMIS/HIS/EMR project in India with a minimum value of 10 crore which should be a Multilocation Project with min 20+ Hospitals and should have Integrated with PACS / Teleradiology / Teleconsultation solutions.	Project Reference format as per Annexure – 8.11 **AND** Work Completion Certificates from the client. **OR** Work Order + Self Certificate of Completion (Certified by the Statutory Auditor/ CA indicating the value of payment received against the work order(s)) (In the above case the value of payment received shall

S No	Basic Requirement	Specific Requirements	Documents Required
			be greater than or equal to the amount mentioned in the eligibility criteria). **OR** Work Order + Completion Certificate from the client indicating the amount of payment made against the work order. **OR** Work Order + Phase Completion Certificate from the client indicating the amount of payment made against that Phase. (In the above case the value of payment received shall be greater than or equal to the amount mentioned in the eligibility criteria). (Note: The Work Order/ Completion certificate / Phase Completion Certificate should clearly depict the date, scope of work and the value of project. Only software development along with maintenance plus support cost will be considered. Hardware, hosting or any other such cost will not be considered.)
6.	Manpower capacity	The Lead Bidder / Consortium should have at least 200 employees, as on the date of bid submission, on its rolls in the area of Software development or Implementation or Systems Integration excluding personnel engaged in Sales of system software or COTS / Hardware / System Integration services of IT Infrastructure.	Certificate from HR Head/Company Secretary clearly specifying the number of resources as on the date of the bid submission on its roll.
7.	Tax registration and clearance	The bidder (each member in case of consortium) must possess a valid: - • Goods & Service Tax Registration Certificate • Income Tax Registration/ PAN	Copies of relevant certificates of Registration

S No	Basic Requirement	Specific Requirements	Documents Required
8.	Certification	The Bidder must have the following valid certification: • ISO 9001: 2008 - Quality Management System • ISO/IEC 27001:2013 - Information Security Management System • ISO/IEC 20000-1:2011 – IT Service Management System • CMMi Level – V	Copy of a valid certificate
9.	Blacklisting / Debarring	Bidder should: - a. not be insolvent, in receivership, bankrupt or being wound up, not have its affairs administered by a court or a judicial officer, not have its business activities suspended and must not be the subject of legal proceedings for any of the foregoing reasons; b. not have, and their directors and officers not have, been convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications to enter into a procurement contract within a period of three years preceding the commencement of the procurement process, or not have been otherwise disqualified pursuant to debarment proceedings; c. not have a conflict of interest in the procurement in question as specified in the bidding document. d. comply with the code of integrity as specified in the bidding document	A self-certificate letter as per Annexure 8.6
10.	Authorization	The bidder or any member in case of consortium should be the IP owner of the proposed Solution or its authorized representative.	In case of authorized representative, a letter of authorization from original IP owner of software solution must be furnished. Authorization from manufacturer (MAF) as per Annexure 8.16

Note: Bidders need to ensure compliance to all the eligibility criteria points. Also, all the required documents should be properly annexed as indicated above along with an Index Page. Bidders meeting all eligibility criteria of PQ (Preliminary Qualification) Stage will be shortlisted for the TQ (Technical Qualification) Stage.

4. Scope of Work, Roles, and Responsibilities, Deliverables, Timelines and Payment Terms

4.1. Approach for Development and Implementation of Integrated Health Management System Ver 2.0 Solution

- The project scope involves customization/development, implementation, and Support & Maintenance of application platform for implementation of an Integrated Health Management System 2.0 (iHMS 2.0) for the State of Rajasthan on behalf of Medical, Health & Family Welfare and Medical Education Departments of Govt. of Rajasthan. The Integrated Health Management System 2.0 shall be implemented in phases and subsequently in groups.
- The components of Integrated Health Management System 2.0 have been divided into five groups (Group-1 to Group-5) and each group consisting of certain modules.
- The Selected Bidder shall deploy the customization/development, implementation, and Support & Maintenance teams onsite. A centralized onsite team for design, customization / development, implementation of IHMS2.0, located at Jaipur, shall be provided for customization of integrated health solution as per the requirement of RISL / DHFW / ME Dept. Selected Bidder shall follow agile methodology wherein multiple sprints shall be executed by the team. Every sprint will have Requirement gathering, development of SRS, Design, Customization/Development, UAT, Training, Implementation, Go-Live etc. for each group. Support and maintenance shall start from the Go-Live of all groups.
- It is expected that Selected Bidder shall execute sprints of multiple groups simultaneously which may be at different stages of Software development life cycle (SDLC). Selected Bidder shall deploy requisite team for executing multiple sprints simultaneously to adhere to the timelines given in Section 4.20 of RFP.
- This approach shall help in the successful roll-out and adoption of IHMS2.0 in a time bound manner. The team can customize / develop IHMS2.0 while they're gathering requirements for some other groups; it provides various stakeholders recurring opportunities to release various components of IHMS2.0 in a phased manner for completing the project on time further enabling optimum utilization of resources in implementation of various prioritized services of DHFW / ME Dept.

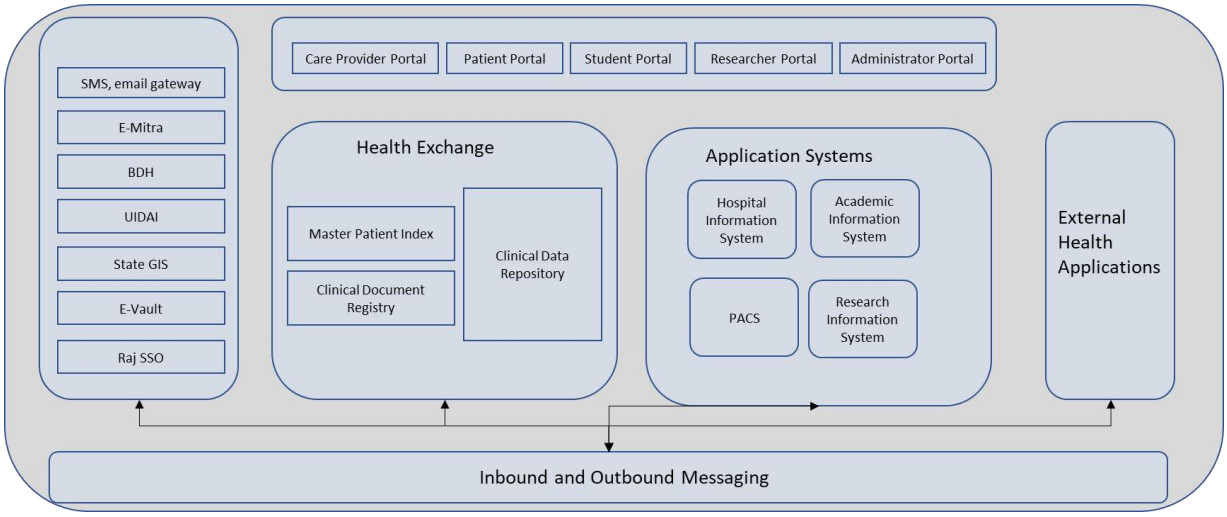
4.2. Integration/ Interoperability

- iHMS 2.0 is envisaged as a highly interoperable model where over a period of time most of the systems can participate in information sharing and data exchange to provide patient centric EHR which can be accessible to providers and patients anytime and anywhere.
- iHMS 2.0 should have the capability to exchange data and records between heterogeneous/ multiple systems (EMR/ HIS/ Database) that can be managed and maintained by multiple hospitals both Government and Private Hospitals.
- The iHMS 2.0 must have provision for data exchange between various HIS/ EHR systems participating in the information exchange where an external system can query information to iHMS 2.0 and can extract and submit the desired information.
- Provide single secure entry to all systems participating in the exchange and manage the queue of queries, provide secure access (audit trail and node authentication, digital certificate etc. if required) and keep record of all transactions (successful, failed, error etc.) that take place in iHMS 2.0. It should be able to facilitate message routing to the appropriate service provider within the infrastructure and facilitate conversion of non-

standard data into the standard format (mediation services) using adopters and orchestrators before sharing data with the destination system.

- It is the responsibility of the solution provider/ bidder to conduct thorough requirement analysis of all participating systems and facilitate data exchange in standard format from multiple formats (i.e., API, HL7, FHIR Profiles, etc.). The system should have flexibility to take data in batch mode or real time mode based on the need and status of the peripheral systems.
- In addition, the solution provider shall provide a capability for transformation of messages between different document formats (e.g., HL7v2 to v3 or EDI to XML), to parse and validate various document formats.
- The solution should use standard terminologies (as defined in EHR Standards (V2), 2016 notified by MoHFW, GoI, Metadata for these could be sourced from data and metadata standards) and normalize terminologies of all participating information systems/ electronic health records on the fly when participating in information exchange (both inbound and outbound messages) to ensure the receiving system can correctly interpret and use the data it has received.

An indicative functional system of IHMS 2.0 is depicted below:



Successful Bidder shall provide web-based application (along with mobile application) for implementation of IHMS2.0. This application shall also be integrated with existing State-Level applications (Rajasthan Digital Stack) implemented in the State of Rajasthan, some of which are listed below:

- Bhamashah Database Hub (BDH) Jan Aadhaar Database
- UIDAI Database
- RajDharaa (State GIS application)
- e-Mitra
- 108 ambulance service
- RPP (Rajasthan Payment Platform)
- SMS Gateway
- E-Mail Solution
- Raj SSO
- E-Vault
- Raj Sewa Dwaar
- Rajkaj (e-Office)
- Rajasthan Sampark

- Raj Masters

The IHMS2.0 shall primarily have different interfaces (Web Portal for Citizen, Web Interface for health facilities and their staff for backend processing, Web Interface for Students, Faculty, and administrative staff of medical institution, Mobile App for Patient, Student, Health Facility user, Faculty, Administrative Staff). Details of the web services will be made available at the time of requirement gathering and development.

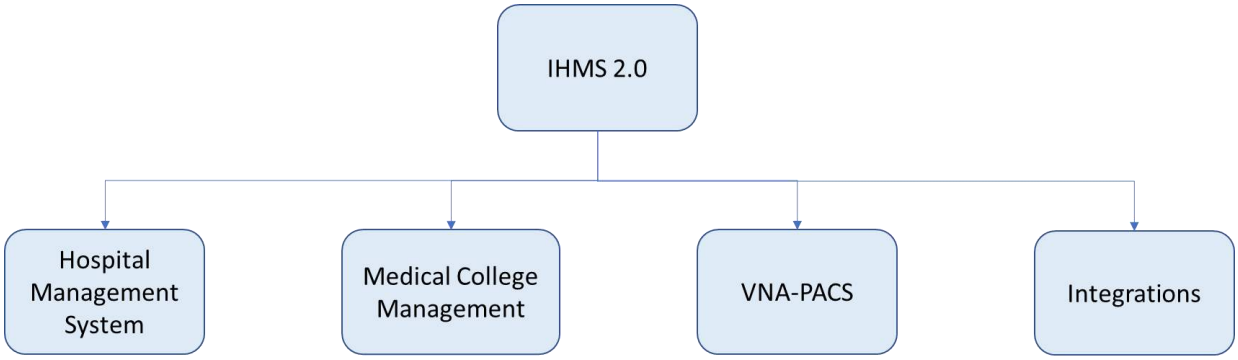
For Instance, facility of e-Registration and for Appointment Scheduling shall be available through the Web Portal and also through mobile application. The patient shall have the option of getting registered, prior to visit to the hospital, through an e- Mitra counter or through a mobile application through which a unique (Acknowledgement) number shall be issued. Patient unique number may be asked for identification, like JanAadhaar ID or Aadhaar Card ID or Bhamashah Card of the family.

4.3. Scope of Work

The broad scope of work for the Selected Bidder during the period of contract/ engagement would include:

- Conduct a requirement study to understand the functional requirements of the stakeholders including IT readiness of the healthcare facilities.
- Design, Development / Customization, Testing, Training, Deployment, and Implementation of Integrated Health Management System 2.0 (iHMS 2.0) Application (including Health Exchange, Telemedicine, Tele-ICU and Centralized PACS) Software Solution comprising of Web Application, Mobile Application & Web Portal.
- Data Migration from the currently running applications of IHMS 1.0 and manual data records identified by DHFW/ME Dept as detailed in FRS.
- API-level System Integration with existing State / National health applications implemented in the State of Rajasthan as detailed in Annexure 8.1 of this RFP.
- A Centralized Clinical Document Repository (CDR) platform to host various EHR/ HIS/ EMR and other public health IT Systems along with capability to exchange data and records between heterogeneous/ multiple systems managed and maintained by multiple hospitals.
- A Centralized Master Patient Index (MPI) repository which shall serve as the single unified repository to hold details of patient registration, health facility visits information and any other details as per requirement. This repository shall have the capability to exchange data and records relating to patients between IHMS 1.0 and IHMS 2.0.
- Integration with Point-Of-Care medical devices using IoT gateways.
- Training on the various modules of IHMS 2.0 to trainers and application end-users
- Commissioning (Go-Live) of all modules of IHMS 2.0
- Support and Maintenance (FMS) services for IHMS 2.0 during the support and maintenance phase.

The Integrated Health Management System 2.0 shall primarily be developed in four components as depicted in figure below:



The groups and module listing of Hospital Information System is listed below

System preparedness for IHMS 2.0		
Group - 1		
S No	**Component**	**Integrations**
1	Design, Development and Testing of IHMS 2.0	• Raj Master (Health Facility Master, Health Professional Master, Medicine Master, District Master, Any other master data records as applicable) • State and National Licensing Systems • Raj Digital Stack • Any other health systems / support application systems that have been identified during the SRS study of IHMS 2.0
2	Administration Suite (Masters, Module Configurations, API Integration Settings)	
3	VNA-PACS and associated API Integration configuration	
4	Electronic Health Record (Centralized Clinical Document Repository) and associated FHIR Health Data Profile management	
5	Centralized Master Patient Index (MPI) repository	
6	Single Window Clearance for Health Facility License Approvals / Renewals with Dashboard	
7	Data Migration from IHMS 1.0 to IHMS 2.0 – Primary Data	
8	Training of Trainers and Application End-Users on IHMS 2.0	

Hospital Information System – Implementation and Rollout		
Group – 2		
S No	**Application Module**	**Integrations**
1	OPD (Outpatient Department)	• Master Patient Index (MPI) repository • Centralized Clinical Document Repository • Unified Payments Interface (UPI) • Digital Signature • Chiranjeevi • RGHS • e-Aushadhi • e-Upkaran • VNA-PACS • e-Raktkosh • Lab Equipment Integration
2	Enquiry Services	
3	Queue Management	
4	Emergency Department	
5	Doctor's Desk (OP, Emergency, and IP Services)	
6	Billing (OPD, Emergency and IPD)	
7	Laboratory Information System (LIS)	
8	Radiology Information System (RIS) incl. VNA-PACS	
9	Pharmacy	
10	Admissions, Discharge and Transfer (ADT)	
11	Nursing Desk	
12	Ward Management (incl. ICU)	
13	Operation Theatre Management	
14	Central Sterile Supplies Department (CSSD)	
15	Blood Bank	

16	Transport Management	• Prescription IoT device • Health Facility License Portals • SAS Analytics Solution • Pehchan Portal • Community Health Application • State Health Portals • National Health Portals • Device Integration (Health ATM, IoT Devices, etc) • Any other health portals / support application systems that have been identified for integration during SRS study
17	Diet and Kitchen	
18	Linen and Laundry	
19	Comprehensive Lactation Management	
20	Mortuary Management	
21	Housekeeping incl. Bio-medical Waste Management	
22	Medical Records Management	
23	Estate and Facility Management	
24	Inventory Management (Stores)	
25	Procurement Management (Central Purchase and Local Purchase)	
26	Asset Management	
27	Rajasthan Medicare Relief Society	
28	Web – Portal (Facility User and Patient)	
29	Web Portal / Mobile App (Patient, Health Facility User)	
30	MIS, Data Analytics and Data Visualization for Group-2 modules of IHMS 2.0	

Group: 3		
S No	**Application Module**	**Integrations**
1	Telemedicine (Teleconsultation and Tele-ICU)	• eSanjeevani • SaQsham Portal • Any other portals / support application systems identified during SRS study
2	Camp Monitoring System	
3	Quality Assurance System	
4	Data migration – Secondary Data	

Medical College Management System (Design, Development, Testing, Training and Rollout)		
Group – 4		
S No	**Application Module**	**Integrations**
1	College Administration	• Medical Council Portal • UPI • Journal Subscription Websites • Learning Resources Websites • SAS Analytics Solution • Any other health portals / support application systems that have been identified for integration during SRS study
2	Learning Management System	
3	Student Management System	
4	Alumni Management System	
5	Library Management System	
6	Hostel Management System	
7	Mobile App (Faculty, Student, Administration)	
8	MIS, Data Analytics and Data Visualization for Group-4 modules	

Research Information Management System (Design, Development, Testing, Training and Rollout)

Group – 5		
S No	**Application Module**	**Integrations**
1	Proposal Management	• UPI • SAS Analytics Solution • Any other health portals / support application systems that have been identified for integration during SRS study
2	Clinical Drug Trial Management	
3	Research Manpower Management	
4	Biospecimen Tracking	
5	Publication of Research Papers	
6	Research Facility Management	
7	Committee Management	
8	MIS, Data Analytics and Data Visualization for Group-5 modules	

4.4. Deployment of Manpower

The following are the manpower requirements that the Selected Bidder will have to fulfil as part of the scope of the project. The Selected Bidder shall provide for the manpower as specified herewith, who shall discharge their respective responsibilities as specified below and as per scope of services.

The Selected Bidder shall deploy the minimum required manpower in 2 (two) phases:

- IHMS 2.0 IT Team
- Support and Maintenance Team

IHMS 2.0 IT Team

The Selected Bidder will be required to deploy the IHMS 2.0 IT Team onsite in Jaipur at his/her own / rented premises with all requirements of IT office needs during the development / customization / deployment / Go-live phase of IHMS 2.0 solution within fifteen (15) days of date of Signing of Agreement.

The composition of the IHMS2.0 IT Team is as follows:

S No	Role	Number of Resources
1	Team Lead	1
2	Deputy Team Lead	2
3	Solution Architect	1
4	Services / Data Architect	1
5	Business Analyst	2
6	Senior Developer	3
7	Developer	6
8	UI / UX Designer	1
9	Change Management / Capacity Building Expert	1
10	Quality Analyst	2
11	Database Administrator	1
12	Technical Support Engineer	14
	Total Resources	**35**

The detailed role and responsibilities of the IHMS 2.0 IT Team is given in Annexure 8.12 of this RFP. The qualification and experience of the IHMS 2.0 IT Team members must be compliant with the conditions as outlined in section 8.12 of this RFP and details of the members must be furnished in the format as specified in section 8.13 of this RFP. However,

the Selected Bidder may deploy additional resources as needed on its own cost and discretion during the project duration to achieve the desired outcomes of the project.

Support and Maintenance Team

The Selected Bidder shall deploy the Support and Maintenance Team during the Support and Maintenance Phase of IHMS 2.0.

The Minimum Team Size for Maintenance & Support Services after Go-live of all groups shall be as follows:

S No	Role	No of Team Members
1	Team Lead	1
3	Senior Developer	3
4	Developer	6
5	QA and Testing Engineer	1
7	Database Administrator	1
8	Business Analyst	1
9	Helpdesk Executives	12
	Total Resources	**25**

However, the team for Maintenance and Support services shall be dynamically deployed based on the go-live status of the module groups of IHMS 2.0.

The minimum required technical qualifications and experience details for the onsite resources are provided in Annexure 8.12 of this RFP document.

Also, it would be the responsibility of Selected Bidder to retain the deployed manpower for the entire Contract/ Project duration or in the event of a resource leaving the employment with Selected Bidder, the same shall be immediately replaced with another resource of equivalent minimum qualifications and experience. All such events should be notified prior to RISL and should be in accordance with the SLAs as per RFP.

During and after the end of the project period, the Selected Bidder shall refrain from canvassing RISL and any of its associates with any claim for employment of the Selected Bidder's personnel deployed under the project.

As Hindi is Official Language of the Government of Rajasthan, the Selected Bidder shall appoint personnel having proficiency with Hindi language.

The staff provided by the Selected Bidder will perform their duties in accordance with the instructions given by the designated officers of RISL from time to time. RISL will examine the qualification, experience etc. of the personnel provided before they are put on positions. The Selected Bidder has to take approval from RISL for the proposed staff before their deployment. RISL has every right to reject the personnel, if the same is not acceptable, before or after commencement of the awarded work/ project.

4.5. Development/ Customization, Testing and Deployment & Commissioning of IHMS 2.0 (Web Application, Mobile Application & Web Portal)

Broad scope of activities to be performed by Selected Bidder shall include development/ configuration of complete application stack from requirement study to go-live stage. Selected

Bidder shall adopt a time-bound approach in implementing the proposed system for IHMS2.0 as and detailed out in subsequent section of this chapter. The IHMS 2.0 development/ customization/ testing/ deployment/ Go-Live and other parts of scope of work including training and maintenance has been divided into five groups of modules in IHMS 2.0. The grouping has been done based on the business needs and priorities of DHFW. Indicative functional requirement specification is mentioned in Annexure-8.1.

Selected Bidder shall be responsible for Design, Development/ Customization, Testing, Deployment, and Implementation of IHMS 2.0 (Web Application, Mobile Application and Web Portal) covering the indicative process flows of IHMS2.0. While development and customization of IHMS2.0 solution the Selected Bidder shall keep user interface of important labels in Hindi language also. Application shall be based on Microservices architecture with messaging.

Please note that Agile Methodology will be followed for implementing each group and hence design, customization, deployment, implementation, and maintenance of IHMS2.0 and all the activities mentioned below in Section 4.18 shall be followed iteratively for each group from Group-1 to Group-5 as mentioned in Section 4.3 of this RFP.

Detailed minimum functional requirements and functional design of the IHMS2.0 Software solution is given in Annexure 8.1 (Functional & Non-Functional Requirement Specifications) of the RFP. However, this set of functional requirements shall be revised during the specifications study conducted by the selected bidder with the various stakeholders.

Selected Bidder shall deliver below listed design documents: -

Software Design Document containing:

- Brief Description of Module/Screen/functionality
- Description of important classes/ database objects tables, stored procedures, functions etc

Selected Bidder shall also maintain an RTM (Requirement Traceability Matrix) and shall provide the same to RISL, as and when requested for.

The Selected Bidder would be required to provide version control and archiving facility for database and for IHMS2.0 software solution as strict version control is necessary for legal accountability, and disaster recovery. Versioning should also allow contributors to know whether team is working with the latest version and allow them to merge changes made in separate versions when needed.

4.6. Design, Requirement Analysis, Software Requirement Specification (SRS)

Selected Bidder shall conduct a detailed System Study of currently running applications of DHFW / ME Dept for incorporating the processes in iHMS. Under this section, the Selected Bidder is required to visit at least one Govt. Medical College Hospital, one District Hospital, one Sub-Divisional Hospital, one Satellite Hospital, one CHC, one PHC, one Sub-centre and one Private Hospital (the names & locations of which shall be provided along with Letter of Intent). The Selected Bidder must carry out the following tasks during these visits -

- Interacting with concerned stakeholders
- Studying the existing systems, applications & processes like IHMS1.0, e- Aushadhi, e-Upkaran, Pehchan, PDC Portal, SDG Portal, SOTTO, IMPACT, SaQsham, etc. currently running systems in public hospitals & offices.
- Detailed study of requirements for IHMS 2.0 Software solution

- Understanding / assessing data inputs and outputs requirements of IHMS1.0 application for inclusion into IHMS 2.0
- Assessment of existing applications from the perspective of integration with core application; understanding / assessing requirements for providing an interface with the suggested databases / applications, namely Jan Aadhaar and Aadhaar Database Hub, e-Mitra, 108, UPI, etc.
- Collecting all relevant input forms, registers, and reports formats of DHFW/ ME Dept.
- Evaluating the IT Infrastructure readiness of all government healthcare facilities of the state.
- Understanding the requirements of data migration that is required while transitioning from IHMS1.0 to IHMS 2.0.
- Understanding the activities involved during the transition from IHMS 1.0 to IHMS 2.0. The Selected Bidder should be mindful of the disruptions that may cause during transition and hence should maintain minimal disruption during the transition.

The Selected Bidder shall be responsible for preparation of Software Requirement Specification (SRS) to be developed based on an independent assessment of the requirements of IHMS2.0 and the functional requirements as specified in this RFP document. The System Requirement Specifications (SRS) should be prepared as per the latest version of the IEEE Standard / Template provided by RISL for drafting the SRS. The Selected Bidder shall obtain sign-off of SRS from the designated authority of RISL.

The functional requirement specifications stated in the RFP are indicative features that the solution suggested for IHMS2.0 should have. The Selected Bidder will be required to engage a domain expert who should be an MBBS doctor/ health administrator having experience in Hospital Management Systems, medical coding, and medical terminology. The domain expert should be available onsite at the time of SRS and also during development of the software application.

The Selected Bidder shall be responsible for the preparation of IT Infrastructure Readiness report for the healthcare facilities in the state which shall contain details of IT assets deployed at the end-user location within a healthcare facility. The IT assets shall include details of Internet Connectivity, Local LAN bandwidth, Desktops deployed, Availability of Wi-Fi, IT Accessories (Printer, Barcode Printer, Barcode Scanner, etc).

The Selected Bidder shall be responsible for the preparation of master list of lab equipment and radiology imaging modalities installed at all public healthcare facilities in the state of Rajasthan that require to be integrated with IHMS2.0. The master list shall contain details such as make and model of equipment, type of interfacing that is required (serial connection, ASTM, HL7, etc), uni-directional / bi-directional, number of equipment, etc.

The Selected Bidder shall be responsible for preparation of Data Migration Strategy / Plan from IHMS 1.0 to IHMS 2.0. This plan shall include details of data schema, tables, and fields of IHMS 1.0 that need to be migrated to IHMS 2.0.

The Selected Bidder shall be responsible for preparation of Transition Plan from IHMS 1.0 to IHMS 2.0. This plan shall include details of activities that are to be executed sequentially to achieve a seamless transition from IHMS 1.0 to IHMS 2.0.

4.7. Understanding of functional requirements from IHMS1.0 application

Selected Bidder shall conduct technical and functional sessions with the existing vendor of IHMS 1.0 to understand the functionalities of existing application, extent of deployment of the application, performance characteristics of the application and any other factor that is relevant

to the successful roll-out and adoption of IHMS 2.0 across the healthcare facilities of Rajasthan.

Selected Bidder shall obtain relevant technical and functional requirement documents of IHMS 1.0 from the nominated agencies of Executing Authority. Selected Bidder shall ensure that all functional requirements provided by IHMS 1.0 shall be included into the functional requirements of IHMS 2.0 and be made available in the application at the time of go-live itself.

4.8. User Acceptance Testing (UAT)

The Selected Bidder shall properly test the IHMS 2.0 (Web Application, Mobile Application and Web Portal) thoroughly and conduct unit and integration testing at his end before deploying the IHMS2.0 Software solution for UAT. Selected Bidder shall give a demonstration of different module-wise (for each group) functionalities developed for IHMS 2.0 after deploying the solution at RSDC. RISL shall conduct functional testing of application once the functional demonstration of IHMS2.0 Software solution is over.

The Selected Bidder shall also be responsible for:

- Preparation and submission of Test Strategy, UAT test cases and Test Results
- Assist Purchaser in carrying out user acceptance of solution.
- Rectifying issues of IHMS 2.0 (including the Web Application, Mobile Application and Web Portal) issues/ bugs reported during the UAT.
- Final approval/user acceptance of the IHMS 2.0 (Group Wise) shall be given by RISL. It is the responsibility of the Selected Bidder to obtain the UAT approval from the RISL.

4.9. Assistance to Third Party Auditor (TPA) appointed by RISL

RISL may appoint Third Party Auditor (TPA) at its own cost to conduct the technical review and audits of work performed by Selected Bidder. Selected Bidder shall provide access of the systems as required by TPA for conducting the audits etc. Gaps/ issues identified by the TPA will be decided mutually between RISL and Selected Bidder and shall further be taken up for resolution by Selected Bidder.

4.10. Deployment/ Configuration/ System Integration/ Roll-out and Commissioning (Go-Live) of IHMS 2.0 & Web Portal

Selected Bidder shall integrate the system software and IHMS2.0 Software solution. The Executing Authority will be responsible for providing adequate network connectivity at public hospitals for running the application in consultation with RISL.

- The Selected Bidder shall install and host/configure the IHMS 2.0 solution in a staging environment on the servers provided by RSDC.
- The Implementing Authority shall approve and verify the IHMS2.0 solution deployed in the staging environment before providing approval for deploying the solution in the production environment on the servers provided by RSDC.
- The Selected Bidder shall be responsible to coordinate with RSDC operator to host, install and configure Web Application and Web Portal at RSDC, Jaipur. Selected Bidder shall comply with the policies of RSDC.

It is intended to deploy, implement and roll-out IHMS 2.0 in a single phase across the healthcare facilities of the state. The healthcare facilities of the state comprise of the following facilities:

S No	Type of Health Facility	Number of Units
1	Medical Colleges & Hospitals	49
2	District Hospital	46
3	Sub-Divisional Hospital	68
4	Satellite Hospital	13
5	Community Health Centre	768
6	Primary Health Centre	2650
7	City Dispensary	91
8	Subcentre	14843

The selected bidder shall be responsible for deploying, implementing, and rolling out all modules of IHMS 2.0 across all public healthcare facilities in a single phase.

Also, given the size of deployment of IHMS 2.0, it is essential that a tracking mechanism be implemented to monitor the progress of deployment/roll-out/adoption of modules of IHMS2.0 across the state. In this regard, it is proposed to monitor the following KPI's through the SAS Analytics platform:

- Health Facilities onboarded by type (Medical College, Medical College Hospital, District Hospital, Sub-Divisional Hospital, Satellite Hospital, Community Health Centre, Primary Health Centre, City Dispensary, Subcentre)
- Health Professionals onboarded facility wise and staff category wise

Following KPIs should be presented on daily count and cumulative count

- Number of transactions in each module of IHMS 2.0
- Appointments in OPD
- Admissions in IPD
- IP Discharges
- Lab Investigations
- Radiology Investigations
- OP Prescriptions
- Any other KPIs that may be included at the time of roll-out / post go-live

The above KPIs should be made available

- District Wise
- Period-wise (Day / Month / Year / Custom Period)
- Top-N Best Performers for each health facility category
- Top-N Worst Performers for each health facility category

Seamless Transition from IHMS 1.0 to IHMS 2.0 for Electronic Health Records of Patient

It is essential and critical that the EHR of the patient should be made accessible to the users of IHMS 1.0 and IHMS 2.0 with no break in continuity of patient information and medical records. To achieve this, the selected bidder should deploy the centralized master patient index (MPI) repository and clinical document repository (CDR) of the health information exchange system first before the go-live of IHMS 2.0 at the health facilities and ensure that the patient records and EHR generated in IHMS 1.0 is accessible in IHMS 2.0 and vice-versa.

The selected bidder shall coordinate regularly with the stakeholders of Implementing Authority, Executing Authority and Monitoring Authority to achieve the seamless accessibility of EHR records as this is very crucial to the success of the deployment of IHMS 2.0.

4.11. Training on IHMS2.0 application and Handholding Support

Training of staff is essential for ensuring that the application developed is actually put to use. The training of the users shall be conducted in two modes which is listed below.

General Training:

All identified users of IHMS2.0 shall be selected for receiving general training provided by the Selected Bidder. The Selected Bidder shall conduct online sessions for the participants in general training by demonstrating a walk-through of the workflows of all modules of IHMS2.0 The general training of the users is expected to be held as online sessions using Cisco Webex Video-conferencing platform.

The Selected Bidder shall organize the online sessions based on type of user namely operational staff, doctors, nurses, clinical support staff and administrative staff. If the number of training participants exceeds the maximum capacity of the Cisco Webex solution, then multiple sessions shall be planned for the same module so as to accommodate all training participants.

The number of users based on type of users shall be provided by Executing Authority in coordination with public healthcare facilities.

Training of Trainers:

Selected Bidder shall ensure a proper hands-on online training to Trainers through Training-of-Trainers Programme for IHMS2.0 on the Web Application, Mobile Application and Web Portal developed by it so as to make them well conversant with the functionalities, features and processes built in the IHMS 2.0. The trainers so trained will be required to train the end-users on the use of IHMS2.0 (Web Portal, Mobile Application and Web Application). One ToT will usually be of one full day for each group and will have about 30 participants for hands-on training. The training of Trainers session shall be held online using Cisco Webex video-conferencing solution. In case the need arises to conduct a classroom session, the same shall be organized in coordination with Implementing Authority and Executing Authority.

A summary table indicating training needs for ToT on iHMS 2.0 is given below:

Number of Trainees for Training on Integrated Health Management System 2.0

S No	Category of Trainees	Estimated No of Trainees	No of Training Sessions for each Trainee in category	Total No of person-days of training
1	Trainees for ToT program	50 x 2 = 100	03*	300
2	Trainees from Medical / Dental College Hospitals	49 x 2 = 98	05#	490
3	Trainees from District Hospitals	46 x 2 = 92	03*	276
4	Trainees from Satellite Hospitals	13 x 2 = 26	03*	78
5	District Level Officials	50 x 1 = 50	02^	150

S No	Category of Trainees	Estimated No of Trainees	No of Training Sessions for each Trainee in category	Total No of person-days of training
6	State Level Officials	30 x 1 = 30	02^	90
			Total	1384 (~1400)

* These will comprise of full-day online hands-on trainings of all modules of Group-1, Group-2, and Group-3 of IHMS 2.0

These will comprise of full-day online hands-on trainings of all modules of Group-1, Group-2, Group-3, Group-4, and Group-5

^ These will comprise of full-day online trainings of two sessions (one session comprising of Group-1 to Group-3 and other session comprising of Group-4 and Group-5)

- The Selected Bidder will conduct online trainings via Webex VC solution for trainers identified by Implementing Authority to be trained in ToT programme. Selected Bidder will be required to depute trainer(s) from the firm to be available for facilitation during online trainings. In the training sessions for Teleconsultation and Tele-ICU, the Selected Bidder will also have to make trainers available at the remote site for demonstration and training on the use of Teleconsultation and Tele-ICU module.
- Selected Bidder shall conduct Training Needs Analysis in the SRS of all the concerned staff. The training duration should be sufficiently long for effecting meaningful assimilation of training content by an average user. There should be sufficient number of trainers in every training session for conducting the training program.
- For Group-4 and Group-5, the selected bidder shall conduct training sessions shall be held with the identified trainees from the medical colleges.
- One Training-of-Trainers will typically be of two sessions of four hours' duration each with sufficient number of trainers in each training course such that knowledge and skills are transferred to the trainees for successful use of the software.
- The Implementing Authority shall identify respective officers / staff (role based – Doctors, Nurses, District/Block Officials, Lab Technicians, ANM, etc.) involved in various functional areas / modules related to the Scheme.
- The requisite training infrastructure, if required, like training space, computers, projector with screen and connectivity shall be provided by RISL.
- Selected Bidder shall bear all the expenses towards its resource person / faculty.
- The Selected Bidder shall provide training material of the latest version of IHMS2.0 as walk-through videos explaining the functionality of each module. The videos shall have voice-over in Hindi with subtitles in English.
- Selected Bidder shall also provide latest version of the application's user manuals in soft copy format. The language of the user manuals shall be in English.
- These training materials (walk-through videos and user manuals) shall be stored in a central web server provided by RSDC and access for the same shall be shared to the training participants before the start of the session.
- Selected Bidder shall ensure that the participants for receiving training are able to access the training materials prior to the start of the training session.
- The Selected Bidder shall provide a link to the training materials relevant to the application screen of IHMS2.0 which shall act as a self-learning online training module on iHMS for different categories of users; the language of training module shall be in English.

- The Selected Bidder shall ensure that all the training documentation in Hardcopy and Softcopy is in place (user training, operation procedures, visual help-kit etc.). Selected Bidder shall submit details of each training session including Attendance Record (in Hard Copy) including feedback forms from participants.
- Training has been divided based on Groups of IHMS2.0 and number of sessions can be finalized by RISL during SRS or later as per requirement:
- Training of trainees from selected government hospitals at district
- headquarters by the trainers. Training to end-users of hospitals will be imparted by the trainers trained through ToT programmes (Not in scope of Selected Bidder).
- Training on the modules of all the groups shall be completed prior to Go-Live of the respective groups.

4.12. Safe to Host Certification

The Selected Bidder shall get the Safe to Host Certification done for IHMS 2.0 (Web & Mobile Application and Web Portal) (including all the pages) from the Cert-in empanelled vendors as a pre-requisite for Go-Live. Selected Bidder shall remove the vulnerabilities identified during the Safe to Host certification and then deploy the IHMS2.0 Software solution at Rajasthan State Data Centre (RSDC).

4.13. IHMS 2.0 Support and Maintenance (FMS)

Selected Bidder shall provide Support and Maintenance (FMS) services for three (3) years for IHMS 2.0 (Web & Mobile application and Web portal) and other components of IHMS 2.0 from the date of Go-Live of all the five groups (Group-1 to Group-5). Selected Bidder has to provide FMS services for Groups which are Go-Live between the time of development and customization of other groups and groups which are already Go-Live for which no extra payment shall be released. The Support & Maintenance services shall start from the date of Go-Live of all the Groups as per timelines mentioned in section 4.18 of this RFP.

4.14. Managed Services during Support and Maintenance of group of IHMS2.0

- Technical Helpdesk Support (Incident/ Problem Management)
    - The Selected Bidder shall make use of his/her own helpdesk management system (web enabled with SMS and e-Mail based alert system) or Helpdesk call management and SLA reporting.
    - The Selected Bidder shall provide access to the helpdesk management system to DoIT&C officials by providing two (2) sets of login-id and password with access
        - To view all support requests created in the helpdesk system along with the detailed view of each support request.
        - To view different types of analysis reports of the support requests created in the helpdesk system
    - Helpdesk should be able to perform:
        - Handle teething issues of the M&H Dept users and citizens.
        - The Helpdesk persons should be accessible to all the project locations and their end-users on telephone/ e-mail.
        - Reply to the queries/ feedback/ suggestions/ complaints from all the stakeholders
        - The end-users should be allowed to create a ticket for any problem faced by him and same should be closed by him after the resolution of the problem.
        - Helpdesk staff shall escalate the problem to designated authority.

- Helpdesk Availability Hours
  - The helpdesk shall be operational 24 hours per day on all 7 days of a week for 365 days per year
  - The transactional volume of the healthcare facilities is given below
    - 7 AM to 2 PM – High
    - 2 PM to 7 PM – Moderate
    - 7 PM to 7 AM (next day) – Low
  - The Selected Bidder may deploy the helpdesk executives on a dynamic basis as they see fit to handle the daily service requests.

- The SLA for resolution of support requests are as follows

S No	Severity Level	Impact	Description	Committed Resolution Time
1	Priority-1	Critical	This represents an issue when there is a breakdown in the application. This is a showstopper. The system is not usable until the issue is fixed, and no workaround is available.	30 mins
2	Priority-2	High	The issue is causing a loss of key functionality which affects significant aspects of the business or operations. Something major isn't working, but the system is still usable to an extent.	1 hour
3	Priority-3	Moderate	The issue affects an isolated component, but this is not affecting the ability of the system to perform in accordance with the documentation. In general, the system is working normally except for a limited portion.	4 hours
4	Priority-4	Low	A minor issue: the system is still fully usable with limitations or workarounds	24 hours
5	Priority-5	None	This request is about something with no system impact. This includes things like feature requests, account requests, general inquiries, etc.	48 Hours

- **IHMS 2.0 Support & Maintenance Services**
  - Overall administration, operations, monitoring, maintenance of the deployed IHMS 2.0 (Web portal and Web & Mobile Application) and the Database to ensure the desired uptime.
  - During Support & Maintenance (FMS) period RISL may request Selected Bidder, to make necessary changes in the layout, colour schema, MIS reports format, input forms layout etc. However, these changes shall be suggested keeping in view that it should not transform database schema. The Selected Bidder shall be responsible to make these changes at No extra cost to purchaser.
  - Design & Upload content on web portal as per instruction of Purchaser. Content management services includes (content collection, translation, conversion, design of content upload content using CMS)

- IHMS 2.0 (Web Application, Mobile Application and Web Portal) administration, support & maintenance throughout the project period. The Selected Bidder shall provide support on following activities
  - Minor changes in IHMS2.0 Software solution on instruction of RISL
  - Defect Fixing reported by RISL
  - Support required to update Web Application, Mobile Application and Web Portal
- Maintain version control and archives of source code, and web site content and database
- Download definitions/ patches/ updates/ service packs of the deployed third-party tools/ middle ware Software, this includes infrastructure at RSDC Jaipur.
- The Selected Bidder shall deploy all approved change requests of IHMS 2.0 on the staging environment before deploying to the production environment. On obtaining approval from the Implementing Authority and Monitoring Authority, the verified change requests shall be deployed in the production environment.

- **Support & Maintenance**
  - The Selected Bidder shall have to submit certain key deliverables during Support and Maintenance Period which are mentioned hereunder. However, in addition to the reports/ deliverables as indicated below, Selected Bidder shall prepare and submit all other required information in the desirable format as notified by the purchaser related to project.
  - The formats for all the reports shall be prepared by the Selected Bidder and submitted to the purchaser for approval. The reports submitted by the Selected Bidder should strictly be in the approved format only which, if required, may be revised from time to time.

S No	Activity	Deliverable	Frequency
1	SLA Support & Maintenance (FMS)	Satisfactory support certificate for the quarter	Quarterly (In Hardcopy)

- **Deployment of Onsite Team during Maintenance and Support Period**
  Minimum number of onsite resources to be deployed once complete IHMS 2.0 has been go-live is given above in the clause titled “Deployment of Manpower”. Selected Bidder shall however ensure that the requisite numbers of resources are deployed during the period to meet the Service Levels given in the section titled “Service Level Standard” of the RFP.

- **Change Request Management Services**
  Change Request (CR) to the functionality provided under all modules of all groups (Group-1 to Group-5) of IHMS2.0 may be raised by the concerned stakeholders of IHMS2.0 from time-to-time post go-live deployment of IHMS2.0.
  - The Selected Bidder shall make use of his/her own Change Request Management System (CRMS) to track the CRs raised by the stakeholders of IHMS 2.0.
  - The Selected Bidder shall provide access for the CRMS to officials of DoIT&C by providing two (2) sets of login-id and password with full-access to the functionality of CRMS.
  - Each Change Request shall be created in the CRMS by the Selected Bidder with details of the functional requirement provided by the stakeholders of IHMS2.0.
  - For each CR, the Selected Bidder shall enter the expected effort estimate involved in functional development, testing, training, and deployment activities required to deliver the CR.

- The Selected Bidder shall present the effort estimate required for each CR, commercial cost of each CR, and expected delivery time of each CR to a committee comprising of representatives from M&H, DoIT&C and IT-PMU of IHMS2.0 for approval.
- The Selected Bidder shall be informed of the approved CRs presented in the above committee following which a work-order shall be issued to the Selected Bidder for delivery of the approved CRs within the defined timelines.
- The functionality of the CR shall be considered part of the base product of IHMS2.0 post go-live deployment.

4.15. Data Migration

Selected Bidder shall migrate data from existing application and database (IHMS 1.0 and EHR database) to iHMS 2.0 application and database. RISL will make available the data to the Selected Bidder for migration. Selected Bidder shall ensure maximum accuracy with de-duplication in the migrated data and may leverage tools mentioned in the development stack. Data migration of related modules is a prerequisite for Go-Live of the respective modules. The data migration plan and strategy are further described in “Data Migration Plan and Strategy” section of Annexures 8.1 of this RFP.

4.16. Integration

IOT Devices

As part of its vision to implement an integrated EHR of the patient, it is intended to collect and record relevant diagnostic data generated at point-of-care in healthcare facilities. The Selected Bidder shall provide the necessary API interfaces in IHMS 2.0 for integrating with IoT gateways deployed at healthcare facilities for collecting telemetry data from medical diagnostic equipment / non-medical equipment deployed at point of care.

Diagnostic Lab Equipment

IHMS 2.0 shall provide unidirectional or bidirectional interfacing with lab equipment installed at the laboratories in all healthcare facilities of the state as per the capability of the lab equipment. The interfacing with the lab equipment shall be achieved via serial / parallel port communication / ASTM communication / HL7 communication. The Selected Bidder will be required to provide the necessary software modules / drivers / executables, etc. for the successful interfacing of lab equipment with IHMS 2.0.

4.17. Roles and Responsibilities

Responsibilities of Implementing Authority

Role of the Implementing Authority in the successful implementation of the IHMS 2.0 solution includes discharging the following responsibilities:

- Finalizing the Software Requirement Specifications of the IHMS2.0 solution
- Providing the final sign-off on the User Acceptance Testing of the IHMS 2.0 solution
- Providing the final sign-off on the Go-Live certification of the IHMS 2.0 solution.
- Finalizing the changes / updates in the functional requirements of IHMS 2.0 solution post Go-Live for change requests.

The above responsibilities shall be split according to the type of healthcare facility in the following manner:

S No	Implementing Authority	Health Facility Category	Deliverables
1	Department of Medical Health	District Hospital Sub-Divisional Hospital Satellite Hospital Community Health Centre Primary Health Centre City Dispensary Subcentre Private Healthcare facility	• Software Requirement Specifications • User Acceptance Testing Report • Go-Live Certification
2	Department of Medical Education	Medical College & Associated Hospitals Medical College (Academics) Medical College (Research)	• Software Requirement Specifications • User Acceptance Testing Report • Go-Live Certification

The Department of Medical Health, GoR and the Department of Medical Education, GoR may appoint a nodal officer from their own department or assign authority to an authorized agency to act on their behalf for discharging the responsibilities assigned to them.

Responsibilities of Monitoring Authority

Role of Monitoring Authority in the successful implementation of the solution includes discharging the following responsibilities:

- The Project Contract shall be monitored by Monitoring Authority from time to time.
- Conduct review meetings at regular intervals to monitor the progress of the project.
- Review, provide feedback and approve the Software Requirement Specifications of IHMS 2.0 in consultation with the Implementing Authority.
- Review, provide feedback and approve the solution design, software design, implementation approach, and other technical documents submitted by the Selected Bidder in consultation with the Executing Authority.
- Review, provide feedback and approve the training plan submitted by the Selected Bidder in consultation with the Implementing Authority and Executing Authority.
- Process recommendation of change requests to Implementing Authority and Executing Authority with the finalization of efforts estimation, cost estimation, milestone, and payment.
- Review and recommend release of payments to the Selected Bidder as per SLA to the Executing Authority.
- Coordinate with the stakeholders in achieving signoffs for UAT and Go-Live of IHMS 2.0
- Provide any other help/ assistance/ co-ordination required for successful implementation and operations of the work/ project.

Responsibilities of Executing Authority

- Coordinate with RSDC Operator, other stakeholders of the project and other government agencies to review the IT infrastructure requirements of IHMS 2.0.
- Deploy hardware and necessary development stack to Rajasthan State Data Center for UAT and deployment of IHMS 2.0 solution.

- Approve the solution design, software design, implementation approach, and other technical documents submitted by the Selected Bidder as per the recommendations of the Monitoring Authority.
- Approve the end-user training plan submitted by the Selected Bidder as per the recommendations of the Monitoring Authority.
- Approve release of payments to the Selected Bidder as per SLA and recommendations of the Monitoring Authority.
- Approve the change requests for implementation as per the recommendations of the Monitoring Authority.

Responsibilities of Selected Bidder

- The detailed role & responsibilities of Selected Bidder has already been described in the scope of work clause of Chapter 4 of this RFP.
- Provide computing infrastructure to all the deployed team members.

Responsibilities of Rajasthan State Data Centre (RSDC)

- The RSDC shall facilitate the activities listed in Annexure-8.14 of the RFP document.

4.18. Development Stack for the software solution already available in RSDC

- Database - Oracle 12C with RAC on Exadata
- App Server- IBM Web Sphere on PureApp, ORACLE Web Logic
- Mobile App- IBM Worklight/ Mobile First platform
- Forms- Adobe
- CMS- Adobe (AEM) / IBM (WCM)
- DMS – IBM Filenet/ Case Foundation, NewGen
- ESB – IBM Integration Bus, APIM
- Platform- Java
- BI/ Analytical Tools – SAS, Tableau
- Reporting Tool – Crystal Reports
- Software VC Solution – Cisco Webex
- Data Management Tool – MDM (IBM)
- Microservices Platform as provided by RSDC

Note- The Selected Bidder has to strictly use this stack for the development/ customization and deployment. Database and Application server software should complement each other and may preferably have common tool to monitor like Health Check, Performance Analyzer, Operations Monitoring, Compliance Management, Patching, Performance management, administration, and auditing etc.

The IHMS 2.0 solution shall be deployed on a microservices platform hosted in RSDC. A broad description of the components required to be deployed using the microservices platform is listed below:

Components	Descriptions	Software
Containers	Containers encapsulate a lightweight runtime environment for your application, presenting a consistent software environment that can follow the application from the developer's desktop to testing to final production deployment, and you can run	Dockers, Kubernetes,

Components	Descriptions	Software
	containers on physical or virtual machines. Containerization makes your applications portable so that the same code can run on any device. They use a different method of **abstracting** resources. Instead of using a hypervisor, containers share the **kernel** of the host operating system (OS). As a result, they avoid the infrastructure overhead of a full-blown OS and provide only those resources (i.e., **installations, dependencies,** and **code**) that your applications need. This means they can stop and start more quickly in response to **fluctuating scaling** requirements and offer better overall performance.	
Service Discovery	A mechanism for service discovery is essential to enable communication between microservices. Service discovery allows services to locate and interact with each other dynamically.	Eureka, etcd Consul, Apache Zookeeper
API gateways	An API gateway acts as a central entry point for external clients to access the microservices. It handles authentication, authorization, request routing, and can provide additional functionality like rate limiting, caching, or logging.	Kong, Apigee and AWS API
Communication Protocol	Microservices typically communicate with each other over lightweight protocols such as HTTP/REST.	MQTT, Apache Kafka
Data Management	Microservices often require data storage and management. You can use different types of databases depending on the nature of your data.	MySQL, NoSQL database (mongo DB, Cassandra
Monitoring and Logging	Incorporate monitoring and observability solutions to gain insights into the performance, health, and behaviour of your microservices.	Prometheus, ELK stack (Elasticsearch, Logstash, Kibana), Grafana, Commercial APM
Scalability and Resilience	Microservices should be designed to scale independently and handle failures gracefully. This often involves implementing techniques.	Load Balancer
DevOps Practices	Adopting DevOps practices, such as continuous integration and deployment (CI/CD), automated testing, and infrastructure as code, is crucial for efficiently managing and deploying microservices.	Jenkins, GitLab CI/CD, or cloud-native solutions (e.g., AWS Code Pipeline).

The above table is an indicative listing of the various industry standard platform tools that are available for deployment of microservices. However, in the case of IHMS 2.0, the platform stack as defined by RSDC shall be applicable. In case the selection of a platform tool is not defined by RSDC, then the Selected Bidder is free to inform RSDC of a preferred platform tool

for any of the component of microservices platform listed above and have the same installed at RSDC.

4.19. Project Duration

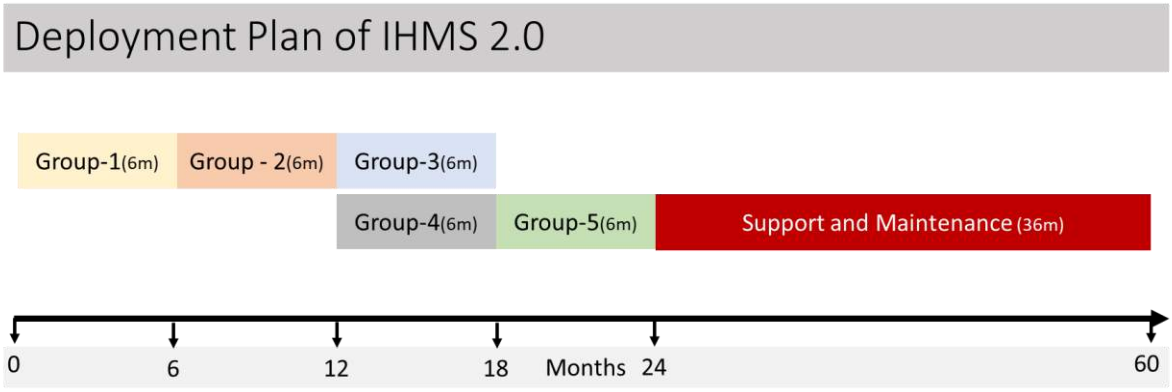
- The duration of deployment of IHMS 2.0 project is expected to be as follows:
  - 24 months of Design, Development, Customization, Testing, Training, Deployment, Go-Live of Web Portal, Web Application and Mobile Application
  - 36 months of Support & Maintenance of all modules of IHMS 2.0
- The total Five (5) year contract/ project period includes 24 months (For Development/ Customization, Testing, Deployment, Training, development of Web Portal, Web Application, Mobile apps and necessary integration with other applications) which shall commence from the date of agreement signing till completion of 36 months of Support & Maintenance of IHMS 2.0. The tenure of project for support and maintenance (FMS) may be extended/ increased on mutually agreed terms, if required.
- It is responsibility of Selected Bidder to scale up the Support and Maintenance team as and when required to ensure smooth project execution throughout the duration.

4.20. Project Deliverables, Timelines & Payment Terms

- Selected Bidder is expected to carry out all groundwork for implementation including documentation, coordination with RISL and other stakeholders of the project, site survey, etc. These reports or deliverables are to be submitted timely by Selected Bidder to RISL to ensure timely and smooth execution of the project. Certain key deliverables are identified for each of the parts/stages, which are mentioned hereunder. However, Selected Bidder has to prepare and submit any required information in form of Reports / excel sheet / document desired by RISL related to IHMS 2.0 other than defined hereunder in the table. The selected Bidder has to prepare a monthly report on the progress of activities in each phase.

- The monthly progress report shall contain the following information
  - Name of planned activity
  - Percentage of completion of planned activity
  - Status of completion – Below target / within target / exceeding target
  - Reason / Remarks for the above status
  - Any risks identified for completion of activity

The deployment plan of the modules of IHMS 2.0 is given below:



The milestones and deliverables for the implementation of modules defined in section 4.3 of this RFP for IHMS 2.0 will be as follows:

T_0 – Date of Issuance of Work Order of IHMS 2.0

Design, Development, Testing, UAT, Training and Go-Live of IHMS 2.0

Group	Activity	Deliverables	Timelines (days)	Payment Terms
Group - 1 as defined in section 4.3 of this RFP	Preparation of technical, functional, and readiness reports of applicable modules of Group-1	• SRS Document • IT Readiness Report • Application Deployment Plan • IT Compute, Network and Storage Requirement Report for DC and DR – for Testing, Staging and Production environments • Transition Plan from IHMS1.0 • Equipment Integration Readiness Report (Lab, Radiology, IoT Gateways, etc.) • Data Migration Plan	$T_1 = T_0 + 180$ days	**14%** of the Cost of Design and Development of IHMS 2.0 solution as per agreed cost of Serial No.1 of Financial Bid to be paid at T_1.
	Design, Development, Beta version Testing, Deployment & UAT of all modules of Group-1	• Design document • Test Cases document • UAT Signoff report of all modules of Group-1		
	Go-Live of all modules of Group-1	• Go-Live Report • Safe to Host Certificate of all modules of Group-1		
	General Training and Training of Trainers (ToT) of all modules of Group-1	• Attendance Record of sessions of training conducted		As per actuals based on agreed cost of Serial No. 7 of Financial Bid to be paid at T_1.

Group	Activity	Deliverables	Timelines (days)	Payment Terms
Group – 2 as defined in section 4.3 of this RFP	Preparation of SRS for all modules of Group-2	• SRS Document	$T_2 = T_1 + 180$ days	**14%** of the Cost of Design and Development of IHMS 2.0 solution as per agreed cost of Serial No.1 of Financial Bid to be paid at T_2.
	Design, Development, Beta version Testing, Deployment & UAT of all modules of Group-2	• Design document • Test Cases document • UAT Signoff report of all modules of Group-2		
	Go-Live of all modules of Group-2 including mobile application	• Go-Live Report • Safe to Host Certificate of all modules of Group-2		
	General Training and Training of Trainers (ToT) of all modules of Group-2	• Attendance Record of sessions of training conducted		As per actuals based on agreed cost of Serial No. 7 of Financial Bid to be paid at T_2.

Group	Activity	Deliverables	Timelines (days)	Payment Terms
Group – 3 as defined in section 4.3 of this RFP	Preparation of SRS for all modules of Group-3	• SRS Document	$T_3 = T_2 + 180$ days	**14%** of the Cost of Design and Development of IHMS 2.0 solution as per agreed cost of Serial No.1 of Financial Bid to be paid at T_3.
	Design, Development, Beta version Testing, Deployment & UAT of all modules of Group-3	• Design document • Test Cases document • UAT Signoff report of all modules of Group-3		
	Go-Live of all modules of Group-3 including mobile application	• Go-Live Report • Safe to Host Certificate of all modules of Group-3		
	General Training and Training of Trainers (ToT)	• Attendance Record of various sessions of		As per actuals based on agreed cost of Serial No. 7 of

Group	Activity	Deliverables	Timelines (days)	Payment Terms
	of all modules of Group-3	training conducted		Financial Bid to be paid at T_3.

Group	Activity	Deliverables	Timelines (days)	Payment Terms
Group – 4 as defined in section 4.3 of this RFP	Preparation of SRS for all modules of Group-4	• SRS Document	$T_4 = T_2 + 180$ days	**14%** of the Cost of Design and Development of IHMS 2.0 solution as per agreed cost of Serial No.1 of Financial Bid to be paid at T_4.
	Design, Development, Beta version Testing, Deployment & UAT of all modules of Group-4	• Design document • Test Cases document • UAT Signoff report of all modules of Group-4		
	Go-Live of all modules of Group-4 including mobile application	• Go-Live Report • Safe to Host Certificate of all modules of Group-4		
	General Training and Training of Trainers (ToT) of all modules of Group-4	• Attendance Record of sessions of training conducted		As per actuals based on agreed cost of Serial No. 7 of Financial Bid to be paid at T_4.

Group	Activity	Deliverables	Timelines (days)	Payment Terms
Group – 5 as defined in section 4.3 of this RFP	Preparation of SRS for all modules of Group-5	• SRS Document	$T_5 = T_4 + 180$ days	**14%** of the Cost of Design and Development of IHMS 2.0 solution as per agreed cost of Serial No.1 of Financial Bid to be paid at T_5.
	Design, Development, Beta version Testing, Deployment & UAT of all modules of Group-5	• Design document • Test Cases document • UAT Signoff report of all modules of Group-5		
	Go-Live of all modules of Group-5 including mobile application	• Go-Live Report • Safe to Host Certificate of all modules of Group-5		
	General Training and Training of	• Attendance Record of		As per actuals based on agreed

Group	Activity	Deliverables	Timelines (days)	Payment Terms
	Trainers (ToT) of all modules of Group-5	various sessions of training conducted		cost of Serial No. 7 of Financial Bid to be paid at T_5.

Support and Maintenance

Group	Activity	Deliverables	Timelines (days)	Payment Terms
1st Year of Support and Maintenance post go-live of all modules of all groups				
Support & Maintenance of IHMS 2.0 Solution as per section 4.3	IHMS 2.0 Support and Maintenance (FMS)	• Quarterly Support and Maintenance reports • Quarterly SLA attainment reports as per SLAs mentioned in section 7.2 • Attendance Record of Technical Support Staff and Helpdesk Staff	T_6= T_5+ 90 days	**25%** of agreed support & maintenance cost as per Serial No. 2.1 of Financial Bid to be paid at T_6. along with **2.5%** of the Cost of Design, Development and Deployment of IHMS 2.0 solution as per agreed cost of Serial No. 1.1 of Financial Bid to be paid at T_6.
			T_7= T_5+ 180 days	**25%** of agreed support & maintenance cost as per Serial No. 2.1 of Financial Bid to be paid at T_7. along with **2.5%** of the Cost of Design, Development and Deployment of IHMS 2.0 solution as per agreed cost of Serial No. 1.1 of Financial Bid to be paid at T_7.
			T_8= T_5+ 270 days	**25%** of agreed support & maintenance cost as per Serial No. 2.1 of Financial Bid to be paid at T_8.

Group	Activity	Deliverables	Timelines (days)	Payment Terms
				along with **2.5%** of the Cost of Design, Development and Deployment of IHMS 2.0 solution as per agreed cost of Serial No. 1.1 of Financial Bid to be paid at T_8.
			T_9= T_5+ 365 days	**25%** of agreed support & maintenance cost as per Serial No. 2.1 of Financial Bid to be paid at T_9. along with **2.5%** of the Cost of Design, Development and Deployment of IHMS 2.0 solution as per agreed cost of Serial No. 1.1 of Financial Bid to be paid at T_9.
2nd Year of Support and Maintenance post go-live of all modules of all groups				
Support & Maintenance of IHMS 2.0 Solution as per section 4.3	IHMS 2.0 Support and Maintenance (FMS)	• Quarterly Support and Maintenance reports • Quarterly SLA attainment reports as per SLAs mentioned in section 7.2 • Attendance Record of Technical Support Staff and Helpdesk Staff	T_{10}= T_9+ 90 days	**25%** of agreed support & maintenance cost as per Serial No. 2.2 of Financial Bid to be paid at T_{10}. along with **2.5%** of the Cost of Design, Development and Deployment of IHMS 2.0 solution as per agreed cost of Serial No. 1.1 of Financial Bid to be paid at T_{10}.
			T_{11}= T_9+ 180 days	**25%** of agreed support & maintenance cost as per Serial No. 2.2 of Financial

Group	Activity	Deliverables	Timelines (days)	Payment Terms
				Bid to be paid at T_{11}. along with **2.5%** of the Cost of Design, Development and Deployment of IHMS 2.0 solution as per agreed cost of Serial No. 1.1 of Financial Bid to be paid at T_{11}.
			T_{12}= T_9+ 270 days	**25%** of agreed support & maintenance cost as per Serial No. 2.2 of Financial Bid to be paid at T_{12}. along with **2.5%** of the Cost of Design, Development and Deployment of IHMS 2.0 solution as per agreed cost of Serial No. 1.1 of Financial Bid to be paid at T_{12}.
			T_{13}= T_9+ 365 days	**25%** of agreed support & maintenance cost as per Serial No. 2.2 of Financial Bid to be paid at T_{13}. along with **2.5%** of the Cost of Design, Development and Deployment of IHMS 2.0 solution as per agreed cost of Serial No. 1.1 of Financial Bid to be paid at T_{13}.
3rd Year of Support and Maintenance post go-live of all modules of all groups				
Support & Maintenance of IHMS 2.0 Solution as	IHMS 2.0 Support and Maintenance (FMS)	• Quarterly Support and Maintenance reports	T_{14}= T_{13}+ 90 days	**25%** of agreed support & maintenance cost as per Serial No. 2.3 of Financial

Group	Activity	Deliverables	Timelines (days)	Payment Terms
per section 4.3		• Quarterly SLA attainment reports as per SLAs mentioned in section 7.2 • Attendance Record of Technical Support Staff and Helpdesk Staff		Bid to be paid at T_{14}. along with **2.5%** of the Cost of Design, Development and Deployment of IHMS 2.0 solution as per agreed cost of Serial No. 1.1 of Financial Bid to be paid at T_{14}.
			T_{15}= T_{13}+ 180 days	**25%** of agreed support & maintenance cost as per Serial No. 2.3 of Financial Bid to be paid at T_{15}. along with **2.5%** of the Cost of Design, Development and Deployment of IHMS 2.0 solution as per agreed cost of Serial No. 1.1 of Financial Bid to be paid at T_{15}.
			T_{16}= T_{13}+ 270 days	**25%** of agreed support & maintenance cost as per Serial No. 2.3 of Financial Bid to be paid at T_{16}. along with **2.5%** of the Cost of Design, Development and Deployment of IHMS 2.0 solution as per agreed cost of Serial No. 1.1 of Financial Bid to be paid at T_{16}.
			T_{17}= T_{13}+ 365 days	**25%** of agreed support & maintenance cost as per Serial No. 2.3 of Financial Bid to be paid at

Group	Activity	Deliverables	Timelines (days)	Payment Terms
				T_{17}. along with **2.5%** of the Cost of Design, Development and Deployment of IHMS 2.0 solution as per agreed cost of Serial No. 1.1 of Financial Bid to be paid at T_{17}.

It may also be noted that the time schedule for each milestone shown in the table above would be enforced independently.

Component / Phase: Change Request				
Group	**Activity**	**Deliverables**	**Timelines (days)**	**Payment Terms**
As Applicable	Additional design and development / integration work as per change request	As Applicable	As per agreed terms	Based on actuals as per man-month rates as per Serial No. 5 of Financial Bid.

Signoffs for the deliverables identified for each activity of each phase in the above table shall be obtained from the following authorities before invoices are presented for payment.

S No	Approving Authority	Deliverables
1	Department of Medical Health, Government of Rajasthan	Software Requirement Specifications, User Acceptance Testing Report, Go-Live certification of IHMS 2.0 (Group-1, Group-2 and Group-3 as defined in Sec 4.3 Scope of work) for all public and private healthcare facilities except medical colleges and hospitals associated with medical colleges.
2	Department of Medical Education, Government of Rajasthan	Software Requirement Specifications, User Acceptance Testing Report, Go-Live certification of IHMS 2.0 (Group-1, Group-2, Group-3, Group-4, and Group-5) for all medical colleges and hospitals associated with medical colleges.
3	RISL / DoIT&C	All other deliverable reports other than Software Requirement Specifications, User Acceptance Testing Report, Go-Live certification as mentioned above.

Any delay in the approval of the deliverable(s) submitted by the Selected Bidder to RISL shall not account for the delay on Selected Bidder's part.

Selected Bidder has to design an implementation plan that seeks to execute several activities in parallel, adopts Critical Path Method so as to keep up with the overall deadline of implementation as mentioned above. The time specified for delivery and other activities as mentioned in the table above shall be deemed to be the essence of the contract and the Selected Bidder shall arrange supplies and provide the required services within the specified period.

5. Instructions to Bidders (ITB) & Bidding Process

1. Sale of Bidding/ Tender Documents: The sale of bidding documents shall commence from the date given in NIT. The complete bidding document shall also be placed on the RISL and e-Procurement portal. The prospective bidders shall be permitted to download the bidding document from the websites and pay its price while submitting the Bid to the procuring entity.

2. Pre-bid Meeting/ Clarifications-

a) Any prospective bidder may, in writing, seek clarifications from the procuring entity in respect of the bidding documents.

b) A pre-bid conference is also scheduled by the procuring entity as per the details mentioned in the NIB and to clarify doubts of potential bidders in respect of the procurement and the records of such conference shall be intimated to all bidders and where applicable, shall be published on the respective websites.

c) The minutes and response, if any, shall be provided promptly to all bidders to which the procuring entity provided the bidding documents, so as to enable those bidders to take minutes into account in preparing their bids, and shall be published on the respective websites.

3. Changes in the Bidding Document-

a) At any time, prior to the deadline for submission of Bids, the procuring entity may for any reason, whether on its own initiative or as a result of a request for clarification by a bidder, modify the bidding documents by issuing an addendum in accordance with the provisions below.

b) In case, any modification is made to the bidding document or any clarification is issued which materially affects the terms contained in the bidding document, the procuring entity shall publish such modification or clarification in the same manner as the publication of the initial bidding document.

c) In case, a clarification or modification is issued to the bidding document, the procuring entity may, prior to the last date for submission of Bids, extend such time limit in order to allow the bidders sufficient time to take into account the clarification or modification, as the case may be, while submitting their Bids.

d) Any bidder, who has submitted his Bid in response to the original invitation, shall have the opportunity to modify or re-submit it, as the case may be, within the period of time originally allotted or such extended time as may be allowed for submission of Bids, when changes are made to the bidding document by the procuring entity:

Provided that the Bid last submitted, or the Bid as modified by the bidder shall be considered for evaluation.

4. Period of Validity of Bids-

a) Bids submitted by the bidders shall remain valid during the period specified in the NIB/ bidding document. A Bid valid for a shorter period shall be rejected by the procuring entity as non-responsive Bid.

b) Prior to the expiry of the period of validity of Bids, the procuring entity, in exceptional circumstances, may request the bidders to extend the bid validity period for an additional specified period of time. A bidder may refuse the request and such refusal shall be treated as withdrawal of Bid and in such circumstances bid security shall not be forfeited.

c) Bidders that agree to an extension of the period of validity of their Bids shall extend or get extended the period of validity of bid securities submitted by them or submit new bid securities to cover the extended period of validity of their bids. A bidder whose bid security is not extended, or that has not submitted a new bid security, shall be considered to have refused the request to extend the period of validity of its Bid.

5. Format and Signing of Bids-

a) Bidders must submit their bids online at eProcurement portal i.e. http://eproc.rajasthan.gov.in.

b) All the documents uploaded should be digitally signed with the DSC of authorized signatory.

c) A Single Stage Two part/ cover system shall be followed for the Bid: -

I. Technical Bid, including fee details, eligibility & technical documents
ii. Financial Bid

d) The technical bid shall consist of the following documents: -

S. No.	Documents Type	Document Format
Fee Details		
1.	Bidding document Fee (Tender Fee)	Proof of submission (PDF)
2.	RISL Processing Fee (eProc)	Instrument/ Proof of submission (PDF)
3.	Bid Security (EMD)	Instrument/ Proof of submission (PDF)
Eligibility Documents		
4.	Bidder's Authorization Certificate	As per Annexure-8.5 (PDF)
5.	All the documents mentioned in the "Eligibility Criteria", in support of the eligibility	As per the format mentioned against the respective eligibility criteria clause (PDF)
Technical Documents		
6.	Covering letter of the bid	Annexure-8.2
7.	Tender form	Annexure-8.4
8.	Certificate of Conformity/No deviation	Annexure-8.7
9.	Project references for pre-qualification and Technical Qualification Criteria.	Annexure-8.11
10.	CVs for evaluation in prescribed format.	Annexure-8.13
11.	Technical Proposal including Understanding of Scope, Approach and Methodology and Work Plan	Annexure-8.15
12.	Manufacturer Authorization Form (MAF) as required	Annexure-8.16

e) financial bid shall include the following documents: -

S. No.	Documents Type	Document Format
1.	Covering Letter -Financial Bid	On bidder's letter head duly signed by authorized signatory as per Annexure-8.8 (PDF)
2.	Financial Bid	As per BoQ (.XLS) format available on e-Proc portal

f) The bidder should ensure that all the required documents, as mentioned in this bidding document, are submitted along with the Bid and in the prescribed format only. Non-submission of the required documents or submission of the documents in a different format/ content may lead to the rejection of the Bid submitted by the bidder.

6. Cost & Language of Bidding-

a) The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the procuring entity shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

b) The Bid, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the procuring entity, shall be written only in English Language. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in English/ Hindi language, in which case, for purposes of interpretation of the Bid, such translation shall govern.

7. Alternative/ Multiple Bids- Alternative/ Multiple Bids shall not be considered at all and will be outrightly rejected. Also, the bidder shall not quote for multiple brands/ make/ models but only one in the technical Bid.

8. Bid Security (EMD)- Every bidder, if not exempted, participating in the procurement process will be required to furnish the bid security as specified in the NIB.

a) In lieu of bid security, a bid securing declaration shall be taken from Departments of the State Government, Undertakings, Corporations, Autonomous bodies, Registered Societies and Cooperative Societies which are owned or controlled or managed by the State Government and Government Undertakings of the Central Government.

b) Bid security instrument or a bid securing declaration shall necessarily accompany the technical bid.

c) Bid security of a bidder lying with the procuring entity in respect of other bids

awaiting decision shall not be adjusted towards bid security for the fresh bids. The bid security originally deposited may, however, be taken into consideration in case bids are re-invited.

d) The bid security may be given in the form of a banker's cheque or demand draft or bank guarantee, in specified format, of a scheduled bank or deposited through eGRAS. The bid security must remain valid thirty days beyond the original or extended validity period of the bid.

h) The bid security of unsuccessful bidders shall be refunded/returned soon after final acceptance of successful bid and signing of Agreement and submitting of performance security by the successful bidder.

i) The Bid security submitted by a bidder shall be forfeited, including the interest, if any, in the following cases, namely: -

i. when the bidder withdraws or modifies its bid after opening of bids.

ii. when the bidder does not execute the agreement, if any, after placement of supply/ work order within the specified period.

iii. when the bidder fails to commence the supply of the service or execute work as per supply/ work order within the time specified.

iv. when the bidder does not deposit the performance security within specified period after the supply/ work order is placed; and

v. If the bidder breaches any provision of code of integrity, prescribed for bidders, specified in the bidding document.

k) No interest shall be payable on the bid security.

l) In case of the successful bidder, the amount of bid security may be adjusted in arriving at the amount of the Performance Security or refunded if the successful bidder furnishes the full amount of performance security.

m) The procuring entity shall promptly return the bid security after the earliest of the following events, namely: -

i. the expiry of validity of bid security.

ii. the execution of agreement for procurement and performance security is furnished by the successful bidder.

iii. the cancellation of the procurement process; or

iv. the withdrawal of bid prior to the deadline for presenting bids, unless the bidding documents stipulate that no such withdrawal is permitted.

9. Deadline for the submission of Bids-

a) Bids shall be received online at e-Procurement portal and up to the time and date specified in the NIB.

b) Normally, the date of submission and opening of Bids would not be extended. In exceptional circumstances or when the bidding document are required to be substantially modified as a result of discussions in pre-bid meeting/ conference or otherwise and the time with the prospective bidders for preparation of Bids appears insufficient, the date may be extended by the procuring entity. In such case, the publicity of extended time and date shall be given in the manner, as was given at the time of issuing the original NIB and shall also be placed on the State Public Procurement Portal, if applicable. It would be ensured that after issue of corrigendum, reasonable time is available to the bidders for preparation and submission of their Bids. The procuring entity shall also publish such modifications in the bidding document in the same manner as the publication of initial bidding document. If, in the office of the Bids receiving and opening authority, the last date of submission or opening of Bids is a non-working day, the Bids shall be received or opened on the next working day.

10. Withdrawal, Substitution, and Modification of Bids-

a) If permitted on e-Procurement portal, a Bidder may withdraw its Bid or re-submit its Bid (technical and/ or financial cover) as per the instructions / procedure mentioned at e-Procurement website under the section "Bidder's Manual Kit".

b) Bids withdrawn shall not be opened and processed further.

11. Opening of Bids-

a) The Bids shall be opened by the bid opening & evaluation committee on the date and time mentioned in the NIB in the presence of the bidders or their authorised representatives who choose to be present.

b) All the documents comprising of technical Bid/ cover shall be opened & downloaded from the e-Procurement website (only for the bidders who have submitted the prescribed fee(s) to RISL).

c) The committee shall conduct a preliminary scrutiny of the opened technical Bids to assess the prima-facie responsiveness and ensure that the: -

i. bid is accompanied by bidding document fee, bid security, or bid securing

declaration, and processing fee (if applicable).

ii. bid is valid for the period, specified in the bidding document.

iii. bid is unconditional, and the bidder has agreed to give the required performance security; and

iv. other conditions, as specified in the bidding document are fulfilled.

v. any other information which the committee may consider appropriate.

d) No Bid shall be rejected at the time of Bid opening except the Bids not accompanied with the proof of payment or instrument of the required price of bidding document, processing fee and bid security.

e) The Financial Bid cover shall be kept unopened and shall be opened later on the date and time intimated to the bidders who qualify in the evaluation of technical Bids.

12. Selection Method- Bidder would be selected on the basis of Least Cost Based Selection Method (LCBS) i.e. L1 method as specified in “Financial Evaluation Criteria” of clause titled “Evaluation & Tabulation of Financial Bids”, wherein an eligible bidder with adequate technical competence and the most competitive (lowest or L1) rates / quote would be selected for the implementation of the project.

13. Clarification of Bids-

a) To assist in the examination, evaluation, comparison and qualification of the Bids, the bid evaluation committee may, at its discretion, ask any bidder for a clarification regarding its Bid. The committee’s request for clarification and the response of the bidder shall be through the e-Procurement portal.

b) Any clarification submitted by a bidder with regard to its Bid that is not in response to a request by the committee shall not be considered.

c) No substantive change to qualification information or to a submission, including changes aimed at making an unqualified bidder, qualified or an unresponsive submission, responsive shall be sought, offered, or permitted.

14. Evaluation & Tabulation of Technical Bids-

a) The evaluation committee will evaluate all bids and shortlist the bidders who have qualified as per the eligibility criteria as laid down.

b) The objective of the Technical Bid evaluation is to short list bidders who have the technical competency/ experience/ skills / financial strength that are essential to roll out the project.

c) Determination of Responsiveness-

i. The bid evaluation committee shall determine the responsiveness of a Bid on the basis of bidding document and the provisions of pre-qualification/ eligibility criteria of the bidding document.

ii. A responsive Bid is one that meets the requirements of the bidding document without any material deviation, reservation, or omission where: -

a. "deviation" is a departure from the requirements specified in the bidding document;

b. "reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the bidding document; and

c. "Omission" is the failure to submit part, or all of the information or documentation required in the bidding document.

iii. A material deviation, reservation, or omission is one that,

a. if accepted, shall: -

- affect in any substantial way the scope, quality, or performance of the subject matter of procurement specified in the bidding documents; or
- limits in any substantial way, inconsistent with the bidding documents, the
- procuring entity's rights or the bidder's obligations under the proposed contract; or

b. if rectified, shall unfairly affect the competitive position of other bidders presenting responsive Bids.

iv. The bid evaluation committee shall examine the technical aspects of the Bid in particular, to confirm that all requirements of bidding document have been met without any material deviation, reservation, or omission.

v. The procuring entity shall regard a Bid as responsive if it conforms to all requirements set out in the bidding document, or it contains minor deviations that do not materially alter or depart from the characteristics, terms, conditions and other requirements set out in the bidding document, or if it contains errors or oversights that can be corrected without touching on the substance of the Bid.

d) Non-material Non-conformities in Bids-

i. The bid evaluation committee may waive any non-conformities in the Bid that do not constitute a material deviation, reservation or omission, the Bid shall be deemed to be substantially responsive.

ii. The bid evaluation committee may request the bidder to submit the necessary information or document like audited statement of accounts/ CA Certificate, Registration Certificate, VAT/ CST clearance certificate, ISO/ CMMI Certificates, etc. within a reasonable period of time. Failure of the bidder to comply with the request may result in the rejection of its Bid.

iii. The bid evaluation committee may rectify non-material nonconformities or omissions on the basis of the information or documentation received from the bidder under (b) above.

5.1. Technical Qualification Criteria

Technical Qualification Criteria (TQ)- Bids shall be evaluated based on the documents submitted as a part of technical bid. Technical bid shall contain all the documents as mentioned in the clause "Format and Signing of Bids" and documents mentioned in the table below for obtaining marks in the respective parameter.

The technical qualification / eligibility criteria for IHMS2.0 solution provider is given below

S. No.	Evaluation Criteria	Supporting Doc	Max Marks
1	**Financial Capability**		**10 Marks**
1.1	Average Turnover of the lead bidder/ consortium in last five financial years (2018-19 to 2022-23) from IT/ ITeS (incl. design, development, and deployment of software services) Min INR 80 Cr : 06 Marks Above INR 80 – 150 Cr : 08 Marks Above 150 Cr : 10 Marks	Audited financial statement for each financial year issued by Statutory Auditor / CA	10 Marks
2	**Bidder's Technical Experience**		**15 Marks**
2.1	The Lead bidder / Consortium should have experience in ongoing or completed projects in IT Transformation project / ICT Project / IT & ITES projects with any Government / State Government / PSUs in the last 5 years in India comprising a cummulative value of Min INR 35 Cr : 02 Marks Above INR 35 – 50 Cr : 03 Marks Above 50 Cr : 05 Marks	Project references as per Annexure 8.11 and Valid copy of Work Order	5 Marks
2.2	The lead bidder or consortium members taken together must have successfully executed or is executing projects of total value (excluding hardware / consulting / transaction / advisory services in healthcare) in design, development, integration, implementation, operations, and maintenance of eHealth Solutions (i.e., HIS/ EMR/ EHR/ HMIS) excluding in last five (5) years (i.e., from 01st Apr. 2018 to 31st Mar. 2023). Each project should be of value of Rs. 10 Cr. or higher. 1 similar project: 02 Marks 2 similar projects: 03 Marks >= 3 similar projects: 05 Marks	Project references as per Annexure 8.11 and Valid copy of Work Order	5 Marks
2.3	The lead bidder or consortium members taken together must possess valid certification for compliance with the M1, M2 and M3 milestones of ABDM framework for eHealth Solutions (i.e., HIS/ EMR/ EHR/ HMIS). - Compliance to MI, M2 and M3 milestones of ABDM framework: 5 marks	Valid Certificate for M1, M2 and M3 compliance issued by NHA	5 marks
3	**Approach and Methodology**		**45 Marks**
3.1	Solution Proposed (Technical Compliance) - Solution Architecture, Solution Design, Scalability Architecture		10 marks
3.2	Solution Proposed (Functional Compliance) - Functional Architecture, Functional Modules, Mobility Application		10 marks
3.3	Transition Plan (From IHMS 1.0 to IHMS 2.0) - Detailed Transition Plan from IHMS 1.0 to IHMS 2.0 (Should include plan and strategy for data migration,		5 marks

	functionality transfer, Lab equipment integration, Radiology modality integration, Availability of Master Patient Index, Electronic Health Records across both systems (IHMS 1.0 and IHMS 2.0)		
3.4	Project Management - Project management methodology - Human Resources deployment plan - Training Methodology - Application Adoption Methodology - Roll out Strategy - Handholding Strategy - Location-wise on-boarding strategy - SLA Management strategy - Governance Mechanism - Risk mitigation plan - Operations & Maintenance Strategy		10 marks
3.4	Innovativeness and use of new / emerging technologies		10 Marks
4	**Technical Proposal, Presentation and Functional Demonstration**		**30 Marks**
4.1	Presentation on suitability of Solution Proposed and Functional Demonstration of Solution on proposed modules of integrated Health Management System 2.0.		30 Marks
Total Marks			100 Marks

f) Tabulations of Technical Bids-

i. Technical Bids shall be tabulated by the bid evaluation committee in the form of a comparative statement to evaluate the qualification of the bidders against the criteria for qualification set out in the bidding document.

ii. The members of bid evaluation committee shall give their recommendations below the table as to which of the bidders have been found to be qualified in evaluation of Technical Bids and sign it.

iii. If the number of firms qualified in technical qualification is less than three and it is considered necessary by the procuring entity to continue with the procurement process, reasons shall be recorded in writing and included in the record of the procurement proceedings.

iv. The bidders who qualified in the technical qualification shall be informed in writing about the date, time, and place of opening of their financial Bids.

15. Evaluation & Tabulation of Financial Bids- Subject to the provisions of "Acceptance of Successful Bid and Award of Contract" below, the procuring entity shall take following actions for evaluation of financial Bids: -

a) The financial Bids of the bidders who qualified in technical evaluation shall be opened online at the notified time, date, and place by the bid evaluation committee in the presence of the bidders or their representatives who choose to be present

b) The process of opening of the financial Bids shall be similar to that of technical Bids.

c) The names of the bidders, the rates given by them, and conditions put, if any, shall be read out and recorded.

d) Conditional Bids are liable to be rejected.

e) Financial Evaluation Criteria

To determine the most competitive (lowest or L1) rates, "NPV of the Financial Bid" shall be calculated as under:

• Dev Cost= Cost of Design, Development and Deployment Integrated Health Management System including any third-party products [i.e., Value of Serial 1.1 of Financial Bid]

• Training Cost = Total Cost of Providing Training on Software solution as per scope of Work [i.e., Value of Serial 3.1 of Financial Bid]

• FMS1 = Support and Maintenance of Software solution for 1st year after Go-live

[i.e., Value of Serial 2.1 of Financial Bid]

• FMS2 = Support and Maintenance of Software solution for 2nd year after Go-live

[i.e., Value of Serial 2.2 of Financial Bid]

• FMS3 = Support and Maintenance of Software solution for 3rd year after Go-live

[i.e., Value of Serial 2.3 of Financial Bid]

• CRC Cost = Composite man-month rates of resources to handle Change requests during Support & Maintenance Period [i.e., Value of Serial 4.6, Serial 4.7, Serial 4.8, Serial 4.9, Serial 4.10, Serial 4.11 and Serial 4.12 of Financial Bid multiplied by the effort required to deliver each change request]

• Device Integration Cost = Composite rates of equipment integration to provide interfacing with laboratory equipment, imaging modality and IoT gateway devices [i.e., Value of Serial 4.1, Serial 4.2, Serial 4.3, Serial 4.4, and Serial 4.5 of Financial Bid multiplied by the number of integrations done]

Note: PV factor for NPV calculation has been taken as 2% quarterly

Distributed component and timeline wise NPV calculation:

1. Present values of payments during first 12 months of the contract period

(NPV 0-12):

NPV 0-12 =

- **Component of Development Cost:** (0.14) (Dev Cost) + (0.14) (Dev Cost) +

= (0.28) (Dev Cost)

ADD

- **Component of Training** = Training Cost

ADD

- **Component of Device Integration** = Device Integration Cost

2. Present values of payments during 13-24 months of the contract period

(NPV 13-24):

NPV 13-24 =

- **Component of Development Cost:** (0.14) (Dev Cost) + (0.14) (Dev Cost) + (0.14) (Dev Cost) = (0.42) (Dev Cost)

ADD

- **Component of Training** = Training Cost

ADD

- **Component of Device Integration** = Device Integration Cost

3. Present values of payments during 25-36 months of the contract period

(NPV 25-36):

NPV 25-36=

- **Component of Development Cost =** [(0.025) *(Dev Cost) / $(1.02)^5$]+ [(0.025) * (Dev Cost) / $(1.02)^6$]+[(0.025) * (Dev Cost) / $(1.02)^7$]+[(0.025) * (Dev Cost) / $(1.02)^8$]

ADD

- **Component of Support and Maintenance** = [(1/4) * (FMS1) / $(1.02)^5$]+ [(1/4) * (FMS1)/ $(1.02)^6$]+[(1/4) * (FMS1)/ $(1.02)^7$]+[(1/4) * (FMS1)/$(1.02)^8$]

4. Present values of payments during 37-48 months of the contract period

(NPV 37-48):

NPV 37-48=

- **Component of Development Cost =** [(0.025) *(Dev Cost) / $(1.02)^9$]+ [(0.025) * (Dev Cost) / $(1.02)^{10}$]+[(0.025) * (Dev Cost) / $(1.02)^{11}$]+[(0.025) * (Dev Cost) / $(1.02)^{12}$]

ADD

- **Component of Support and Maintenance** = [(1/4) * (FMS2) / $(1.02)^9$]+ [(1/4) * (FMS2)/ $(1.02)^{10}$]+[(1/4) * (FMS2)/ $(1.02)^{11}$]+[(1/4) * (FMS2)/$(1.02)^{12}$]

5. Present values of payments during 49-60 months of the contract period

(NPV 49-60):

NPV 49-60=

- **Component of Development Cost** = [(0.025) * (Dev Cost) / $(1.02)^{13}$] + [(0.025) * (Dev Cost)/ $(1.02)^{14}$]+[(0.025) * (Dev Cost)/$(1.02)^{15}$] + [(0.025)* (Dev Cost)/ $(1.02)^{16}$]

ADD

- **Component of Support and Maintenance** = [(1/4) * (FMS3)/ $(1.02)^{13}$] + [(1/4) * (FMS3)/$(1.02)^{14}$]+[(1/4) * (FMS3)/$(1.02)^{15}$] + [(1/4) * (FMS3)/ $(1.02)^{16}$]

5. Present values of payments for CRC during the contract period (NPV CRC):

- **NPV CRC** = 100% of CRC Cost.

Total NPV = (NPV 0-12) + (NPV 13-24) + (NPV 25-36) + (NPV 37- 48) + (NPV 49- 60) + (NPV CRC)

Financial Bid with the lowest overall price shall be considered as the most competitive (lowest or L1) rates

a) the evaluation shall include all costs and all taxes and duties applicable to the bidder as per law of the Central/ State Government/ Local Authorities, and the evaluation criteria specified in the bidding documents shall only be applied.

b) the offers shall be evaluated and marked L1, L2, L3 etc. L1 being the lowest offer and then others in ascending order.

c) the bid evaluation committee shall prepare a comparative statement in tabular form in accordance with rules along with its report on evaluation of financial Bids and recommend the lowest offer for acceptance to the procuring entity, if price is the only criterion, or most advantageous Bid in other case.

d) the members of bids evaluation committee shall give their recommendations below the table regarding lowest Bid or most advantageous Bid and sign it.

e) it shall be ensured that the offer recommended for sanction is justifiable looking to

the prevailing market rates of the works or service required to be procured.

16. Correction of Arithmetic Errors in Financial Bids- The bid evaluation committee shall correct arithmetical errors in substantially responsive Bids, on the following basis, namely: -

a) if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the bid evaluation committee there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected.

b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail, and the total shall be corrected; and

c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to clause (a) and (b) above.

17. Price/ purchase preference in evaluation- Price and/ or purchase preference notified by the State Government (GoR) and as mentioned in the bidding document shall be considered in the evaluation of Bids and award of contract.

18. Negotiations-

a) Except in case of procurement by method of single source procurement or

procurement by competitive negotiations, to the extent possible, no negotiations shall be conducted after the pre-bid stage. All clarifications needed to be sought shall be sought in the pre-bid stage itself.

b) Negotiations may, however, be undertaken only with the lowest or most advantageous bidder when the rates are considered to be much higher than the prevailing market rates.

c) The bid evaluation committee shall have full powers to undertake negotiations. Detailed reasons and results of negotiations shall be recorded in the proceedings.

d) The lowest or most advantageous bidder shall be informed in writing either through messenger or by registered letter and e-mail (if available). A minimum time of seven days shall be given for calling negotiations. In case of urgency, the bid evaluation committee, after recording reasons, may reduce the time, provided the lowest or most advantageous bidder has received the intimation and consented to holding of negotiations.

e) Negotiations shall not make the original offer made by the bidder inoperative. The bid evaluation committee shall have option to consider the original offer in case the bidder decides to increase rates originally quoted or imposes any new terms or conditions.

f) In case of non-satisfactory achievement of rates from lowest or most advantageous bidder, the bid evaluation committee may choose to make a written counter offer to the lowest or most advantageous bidder and if this is not accepted by him, the committee may decide to reject and re-invite Bids or to make the same counter-offer first to the second lowest or most advantageous bidder, then to the third lowest or most advantageous bidder and so on in the order of their initial standing and work/ supply order be awarded to the bidder who accepts the counter-offer? This procedure would be used in exceptional cases only.

g) In case the rates even after the negotiations are considered very high, fresh Bids shall be invited.

19. Exclusion of Bids/ Disqualification-

a) A procuring entity shall exclude/ disqualify a Bid, if: -

i. The information submitted, concerning the qualifications of the bidder, was false or constituted a misrepresentation; or

ii. The information submitted, concerning the qualifications of the bidder, was materially inaccurate or incomplete; and

iii. The bidder is not qualified as per pre-qualification/ eligibility criteria mentioned in the bidding document.

iv. The Bid materially departs from the requirements specified in the bidding document or it contains false information.

v. The bidder, submitting the Bid, his agent or anyone acting on his behalf, gave or agreed to give to any officer or employee of the procuring entity or other governmental authority a

gratification in any form, or any other thing of value, so as to unduly influence the procurement process.

vi. A bidder, in the opinion of the procuring entity, has a conflict of interest materially affecting fair competition.

b) A Bid shall be excluded/ disqualified as soon as the cause for its exclusion/ disqualification is discovered.

20. Lack of competition-

a) a situation may arise where, if after evaluation of bids, the bid evaluation committee may end-up with one responsive bid only. In such situation, the bid evaluation committee would check as to whether while floating the nib all necessary requirements to encourage competition like standard bid conditions, industry friendly specifications, wide publicity, sufficient time for formulation of bids, etc. Were fulfilled. If not, the NIB would be re-floated after rectifying deficiencies. The bid process shall be considered valid even if there is one responsive bid, provided that: -

i. The Bid is technically qualified.

ii. The price quoted by the bidder is assessed to be reasonable.

iii. The Bid is unconditional and complete in all respects

iv. There are no obvious indicators of cartelization amongst bidders; and

v. The bidder is qualified as per the provisions of pre-qualification/ eligibility criteria in the bidding document.

b) The bid evaluation committee shall prepare a justification note for approval by the next higher authority of the procuring entity, with the concurrence of the account's member.

c) In case of dissent by any member of bid evaluation committee, the next higher authority in delegation of financial powers shall decide as to whether to sanction the single Bid or re-invite Bids after recording reasons.

d) If a decision to re-invite the Bids is taken, market assessment shall be carried out for estimation of market depth, eligibility criteria and cost estimate.

21. Acceptance of the successful Bid and award of contract-

a) The procuring entity after considering the recommendations of the bid evaluation committee and the conditions of Bid, if any, financial implications, trials, sample testing and test reports, etc., shall accept or reject the successful Bid. If any member of the bid evaluation committee has disagreed or given its note of dissent, the matter shall be referred to the next higher authority, as per delegation of financial powers, for decision.

b) Decision on Bids shall be taken within original validity period of Bids and time period allowed to procuring entity for taking decision. If the decision is not taken within the original validity period or time limit allowed for taking decision, the matter shall be referred to the next higher authority in delegation of financial powers for decision.

c) Before award of the contract, the procuring entity shall ensure that the price of successful Bid is reasonable and consistent with the required quality.

d) A Bid shall be treated as successful only after the competent authority has approved the procurement in terms of that Bid.

e) The procuring entity shall award the contract to the bidder whose offer has been determined to be the lowest or most advantageous in accordance with the evaluation criteria set out in the bidding document.

f) Prior to the expiration of the period of bid validity, the procuring entity shall inform the successful bidder, in writing, that its Bid has been accepted.

g) As soon as a Bid is accepted by the competent authority, its written intimation shall be sent to the concerned bidder by registered post or email and asked to execute an agreement in the format given in the bidding documents on a non- judicial stamp of requisite value and deposit the amount of performance security or a performance security declaration, if applicable, within a period specified in the bidding documents or where the period is not specified in the bidding documents, then within fifteen days from the date on which the letter of acceptance or letter of intent is dispatched to the bidder.

h) If the issuance of formal letter of acceptance is likely to take time, in the meanwhile a Letter of Intent (LOI) may be sent to the bidder. The acceptance of an offer is complete as soon as the letter of acceptance or letter of intent is posted and/ or sent by email (if available) to the address of the bidder given in the bidding document. Until a formal contract is executed, the letter of acceptance or LOI shall constitute a binding contract.

i) The bid security of the bidders who's Bids could not be accepted shall be refunded soon after the contract with the successful bidder is signed and its performance security is submitted.

22. Information and publication of award- Information of award of contract shall be communicated to all participating bidders and published on the respective website(s) as specified in NIB.

23. Procuring entity's right to accept or reject any or all Bids- The Procuring entity reserves the right to accept or reject any Bid, and to annul (cancel) the bidding process and reject all Bids at any time prior to award of contract for any reason whatsoever or without assigning any reason on its own accord, without thereby incurring any liability to the bidders.

24. Performance Security-

a) Prior to execution of agreement, Performance security shall be solicited from the successful bidder except the departments of the State Government and undertakings, corporations, autonomous bodies, registered societies, co- operative societies which are owned or controlled or managed by the State Government and undertakings of the Central Government However, a performance security declaration shall be taken from them.

b) The amount of performance security shall be 5% or as may be specified in the bidding document, of the amount of contract value. In case of Small Scale Industries (SSI) of Rajasthan, it shall be 1% of the amount of quantity ordered for supply of services and in case of sick industries, other than SSI, whose cases are pending before the Board of Industrial and Financial Reconstruction (BIFR), it shall be 2% of the amount of supply order.

c) Performance security shall be furnished in any one of the following forms: -

i. deposit though eGRAS;

ii. Bank Draft or Banker's Cheque of a scheduled bank.

iii. National Savings Certificates and any other script/ instrument under National Savings Schemes for promotion of small savings issued by a Post Office in Rajasthan, if the same can

be pledged under the relevant rules. They shall be accepted at their surrender value at the time of bid and formally transferred in the name of procuring entity with the approval of Head Postmaster.

iv. Bank guarantee/s of a scheduled bank.

v. Fixed Deposit Receipt (FDR) of a scheduled bank. It shall be in the name of procuring entity on account of bidder and discharged by the bidder in advance. The procuring entity shall ensure before accepting the FDR that the bidder furnishes an undertaking from the bank to make payment/ premature payment of the FDR on demand to the procuring entity without requirement of consent of the bidder concerned. In the event of forfeiture of the performance security, the Fixed Deposit shall be forfeited along with interest earned on such Fixed Deposit.

d) Performance security furnished in the form specified in clause [ii] to [v] of (c) above shall remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the bidder, including warranty/ ATS obligations and maintenance and defect liability period.

e) Forfeiture of Security Deposit: Security amount in full or part may be forfeited, including interest, if any, in the following cases: -

i. When any terms and condition of the contract is breached.

ii. When the bidder fails to make complete supply satisfactorily.

iii. if the bidder breaches any provision of code of integrity, prescribed for bidders, specified in the bidding document.

g) No interest shall be payable on the PSD.

25. Execution of agreement-

a) A procurement contract shall come into force from the date on which the letter of acceptance or letter of intent is dispatched to the successful bidder.

b) The successful bidder shall sign the procurement contract within a period specified in the bidding document or where the period is not specified in the bidding document then within fifteen days from the date on which the letter of acceptance or letter of intent is dispatched to the successful bidder.

c) If the bidder, who's Bid has been accepted, fails to sign a written procurement contract, or fails to furnish the required performance security within specified period, the procuring entity shall take action against the successful bidder as per the provisions of the RTPP Act and Rules. The procuring entity may, in such case, cancel the procurement process or if it deems fit, offer for acceptance the rates of lowest or most advantageous bidder to the next lowest or most advantageous bidder, in accordance with the criteria and procedures set out in the RFP document.

d) The bidder will be required to execute the agreement on a non-judicial stamp of specified value at its cost and to be purchased from Rajasthan only.

26. Confidentiality-

a) Notwithstanding anything contained in this bidding document but subject to the provisions of any other law for the time being in force providing for disclosure of information, a procuring entity shall not disclose any information if such disclosure, in its opinion, is likely to: -

i. impede enforcement of any law.

ii. affect the security or strategic interests of India.

iii. affect the intellectual property rights or legitimate commercial interests of bidders or procuring entity.

b) The procuring entity shall treat all communications with bidders related to the procurement process in such manner as to avoid their disclosure to competing bidders or to any other person not authorized to have access to such information.

c) The procuring entity may impose on bidders and sub-contractors, if there are any, for fulfilling the terms of the procurement contract, conditions aimed at protecting information, the disclosure of which violates (a) above.

d) In addition to the restrictions specified above, the procuring entity, while procuring a subject matter of such nature which requires the procuring entity to maintain confidentiality, may impose condition for protecting confidentiality of such information.

27. Cancellation of procurement process-

a) If any procurement process has been cancelled, it shall not be reopened but it shall not prevent the procuring entity from initiating a new procurement process for the same subject matter of procurement, if required.

b) after taking a decision to cancel the procurement and shall return such unopened bids or proposals.

28. Code of Integrity for Bidders-

a) No person participating in a procurement process shall act in contravention of the code of integrity prescribed by the State Government.

b) The code of integrity includes provisions for: -

i. Prohibiting

a. any offer, solicitation or acceptance of any bribe, reward, or gift or any material benefit, either directly or indirectly, in exchange for an unfair advantage in the procurement process or to otherwise influence the procurement process.

b. any omission, including a misrepresentation that misleads or attempts to mislead so as to obtain a financial or other benefit or avoid an obligation.

c. any collusion, bid rigging or anti-competitive behaviour to impair the transparency, fairness, and progress of the procurement process.

d. improper use of information shared between the procuring entity and the bidders with an intent to gain unfair advantage in the procurement process or for personal gain.

e. any financial or business transactions between the bidder and any officer or employee of the procuring entity.

f. any coercion including impairing or harming or threatening to do the same, directly or indirectly, to any party or to its property to influence the procurement process.

g. any obstruction of any investigation or audit of a procurement process.

ii. disclosure of conflict of interest.

iii. disclosure by the bidder of any previous transgressions with any entity in India or any other country during the last three years or of any debarment by any other procuring entity.

c) Without prejudice to the provisions above, in case of any breach of the code of integrity by a bidder or prospective bidder, as the case may be, the procuring entity may take appropriate measures including: -

i. exclusion of the bidder from the procurement process.

ii. calling-off of pre-contract negotiations and forfeiture or encashment of bid security.

iii. forfeiture or encashment of any other security or bond relating to the procurement.

iv. recovery of payments made by the procuring entity along with interest thereon at bank rate;

v. cancellation of the relevant contract and recovery of compensation for loss incurred by the procuring entity.

vi. debarment of the bidder from participation in future procurements of the procuring entity for a period not exceeding three years.

29. **Debarment from Bidding-**

a) A bidder shall be debarred by the State Government if he has been convicted of an offence

i. under the Prevention of Corruption Act, 1988 (Central Act No. 49 of 1988); or

ii. under the Indian Penal Code, 1860 (Central Act No. 45 of 1860) or any other law for the time being in force, for causing any loss of life or property or causing a threat to public health as part of execution of a public procurement contract.

b) A bidder debarred under (a) above shall not be eligible to participate in a procurement process of any procuring entity for a period not exceeding three years commencing from the date on which he was debarred.

c) If a procuring entity finds that a bidder has breached the code of integrity prescribed in terms of “Code of Integrity for bidders” above, it may debar the bidder for a period not exceeding three years.

d) Where the entire bid security or the entire performance security or any substitute thereof, as the case may be, of a bidder has been forfeited by a procuring entity in respect of any procurement process or procurement contract, the bidder may be debarred from participating in any procurement process undertaken by the procuring entity for a period not exceeding three years.

e) The State Government or a procuring entity, as the case may be, shall not debar a bidder under this section unless such bidder has been given a reasonable opportunity of being heard.

6. Terms and Conditions of Tender & Contract

Definitions-

For the purpose of clarity, the following words and expressions shall have the meanings hereby assigned to them: -

a) “Contract” means the agreement entered into between the Purchaser and the successful / Selected Bidder together with the contract documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.

b) “Contract Documents” means the documents listed in the agreement, including any amendments thereto.

c) “Contract Price” means the price payable to the successful / Selected Bidder as specified in the agreement, subject to such additions and adjustments thereto or deductions there from, as may be made pursuant to the Contract.

d) “Completion” means the fulfilment of the Related Services by the successful / Selected Bidder in accordance with the terms and conditions set forth in the contract.

e) “Day” means a calendar day.

f) “Delivery” means the transfer of the Services from the successful / Selected Bidder to the Purchaser in accordance with the terms and conditions set forth in the Contract.

g) “Executing Authority” means the authorized entity responsible for the execution of this contract.

h) “Implementing Authority” means the authorized entity responsible for the authorization and approval of the contract.

i) “Monitoring Authority” means the authorized entity responsible for the monitoring of the execution of the contract.

j) “Purchaser” means the entity purchasing the Services and Related Services, as specified in the bidding document.

k) “Related Services” means the services incidental to the Services, such as installation, training and initial maintenance and other similar obligations of the successful / Selected Bidder under the Contract.

l) “Services” means the services to be delivered by the successful bidder and as required to run the project successfully as per the contract. A service is the intangible equivalent of an economic good.

m) “Subcontractor” means any natural person, private or government entity, or a combination of the above, including its legal successors or permitted assigns, to whom any part of the Services to be supplied or execution of any part of the Related Services is subcontracted by the successful / Selected Bidder.

n) “Supplier / Successful or Selected Bidder” means the person, private or government entity, or a combination of the above, whose bid to perform the Contract has been accepted by the Purchaser and is named as such in the Agreement, and includes the legal successors or permitted assigns of the successful / Selected Bidder.

o) “The Site” means all the Healthcare facilities in the state of Rajasthan.

Note: The bidder shall be deemed to have carefully examined the conditions, specifications, make and drawings, etc., of the Software to be supplied and related services to be rendered. If the bidder has any doubts as to the meaning of any portion of these conditions or of the specification, drawing, etc., he shall, before submitting the Bid and signing the contract refer the same to the procuring entity and get clarifications.

A. General Conditions of the Bid-

1. Contract Documents: Subject to the order of precedence set forth in the Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory.

2. Interpretation-

a) If the context so requires it, singular means plural and vice versa.

b) Entire Agreement: The Contract constitutes the entire agreement between the Purchaser and the Supplier/Selected Bidder and supersedes all communications, negotiations and agreements (whether written or oral) of parties with respect thereto made prior to the date of Contract.

c) Amendment: No amendment or other variation of the Contract shall be valid unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party thereto.

d) Non-waiver: Subject to the condition (f) below, no relaxation, forbearance, delay, or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect, or restrict the rights of that party under the Contract, neither shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.

e) Any waiver of a party's rights, powers, or remedies under the Contract must be in writing, dated, and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.

f) Severability: If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

3. Language-

a) The Contract as well as all correspondence and documents relating to the Contract exchanged by the successful / Selected Bidder and the Purchaser, shall be written in English language only. Supporting documents and printed literature that are part of the Contract may be in another language provided they are accompanied by an accurate translation of the relevant passages in English language.

b) The successful/Selected Bidder shall bear all costs of translation to the governing language and all risks of the accuracy of such translation.

5. Eligible Services and Related Services-

a) For purposes of this Clause, the term "services" includes the services to be delivered by the Selected Bidder as per scope of work and required to run the project successfully, and "related services" includes services such as supply, installation, integration, testing, commissioning, training, and initial maintenance.

b) Bidder must quote products in accordance with above clause “Eligible Services and related services”.

6. Notices-

a) Any Notice given by one party to the other pursuant to the Contract shall be in writing to the address specified in the Contract. The term “in writing” means communicated in written form with proof of dispatch and receipt.

b) A Notice shall be effective when delivered or on the Notice’s effective date, whichever is later.

7. Governing Law- The Contract shall be governed by and interpreted in accordance with the laws of the Rajasthan State/ India.

8. Scope of Supply-

a) Subject to the provisions in the bidding document and Contract, the Services and Related Services to be supplied shall be as specified in Scope of Work/ Schedule of Supply section of the bidding document.

b) Unless otherwise stipulated in the Contract, the scope of supply shall include all such items not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for attaining delivery and completion of services as if such items were expressly mentioned in the Contract.

c) The bidder shall not quote and supply software that is likely to be declared as End of Sale in next 6 months and End of Service/ Support for a period of 3 Years from the last date of bid submission. OEMs are required to mention this in the MAF for all the quoted software. If any of the software is found to be declared as End of Sale/ Service/ Support, then the bidder shall replace all such software with the latest ones having equivalent or higher specifications without any financial obligation to the purchaser.

9. Delivery & Installation-

a) Subject to the conditions of the Contract, the delivery of the services and

completion of the related services shall be in accordance with the delivery and completion schedule specified in the bidding document. The details of supply and other documents to be furnished by the successful / Selected Bidder are specified in the bidding document and/ or Contract.

b) The Contract for the supply can be repudiated at any time by the Purchase Officer, if the supplies are not made to his satisfaction after giving an opportunity to the Selected Bidder of being heard and recording the reasons for repudiation.

c) The Supplier/ Selected Bidder shall arrange to supply, install and commission the ordered system as per specifications within the specified delivery/completion period at various departments and/ or their offices/ locations mentioned in the PO/WO.

d) Shifting the place of Installation: The user will be free to shift the place of installation within the same city /town/ district/ division. The successful / Selected Bidder shall provide all assistance, except transportation, in shifting of the equipment. However, if the city/town is changed, additional charges of assistance in shifting and providing maintenance services for remaining period would be decided mutually.

10. Supplier's/ Selected Bidder's Responsibilities- The supplier / Selected Bidder shall supply all the services and related services included in the scope of supply in accordance with the provisions of bidding document and/ or contract.

11. Purchaser's Responsibilities-

a) Whenever the supply of services and related services requires that the Supplier / Selected Bidder obtain permits, approvals and other licenses from local public authorities, the Purchaser shall, if so required by the Supplier/ Selected Bidder, make its best effort to assist the Supplier/ Selected Bidder in complying with such requirements in a timely and expeditious manner.

b) The Purchaser shall pay all costs involved in the performance of its responsibilities, in accordance with the general conditions of the contract.

12. Contract Price-

a) The Contract Price shall be paid as specified in the contract subject to any additions and adjustments thereto, or deductions there from, as may be made pursuant to the Contract.

b) Prices charged by the Supplier/ Selected Bidder for the Services delivered and the Related Services performed under the Contract shall not vary from the prices quoted by the Supplier/ Selected Bidder in its bid, with the exception of any price adjustments authorized in the Special Conditions of the contract.

13. Recoveries from Supplier/ Selected Bidders-

a) Recovery of liquidated damages, short supply, breakage, rejected articles shall be made ordinarily from bills.

b) The Purchase Officer shall withhold amount to the extent of short supply, broken / damaged or for rejected articles unless these are replaced satisfactorily. In case of failure to withhold the amount, it shall be recovered from his dues and Performance Security deposit available under this contract with tendering authority/ RISL.

c) The balance, if any, shall be demanded from the Supplier/ Selected Bidder and when recovery is not possible, the Purchase Officer shall take recourse to law in force.

14. Taxes & Duties-

a) The TDS, GST etc., if applicable, shall be deducted at source/ paid by RISL as per prevailing rates. All other taxes, duties, license fee and levies including shall be included in the bid price.

15. Copyright/ Intellectual Property Rights (IPR)- The copyright/ IPR in all drawings, source code design documents, and other materials containing data and information furnished to the Purchaser that has been developed/ customized by the Selected Bidder for the Project herein shall remain vested in the Purchaser.

16. Confidential Information-

a) The Purchaser and the Supplier/ Selected Bidder shall keep confidential and

shall not, without the written consent of the other party hereto, divulge to any third party any drawings, documents, data, or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following completion or termination of the Contract.

b) The Supplier/ Selected Bidder may furnish to its Subcontractor, if permitted, such documents, data, and other information it receives from the Purchaser to the extent required for the Subcontractor to perform its work under the Contract, in which event the Supplier/ Selected Bidder shall obtain from such Subcontractor an undertaking of confidentiality similar to that imposed on the Supplier/ Selected Bidder.

c) The Purchaser shall not use such documents, data, and other information received from the Supplier/ Selected Bidder for any purposes unrelated to the Contract. Similarly, the Supplier/ Selected Bidder shall not use such documents, data, and other information received from the Purchaser for any purpose other than the design, procurement, or other work and services required for the performance of the Contract.

d) The obligation of a party under sub-clauses above, however, shall not apply to information that: -

i. the Purchaser or Supplier / Selected Bidder need to share with RISL or other institutions participating in the Contract;

ii. now or hereafter enters the public domain through no fault of that party;

iii. can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party; or

iv. otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.

e) The above provisions shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the supply or any part thereof.

f) The provisions of this clause shall survive completion or termination, for whatever reason, of the Contract.

17. Sub-contracting-

a) Unless otherwise specified in the Contract, the Selected Bidder shall not assign or sub-let his contract or any substantial part thereof to any other agency without the permission of Purchaser/ Tendering Authority.

b) If permitted, the Selected Bidder shall notify the Purchaser in writing of all subcontracts awarded under the Contract if not already specified in the Bid. Subcontracting shall in no event relieve the Supplier / Selected Bidder from any of its obligations, duties, responsibilities, or liability under the Contract.

c) Subcontracts shall comply with the provisions of bidding document and/ or contract.

18. Specifications and Standards-

a) All software supplied shall strictly conform to the specifications, trademark laid down in the tender form and wherever articles have been required according to ISI/ ISO/ other applicable specifications/ certifications/ standards, those articles should conform strictly to those specifications/ certifications/ standards. The supply shall be of best quality and description. The decision of the competent authority/ purchase committee whether the articles supplied conform to the specifications shall be final and binding on the supplier / Selected Bidder.

b) Technical Specifications and Drawings-

i. The Supplier/ Selected Bidder shall ensure that the services and related services comply with the technical specifications and other provisions of the Contract.

ii. The Supplier/ Bidder shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designed by or on behalf of the Purchaser, by giving a notice of such disclaimer to the Purchaser.

iii. The services and related services supplied under this Contract shall conform to the standards mentioned in bidding document and, when no applicable standard is mentioned, the standard shall be equivalent or superior to the official standards whose application is appropriate to the country of origin of the Services.

c) Wherever references are made in the Contract to codes and standards in accordance with which it shall be executed, the edition or the revised version of such codes and standards shall be those specified in the bidding document. During contract execution, any changes in any such codes and standards shall be applied only after approval by the Purchaser and shall be treated in accordance with the general conditions of the contract.

23. Testing charges- In case RISL gets the testing of IHMS 2.0 software solution done by third party, cost towards the same shall be borne by RISL.

24. Rejection-

a) Services not approved during inspection or testing shall be rejected and will have

to be replaced by the Selected Bidder at his own cost within the time fixed by the Purchase Officer.

b) If, however, due to exigencies of RISL work, such replacement either in whole or in part, is not considered feasible, the Purchase Officer after giving an opportunity to the Selected Bidder of being heard shall for reasons to be recorded, deduct a suitable amount from the approved rates. The deduction so made shall be final.

25. Extension in Delivery Period and Liquidated Damages (LD)-

a) Except as provided under clause “Force Majeure”, if the Supplier/ Selected Bidder fails to deliver any or all of the Services or perform the Related Services within the period specified in the Contract, the Purchaser may without prejudice to all its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in (d) below for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the percentage specified in the bidding document and/ or contract. Once the maximum is reached, the Purchaser may terminate the Contract pursuant to clause “Termination”.

b) The time specified for delivery in the bidding document shall be deemed to be the essence of the contract and the supplier/ Selected Bidder shall arrange services and related services within the specified period.

c) Delivery and installation / completion period may be extended with or without liquidated damages if the delay in the supply of services is on account of hindrances beyond the control of the supplier/ Selected Bidder.

d) The supplier/ Selected Bidder shall request in writing to the Purchaser giving reasons for extending the delivery period of service if he finds himself unable to complete the supply of services within the stipulated delivery period or is unable to maintain prorate progress in the service delivery. This request shall be submitted as soon as a hindrance in delivery of service

occurs or within 15 days from such occurrence but before expiry of stipulated period of completion of delivery of services after which such request shall not be entertained.

e) The Purchaser shall examine the justification of causes of hindrance in the delivery of services and the period of delay occurred due to that and recommend the competent authority on the period of extension which should be granted with or without liquidated damages.

f) Normally, extension in delivery period of services in following circumstances may be considered without liquidated damages:

i. When delay has occurred due to delay in supply of drawings, designs, plans etc. if the RISL was required to supply them to the supplier of service provider as per terms of the contract.

ii. When delay has occurred in supply of materials etc. if these were required to be supplied to the supplier or service provider by the RISL as per terms of the contract.

g) If the competent authority agrees to extend the delivery period/ schedule, an amendment to the contract with suitable denial clauses and with or without liquidated damages, as the case may be, shall be issued. The amendment letter shall mention that no extra price or additional cost for any reason, whatsoever beyond the contracted cost shall be paid for the delayed supply of service.

h) It shall be at the discretion of the concerned authority to accept or not to accept the supply of services rendered by the contractor after the expiry of the stipulated delivery period, if no formal extension in delivery period has been applied and granted. The competent authority shall have right to cancel the contract with respect to undelivered service.

i) If RISL need the service rendered after expiry of the stipulated delivery period, it may accept the services and issue a letter of extension in delivery period with usual liquidated damages and denial clauses to regularize the transaction.

j) In case of extension in the delivery of services and/ or installation/ completion period is granted with full liquidated damages, the recovery shall be made on the basis of following percentages of value of service which the supplier/ selected bidder has failed to supply or complete: -

No.	Condition	LD%*
a.	Delay up to one fourth period of the prescribed period of delivery, successful installation, and completion of work	2.5%
b.	Delay exceeding one fourth but not exceeding half of the prescribed period of delivery, successful installation, and completion of work	5.0%
c.	Delay exceeding half but not exceeding three fourth of the prescribed period of delivery, successful installation, and completion of work	7.5%
d.	Delay exceeding three fourth of the prescribed period of delivery, successful installation, and completion of work	10%

• Fraction of a day in reckoning period of delay in supplies, successful installation and completion of work shall be eliminated if it is less than half a day.

• The maximum amount of liquidated damages shall be 10% of total value of the services to be supplied in the particular phase.

• * The percentage of LD is applicable on the payment due for a particular milestone of design and development of the IHMS 2.0 Software solution.

26. Authenticity of Software-

a) The Selected Bidder shall certify (as per Annexure-7) that the supplied services conform to the description and quality as specified in this bidding document and are free from defects in material, workmanship and service.

b) If during the contract period, the said services be discovered counterfeit/ unauthentic or not to conform to the description and quality aforesaid or have determined (and the decision of the Purchase Officer in that behalf will be final and conclusive), notwithstanding the fact that the purchaser may have inspected and/ or approved the said services, the purchaser will be entitled to reject the said services or such portion thereof as may be discovered not to conform to the said description and quality, on such rejection of the services will be at the Selected Bidder's risk and all the provisions relating to rejection of services etc., shall apply. The Selected Bidder shall, if so called upon to do, replace the Software etc., or such portion thereof as is rejected by Purchase Officer, otherwise the Selected Bidder shall pay such damage as may arise by the reason of the breach of the condition herein contained. Nothing herein contained shall prejudice any other right of the Purchase Officer in that behalf under this contract or otherwise.

c) Services accepted by the purchaser in terms of the contract shall in no way dilute purchaser's right to reject the same later, if found deficient in terms of this clause of the contract.

27. Warranty/Support/ ATS-

a) The Selected Bidder must supply all items including any Software and/ or any third party products like Telemedicine / Tele-ICU / PACS / Health Exchange Platform / CMS / DMS / Work Flow Management, etc. with comprehensive on-site OEM warranty/ support/ ATS valid for the entire contract period as specified in this RFP after the services, or any portion thereof, as the case may be, have been delivered to, installed and accepted at the final destination(s) indicated in the bidding document. However, if delay of installation is more than a month's time due to the reasons ascribed to the Selected Bidder, the warranty/ ATS shall start from the date of last successful installation of the items covered under the PO.

b) At the time of services delivery, the Selected Bidder shall submit a certificate/ undertaking from all the respective OEMs mentioning the fact that the services supplied are covered under comprehensive warranty/ support/ ATS for the prescribed period.

c) The purchaser shall give a written notice to the Selected Bidder stating the nature of any defect together with all available evidence thereof, promptly following the discovery thereof. The purchaser shall afford all reasonable opportunity for the Selected Bidder to inspect such defects and to cure such defects without any additional costs to the purchaser.

d) If having been notified, the Selected Bidder fails to remedy the defect within the period specified, the purchaser may proceed to take within a reasonable period such remedial action as may be necessary, in addition to other recourses available in terms and conditions of the contract and bidding document.

e) During the warranty/ support/ ATS period, the Selected Bidder shall also be responsible to ensure adequate and timely availability of components/ plug-ins needed for repairing the supplied Services/Software.

f) The warranty on supplied software media, if any, should be at least for the project duration.

28. Patent Indemnity-

a)The Supplier / Selected Bidder shall, subject to the Purchaser's compliance with sub-clause (b) below, indemnify and hold harmless the Purchaser and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Purchaser may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract by reason of the delivery of service by the Supplier/ Selected Bidder or the use of the services in the country where the Site is located;

Such indemnity shall not cover any use of the Services/Software or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, neither any infringement resulting from the use of the Services/Software or any part thereof, pursuant to the Contract.

b) If any proceedings are brought or any claim is made against the Purchaser arising out of the matters referred to above, the Purchaser shall promptly give the Supplier/ Selected Bidder a notice thereof, and the Supplier/ Selected Bidder may at its own expense and in the Purchaser's, name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

c) If the Supplier/ Selected Bidder fails to notify the Purchaser within thirty (30) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Purchaser shall be free to conduct the same on its own behalf.

d) The Purchaser shall, at the Supplier's/ Selected Bidder's request, afford all available assistance to the Supplier / Selected Bidder in conducting such proceedings or claim, and shall be reimbursed by the Supplier/ Selected Bidder for all reasonable expenses incurred in so doing.

e) The Purchaser shall indemnify and hold harmless the Supplier/ Selected Bidder and its employees, officers, and Subcontractors (if any) from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Supplier/ Selected Bidder may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Purchaser.

29. Limitation of Liability- Except in cases of gross negligence or wilful misconduct: -

a) neither party shall be liable to the other party for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs,

provided that this exclusion shall not apply to any obligation of the Supplier/ Selected Bidder to pay liquidated damages to the Purchaser; and

b) the aggregate liability of the Supplier/ Selected Bidder to the Purchaser, whether under the Contract, in tort, or otherwise, shall not exceed the amount specified in the Contract, provided that this limitation shall not apply to the cost of repairing or replacing defective Software, or to any obligation of the Supplier/ Selected Bidder to indemnify the Purchaser with respect to patent infringement.

30. Change in Laws & Regulations- Unless otherwise specified in the Contract, if after the date of the Invitation for Bids, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in Rajasthan/ India, where the Site is located (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Delivery Date and/ or the Contract Price, then such Delivery Date and/ or Contract Price shall be correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable.

31. Force Majeure-

a) The Supplier/ Selected Bidder shall not be liable for forfeiture of its Performance Security deposit, liquidated damages, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

b) For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Supplier/ Selected Bidder that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier/ Selected Bidder. Such events may include, but not be limited to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, pandemic, quarantine restrictions, and freight embargoes.

c) If a Force Majeure situation arises, the supplier/ Selected Bidder shall promptly notify RISL in writing of such conditions and cause thereof within 15 days of occurrence of such event. Unless otherwise directed by RISL, the supplier/ Selected Bidder shall continue to perform its obligations under the contract as far as reasonably practical.

d) If the performance in whole or part or any obligation under the contract is prevented or delayed by any reason of Force Majeure for a period exceeding 60 days, either party at its option may terminate the contract without any financial repercussion on either side.

e) In case a Force Majeure situation occurs with the RISL, RISL may take the case with the contractor on similar lines.

32. Change Orders and Contract Amendments-

a) The Purchaser may at any time order the Supplier/ Selected Bidder through Notice in accordance with clause "Notices" above, to make changes within the general scope of the Contract in any one or more of the following: -

iii. the place of delivery;

iv. New functionality / modification to be added after UAT has been done; and

v. the Related Services to be provided by the Supplier/ Selected Bidder.

b) If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's/ Selected Bidder's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or in the Delivery and Completion Schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier/ Selected Bidder for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's/ Selected Bidder's receipt of the Purchaser's change order.

c) In case, a new functionality/ modification is done in the IHMS 2.0 Software Solution (Web Application, Mobile Application or Web Portal), Selected Bidder shall identify the effort (in man–month) required for making the change(s). Rates for the man month shall be the composite man-month rates quoted by the Selected Bidder in the financial bid. Changes shall however be done by the Selected Bidder after approval of effort estimates by RISL.

d) Prices to be charged by the Supplier/ Selected Bidder for any Related Services that might be needed but which were not included in the Contract shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier/ Selected Bidder for similar services.

33. Termination-

a) Termination for Default-

i. The tender sanctioning authority of RISL may, without prejudice to any other remedy for breach of contract, by a written notice of default of at least 30 days sent to the supplier / Selected Bidder, terminate the contract in whole or in part: -

a. If the supplier / Selected Bidder fails to deliver any or all quantities of the service within the time period specified in the contract, or any extension thereof granted by RISL; or

b. If the supplier / Selected Bidder fails to perform any other obligation under the contract within the specified period of delivery of service or any extension granted thereof; or

c. If the supplier / Selected Bidder, in the judgment of the Procuring Authority has engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the contract.

d. If the supplier / Selected Bidder commits breach of any condition of the contract.

ii. If RISL terminates the contract in whole or in part:

a. Amount of performance security deposit may be forfeited.

b. Before cancelling a contract and taking further action, advice of senior most finance person available in the office and of legal adviser or legal assistant posted in the office, if there is one, may be obtained.

b) Termination for Insolvency: RISL may at any time terminate the Contract by giving a written Notice of at least 30 days to the supplier / Selected Bidder if the supplier / Selected Bidder becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to the supplier / Selected Bidder, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to RISL.

c) Termination for Convenience/ Foreclosure-

i. RISL, by a written Notice of at least 30 days sent to the supplier / Selected Bidder, may terminate the Contract, in whole or in part, at any time for its convenience. The Notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier/ Selected Bidder under the Contract is terminated, and the date upon which such termination becomes effective.

ii. Depending on merits of the case, the Supplier / Selected Bidder may be appropriately compensated on mutually agreed terms for the loss incurred by the Selected Bidder, if any, due to such termination.

34. Settlement of Disputes-

a) General: If any dispute arises between the supplier/ Selected Bidder and RISL during the execution of a contract, then it should be tried to be amicably settled by mutual discussions. However, if the dispute is not settled by mutual discussions, a written representation will be obtained from the supplier/ Selected Bidder on the points of dispute. The representation so received shall be examined by the concerned Procurement Committee which sanctioned the tender. The Procurement Committee may take legal advice of a counsel and then examine the representation. The supplier / Selected Bidder will also be given an opportunity of being heard. The Committee will take a decision on the representation and convey it in writing to the supplier / Selected Bidder.

b) Standing Committee for Settlement of Disputes: If a question, difference or objection arises in connection with or out of the contract agreement or the meaning of operation of any part, thereof or the rights, duties or liabilities of either party have not been settled by mutual discussions or the decision of tender sanctioning Procurement Committee, it shall be referred to the empowered standing committee for decision if the amount of the claim is more than Rs. 50,000. The empowered standing committee shall consist of members jointly constituted by Department and RISL.

c) Procedure for reference to the Standing Committee: The supplier / Selected Bidder shall present his representation to the Managing Director, RISL along with a fee equal to two percent of the amount of dispute, not exceeding Rupees One lakh, within one month from the date of communication of decision of the tender sanctioning Procurement Committee. The officer-in-charge of the project who was responsible for taking delivery of the services from the supplier / Selected Bidder shall prepare a reply of representation and shall represent the RISL's stand before the standing committee. From the side of the supplier / Selected Bidder, the claim case may be presented by himself or through a lawyer. After hearing both the parties, the standing committee shall announce its decision which shall be final and binding both on the supplier / Selected Bidder and RISL. The standing committee, if it so decides, may refer the matter to the Board of Directors of RISL for further decision.

d) Legal Jurisdiction: All legal proceedings arising out of any dispute between both the parties regarding the contract shall be settled by Courts at Jaipur, after decision of the standing committee for settlement of disputes.

e) The Arbitration and Conciliation Act 1996, the rules there under and any statutory modification or re-enactment's thereof, shall also apply to the arbitration proceedings.

35. Monitoring of Contract-

a) An officer or a committee of officers named Contract Monitoring Committee (CMC) may be nominated by procuring entity to monitor the progress of the contract during its delivery period.

b) During the delivery period, the CMC shall keep a watch on the progress of the contract and shall ensure that service delivery is in proportion to the total delivery period given, if it is a severable contract, in which the delivery of the service is to be obtained continuously or is batched. If the entire service is to be delivered in the form of completed work, the process of completion of work may be watched and inspections of the Selected Bidder's premises where the work is being completed may be inspected.

c) If delay in delivery of service is observed, a performance notice would be given to the Selected Bidder to speed up the delivery.

d) Any change in the constitution of the firm, etc. shall be notified forth with by the contractor in writing to the procuring entity and such change shall not relieve any former member of the firm, etc., from any liability under the contract.

e) No new partner/ partners shall be accepted in the firm by the Selected Bidder in respect of the contract unless he/ they agree to abide by all its terms, conditions and deposits with the procuring entity through a written agreement to this effect. The bidder's receipt for acknowledgement or that of any partners subsequently accepted as above shall bind all of them and will be sufficient discharge for any of the purpose of the contract.

f) The Selected Bidder shall not assign or sub-let his contract or any substantial part thereof to any other agency without the permission of procuring entity.

g) The Contract Monitoring Committee shall give final approvals on proposed Change Requests (if any) based on the man-month rates and effort estimation, during the course of the project.

h) In case, the Contract Monitoring Committee finds the services provided by the System Integrator to be satisfactory and intends to increase the Support and Maintenance of Software solution (Web Application, Mobile Application and Web Portal), RISL can do this by incrementing the Support and Maintenance Cost of IHMS 2.0 Software solution (Web Application, Mobile Application and Web Portal) by 10% annually on the quoted amount on a prorate basis.

36. Risk & Title – All title, risk and ownership of the assets is to be transferred to RISL or its nominated agencies on the day of the successful delivery/ installation/ commissioning, whichever is earlier of the supplied items. All expenses occurred during transfer of titleship of assets shall be borne by the selected bidder/ authorized partner.

7. Special Conditions of the Bid

7.1 Payment Terms and Schedule- Payments to the Selected Bidder, after successful completion of the target milestones (including specified project deliverables), would be made as mentioned in Clause 4.3.16 of this RFP:

• Any delay in the approval of the deliverable(s) submitted by the Selected Bidder to Department shall not account for the delay on Selected Bidder's part.

• The Selected Bidder has to design and implement a very detailed plan of implementation that seeks to execute several activities in parallel, adopts critical path method and commits additional resources to activities falling behind schedule so as to keep up with the overall deadline of implementation.

• The supplier's/ Selected Bidder's request for payment shall be made to the Purchaser in writing, accompanied by invoices describing the services performed, and supported by the required documents submitted pursuant to general conditions of the contract and upon fulfilment of all the obligations stipulated in the Contract.

• Due payments shall be made promptly by the Purchaser, generally within sixty (60) days after submission of an invoice or request for payment by the supplier/ Selected Bidder, and the Purchaser has accepted it.

• The currency or currencies in which payments shall be made to the supplier/ Selected Bidder under this Contract shall be Indian Rupees (INR) only.

• All remittance charges will be borne by the supplier/ Selected Bidder.

• In case of disputed items, the disputed amount shall be withheld and will be paid only after settlement of the dispute.

• Payment in case of those goods which need testing shall be made only when such tests have been carried out, test results received conforming to the prescribed specification.

• Advance Payments will not be made.

• Any penalties/ liquidated damages, as applicable, for delay and non- performance, as mentioned in this bidding document, will be deducted from the payments for the respective milestones.

• Taxes (GST, income tax, etc.), as applicable, will be deducted at source, from due payments, as per the prevalent rules and regulations.

7.2 Acceptance Testing and Certification- The primary goal of Acceptance Testing and Certification is to ensure that the Project (including all the project components as discussed in the scope of work) meets requirements.

7.3 Service Level Standards/ Requirements/ Agreement-

a) Purpose & Duration of SLA: The SLA purpose is to enforce a contract between the Selected Bidder and Purchaser. The SLA would come into effect during following:

• Support & Maintenance period of IHMS 2.0 Software solution after Go-live of Software solution.

• The successful bidder has to comply with Service Level Agreements (SLAs) to ensure adherence to project timelines, quality and availability of services.

b) Service Window: IHMS 2.0 Software solution (Web Application, Mobile Application and Web Portal) shall be available 24*7 after their respective go-live(s) except approved downtime.

c) Hours of Operation (Help Desk): Helpdesk shall be operational 24*7. The problems encountered during the usage of the IHMS 2.0 Software solution would be reported at the Helpdesk established by the Selected Bidder as designated by RISL. This would enable the Helpdesk staff to log complaints and act as per the severity of the reported problem.

d) Dependencies: The dependencies on the performance of services beyond the control of either party and where default is due to reasons beyond the control of the Selected Bidder or due to reasons attributable to RISL or third parties, the Selected Bidder would not be penalized. For example, if uptime of a particular equipment/ application is desired and this is due to non- availability of power (which is out of scope of work of the Selected Bidder), then the time period during which a service was unavailable due to non- availability of power would be removed while calculating the uptime.

e) Monitoring & Evaluation: The Selected Bidder shall provide and make use of following system for monitoring and evaluation-

S No	Service Levels	Monitoring Systems
1	Down Time of IHMS 2.0 (Web application & Mobile Application)	Through EMS application available at RSDC
2	Non-Availability of Manpower	Attendance Register at each project location

S No	Service Levels	Monitoring Systems
3	Delay in performing software support like upload content/ defect fixing/ minor change request	Through a web base/phone line call log available at IT help desk

f) Review Committee and Review Mechanism: The designated review committee/ members, on a quarterly basis, shall review and discuss the services delivery and performance standard compliance of the Selected Bidder. The review would include but not be limited to: -

i. Service provided during the review period

ii. Major incidents during the review period

iii. Problems that remains outstanding

iv. Review of Change requests/Variation and progress for enhancements

v. Future events or business developments that will affect the Service

vi. Review any potential changes required to the SLA

vii. Agree items for submission to the executive decision making

viii. Review schedules for Services provided.

g) Liquidated Damages: If the Selected Bidder fails to deliver the required services due to reasons attributable to him like non-functioning of the software, non- accessibility of the web-portal/ application, non-availability/attrition of the technical personnel/ operational manpower, etc. the cumulative liquidated damages, as applicable, would be imposed as mentioned below while processing the payment for respective milestone.

h) Damages for Downtime-

Measurement Parameter: Number of hours the IHMS 2.0 Software solution (Web & Mobile Application or Web Portal) is non- functional / non- available / non- responsive in each case of outage

S No	Downtime in a quarter	Damages
1	0-4 hours	No Damages
2	4-8 hours	2% of applicable quarterly Payment for Support and Maintenance of IHMS 2.0 Software solution as quoted in Financial Bid
3	8-12 hours	4% of applicable quarterly Payment for Support and Maintenance of IHMS 2.0 Software solution as quoted in Financial Bid
4	12-24 hours	6% of applicable quarterly Payment for Support and Maintenance of IHMS 2.0 Software solution as quoted in Financial Bid
5	24-48 hours	8% of applicable quarterly Payment for Support and Maintenance of IHMS 2.0 Software solution as quoted in Financial Bid
6	> 48 Hours	10% of applicable quarterly Payment for Support and Maintenance of IHMS 2.0 Software solution as quoted in Financial Bid

S No	Downtime in a quarter	Damages
In case the non-availability of Software solution (Web Application, Mobile Application or Web Portal or Combination of all three) in any quarter is greater than 48 hours, it may be treated as breach of Service Level Standards, which may lead to termination on default		

i) Damages for Non-Availability of deployed Personnel/ Resources/ Manpower: A Maximum of 18 leaves per year (4.5 per quarter on prorate basis) shall be allowed for resource deployed. In case resource needs to take off/leave from the duty, he has to take due approval from department authorities. In case total number of leaves exceed the maximum allowed leaves, payment shall not be made for the period of unavailability and additional damages shall be levied as per the following:

S No	Resource Type	Damages
1	Team Lead	Rs. 1500/- per day of absence
2	Deputy Team Lead	Rs. 1500/- per day of absence
3	Solution Architect	Rs. 1500/- per day of absence
4	Services / Data Architect	Rs. 1500/- per day of absence
5	Senior Developer	Rs. 750/- per day of absence
6	Change Management / Capacity Building Expert	Rs. 750/- per day of absence
7	Developer	Rs. 500/- per day of absence
8	Database Administrator	Rs. 750/- per day of absence
9	UI / UX Designer	Rs. 500/- per day of absence
10	Business Analyst	Rs. 500/- per day of absence
11	QA & Testing Engineer	Rs. 400/- per day of absence
12	Technical Support Engineer	Rs. 300/- per day of absence
13	Helpdesk Support Engineer	Rs. 200/- per day of absence

j) Damages for non-timely performing software support service like Update Content Management on IHMS Software solution (Web Application, Mobile Application and Web Portal) /Defect fixing/ Change Management (Application Software) i.e., Minor Change Requests-

S No	Time	Damages
1	Upto 2 days	No Penalty
2	>2 Days	Rs. 200 per incident per day

K) Damages for attrition of key resources during the project duration: SI shall make sure that the key personnel involved in the development, operation and maintenance of the IHMS 2.0 software solution are designated to the project for the entire project duration. In case, any key person listed below has to leave the project, the following penalties shall be applicable:

S No	Resource Type	Damages
1	Team Lead	Rs. 100,000/- on second change and thereafter on every change
2	Deputy Team Leader	Rs. 100,000/- on second change and thereafter on every change
3	Solution Architect	Rs. 100,000/- on second change and thereafter on every change

S No	Resource Type	Damages
4	Services / Data Architect	Rs. 100,000/- on second change and thereafter on every change
5	Senior Developer	Rs. 60,000/- on second change and thereafter on every change
6	Change Management / Capacity Building Expert	Rs. 60,000/- on second change and thereafter on every change
7	Developer	Rs. 60,000/- on second change and thereafter on every change
8	Database Administrator	Rs. 60,000/- on second change and thereafter on every change
9	UI / UX Designer	Rs. 25,000/- on second change and thereafter on every change
10	Business Analyst	Rs. 25,000/- on second change and thereafter on every change
11	QA & Testing Engineer	Rs. 20,000/- on second change and thereafter on every change
12	Technical Support Engineer	Rs. 5,000/- on second change and thereafter on every change
13	Helpdesk Support Engineer	Rs. 5,000/- on second change and thereafter on every change

l) The maximum total damages in any quarter (excluding non-availability of deployed manpower/ resources/ personnel) shall not be more than 10% of the total amount due for the quarter beyond which the tendering authority will be free to initiate action as per RFP terms and condition for breach of SLA. However, damages on resource replacement may be waived off subject to the approval of RISL under the following circumstances:

- Medical Emergency
- Resignation of deployed resource

m) In all cases, damages shall not be more than 10% of the related cost of component/ service.

7.4 Change Requests/ Management-

a) An institutional mechanism will be set up for taking decisions regarding requests for changes. The Procurement Committee will set up a Change Control Committee with members from the procurement agency and the Selected Bidder. If it is unable to reach an agreement, the decision of the Purchase Committee will be final.

b) RISL may at any time, by a written order given to the Selected Bidder, make changes within the general scope of the Agreement in any one or more of the following: -

i. Designs, specifications, requirements which software or service to be provided under the Agreement are to be specifically developed and rendered to department/ RISL.

ii. The method of deployment.

iii. Schedule for Installation Acceptance.

iv. The place of delivery and/or the services to be provided by the Selected Bidder.

c) The change request/ management procedure will follow the following steps: -

i. Identification and documentation of the need for the change – The information related to initiator, initiation date and details of change required, and priority of the change will be documented by RISL.

ii. Analysis and evaluation of the Change Request – Impact of the change in terms of the estimated effort, changed schedule, cost and the items impacted will be analysed and documented by the Selected Bidder. The composite man-month rates for handling Change Requests shall be provided by the Selected Bidder in the financial bid and the effort estimations shall be done on basis of the same.

iii. Approval or disapproval of the change request – Contract Monitoring committee will approve or disapprove the change requested including the additional payments for software development, quoted man-month rate shall be used for cost estimation, efforts of all technical resources- team lead, deputy team lead, analyst, software developer, testing engineer, database architecture etc shall be taken into account for total man-month estimation to carry out the s/w development resulting from the change request. For all technical resources irrespective of their experience and specialization, the quoted man-month rate shall be used. Efforts of support staff shall not be taken into consideration for this purpose.

iv. Implementation of the change – The change will be implemented in accordance to the agreed cost, effort, and schedule by the Selected Bidder.

v. Verification of the change – The change will be verified by the RISL on implementation of the change request.

d) All changes outside the scope of supplies agreed to herein which may have likely financial implications in terms of the overall cost/ time of the project shall be undertaken by SI only after securing the express consent of the RISL. In the event that the consent of RISL is not received then the change will not be carried out. Composite Man month rate for development of change requests shall be as quoted by the Selected Bidder in the financial bid.

e) While approving any change request, if required, RISL may ask the Selected Bidder to deploy the required resource(s) on-site.

f) If any such change outside the scope of supplies agreed to herein causes an increase or decrease in cost of, or the time required for, SI's performance of any provisions under the Contract, equitable adjustments shall be made in the Contract Price or Delivery Schedule, or both, and the Contract shall accordingly be amended. Any claims by SI for adjustment under this must be asserted within 30 (thirty) days from the date of SI receiving the RISL change order which shall not be unreasonably withheld or delayed.

7.5 Exit Management-

a) Preamble-

• The word 'parties' include the tendering authority and the Selected Bidder.

• This Clause sets out the provisions, which will apply on expiry or termination of the Project Implementation and Operations and Management of SLA.

• In the case of termination of the Project Implementation and/ or Operation and Management SLA due to illegality, the Parties shall agree at that time whether, and if so during what period, the provisions of this Clause shall apply.

• The Parties shall ensure that their respective associated entities carry out

their respective obligations set out in this Exit Management Schedule.

b) Cooperation and Provision of Information-

i. During the exit management period:

a. The Selected Bidder will allow RISL or its nominated agencies access

to the information reasonably required to define the current mode of operation associated with the provision of the services to enable RISL or its nominated agencies to assess the existing services being delivered.

b. The Selected Bidder shall provide access to copies of all information held or controlled by them which they have prepared or maintained in accordance with the Project Implementation, the Operation and Management SLA and SOWs relating to any material aspect of the services provided by the Selected Bidder. RISL or its nominated

agencies shall be entitled to copy all such information comprising of details pertaining to the services rendered and other performance data. The Selected Bidder shall permit RISL or its nominated agencies and/ or any Replacement Operator to have reasonable access to its employees and facilities as reasonably required by RISL or its nominated agencies to understand the methods of delivery of the services employed by the Selected Bidder and to assist appropriate knowledge transfer.

c) Confidential Information, Security and Data-

i. The Selected Bidder will promptly on the commencement of the exit management period supply to RISL or its nominated agencies the following:

a. Documentation relating to Intellectual Property Rights.

b. Project related data and confidential information.

c. All current and updated data as is reasonably required for purposes of RISL or its nominated agencies transitioning the services to its replacement operator in a readily available format nominated by RISL or its nominated agencies; and

d. All other information (including but not limited to documents, records, and agreements) relating to the services reasonably necessary to enable RISL or its nominated agencies, or its replacement operator to carry out due diligence in order to transition the provision of the services to RISL or its nominated agencies, or its replacement operator (as the case may be).

e. Before the expiry of the exit management period, the Selected Bidder shall deliver to RISL or its nominated agencies all new or up-dated materials from the categories set out above and shall not retain any copies thereof, except that the Selected Bidder shall be permitted to retain one copy of such materials for archival purposes only.

d) Transfer of certain agreements-

i. On request by Tendering Authority or its nominated agencies, the Selected Bidder shall effect such assignments, transfers, novations, licenses and sub-licenses as Tendering authority or its nominated agencies may require in favour of tendering authority or its nominated agencies, or its Replacement Operator in relation to maintenance or service provision agreement between Selected Bidder and third party leasers, operators, or Operator, and which are related to the services and reasonably necessary for carrying out of the replacement services by RISL or its nominated agencies, or its replacement Operator.

e) General Obligations of the Selected Bidder-

i. The Selected Bidder shall provide all such information as may reasonably be necessary to effect as seamless during handover as practicable in the circumstances to RISL or its nominated agencies or its replacement operator and which the operator has in its possession or control at any time during the exit management period.

ii. The Selected Bidder shall commit adequate resources to comply with its obligations under this Exit Management Clause.

f) Exit Management Plan-

i. The Selected Bidder shall provide RISL or its nominated agencies with a recommended exit management plan ("Exit Management Plan") which shall deal with at least the following aspects of exit management in relation to the SLA as a whole and in relation to the Project Implementation, the Operation and Management SLA and SOWs.

ii. A detailed program of the transfer process that could be used in conjunction with a replacement operator 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; and

iii. Plans for the communication with such of the Selected Bidder's staff, suppliers, customers and any related third party as are necessary to avoid any material detrimental impact on RISL operations as a result of undertaking the transfer; and

iv. If applicable, proposed arrangements and plans for provision of contingent support in terms of business continuance and hand holding during the transition period, to RISL or its nominated agencies, and Replacement Operator for a reasonable period, so that the services provided continue and do not come to a halt.

v. The Selected Bidder shall re-draft the Exit Management Plan six months before exit after signing of contract to ensure that it is kept relevant and up to date.

vi. Each Exit Management Plan shall be presented by the Selected Bidder to

and approved by RISL or its nominated agencies.

vii. In the event of termination or expiry of SLA, Project Implementation, Operation and Management SLA or SOWs, each party shall comply with the Exit Management Plan.

viii. During the exit management period, the Selected Bidder shall use its best efforts to deliver the services.

ix. Payments during the Exit Management period shall be made in accordance with the Terms of Payment Clause.

x. It would be the responsibility of the Selected Bidder to support new operator during the transition period.

g) Training, handholding, and knowledge transfer-

i. The Selected Bidder shall hold technical knowledge transfer sessions with designated technical team of the nominated agency of Executing Authority in the last 3 months of the project duration.

ii. The Selected Bidder shall hold operational hand-holding sessions on the IHMS2.0 solution with the designated members of the nominated agency of Executing Authority, so that the Implementing Authority can continue with the IHMS2.0 solution even after Selected Bidder exits the project.

8. Annexures

8.1. Functional and Non-Functional Requirement Specifications of IHMS2.0

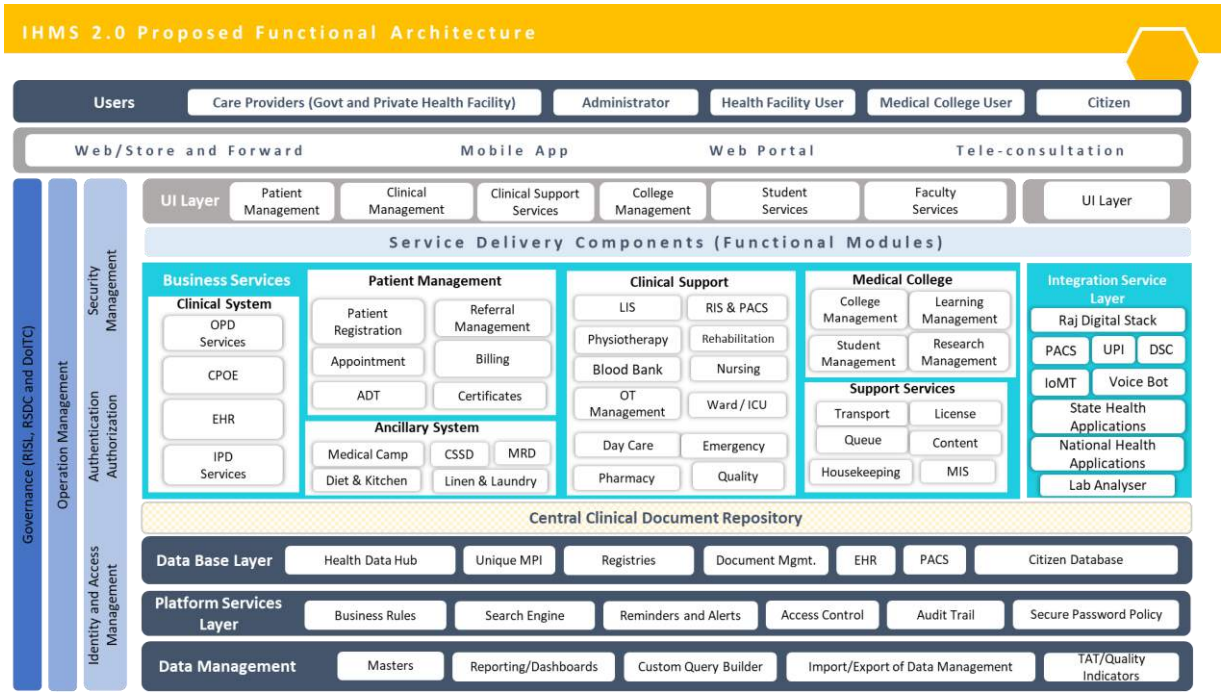
The functional requirement specifications stated below are the minimum features that the solution suggested for IHMS 2.0 should have. This indicative functional requirement has been provided here to be used by the Selected Bidder. The Selected Bidder shall develop the System Requirement Specifications (SRS) documents where all the processes, procedures and existing templates should be studied in detail by the Selected Bidder. Selected Bidder should independently design / customize the solution as may be required to support the business operations. The Selected Bidder shall be required to coordinate with DHFW / ME Dept. for the detailed system study and interact with the different users of the departments for preparation of SRS and related design documents. As part of the solution, the Selected Bidder shall also ensure adherence to EMR/ EHR or electronic health card as per standards laid down by Govt. of India.

This section is divided into three parts:

- Conceptual Design and Functional Requirement of IHMS2.0
- Functional requirement of Mobile Application
- Non-functional requirement of IHMS2.0

Conceptual Design and Functional Requirement of IHMS2.0

The proposed conceptual design of IHMS 2.0 is given below:



The IHMS2.0 solution has been conceptualized to include the following:

- An Internal Web Application to be accessed by the employees of DHFW / ME Dept. and other related Departments and shall be used for automation of internal processes

of DHFW / ME Dept. and other related Departments for IHMS2.0. Employees of DHFW / ME Dept. and other related Departments shall have a login (via RajSSO) in the web-application for performing different functions. The Internal Web Application shall also be accessed by private hospitals / health facilities (small Nursing Homes, large Corporate Hospitals, small private Hospitals, private Laboratories, private imaging centres, private Blood Banks, private Ambulance providers, etc.).

- A Mobile Application consisting of select functionalities for the use of patients, health facility user, students, faculty, college administration staff.
- A Web Portal accessible over the internet by public users (residents, health facilities (Government and private), Call Center operators, Government and media) across the State. Web Portal shall have two kinds of information – information for general public related to patient care and information that is accessible to relevant stakeholders. Web Portal shall be a CMS based dynamic portal which shall have a login (via Raj SSO) for all relevant stakeholders (except general citizens) and shall have functionalities relevant to Integrated HMS. Citizens or unnamed users (Guest) can obtain information related to patient care from the web portal without any login.
- Based on requirements of services envisaged for IHMS 2.0 under current scope of project, the modules that are envisaged for IHMS2.0 software solution with focus on Electronic Health Record have been grouped as indicated in the diagram below and a brief description of different modules follows.
- A centralized Clinical Document Repository (CDR) shall be established to manage the Electronic Health Records (EHR) of a patient. The centralized CDR will act as the repository of EHR records generated at each of the healthcare facility (government and private) in the state. The Mobile App (PHR app) for the patient shall access the centralized CDR to display the EHR records to the patient.
- A centralized Master Patient Index (MPI) repository shall be established to manage the demographic records and health facility visit records of the patient. The centralized MPI repository will act as the single repository of patient information generated at each healthcare facility in the state and provide information to patient mobile application, IHMS 1.0 application and IHMS 2.0 application via API-integration.
- A centralized Picture Archiving and Communication System (PACS) to be deployed at Rajasthan State Data Centre which shall act as the central repository for the storage of imaging studies generated at each of the healthcare facility (government and private) in the state.
- The IHMS2.0 shall be built on a microservices platform so as to provide the necessary scalability and meet the desired performance while catering to an enterprise scale of users.

Management of Electronic Health Records (EHR)

The Electronic Health Record of a patient shall be managed on a centralized integrated platform which shall host various EHR/ HIS/ EMR records generated from government and private health facilities.

The integrated EHR platform shall provide for managing Master Patient Index, Patient Demographics, Clinical Visit Records, Clinical Document Registry, Clinical Data Repository, etc.

The Registries required to manage the Health Facility, Health Professionals shall be maintained by RajMaster application and IHMS2.0 will integrate with RajMaster to access the same.

Jan Aadhaar ID is to be considered as unique identifier for the patients. Since the system may encounter some patients without Jan Aadhar, usage of an additional identifier like Aadhaar may also be considered.

Blockchain Fabric shall be provided by DoIT&C for generation of Electronic Health Record. IHMS 2.0 shall utilize the Blockchain Fabric to enhance the security of EHR records and health-related transactions.

Master Patient Index (MPI) would be required to ensure that the patients are uniquely identified and records of the same patient from multiple systems are integrated to ensure complete medical record and continuity of care is accomplished. The MPI should include but not limited to following capabilities-

- It should be flexible enough so as to accommodate requirements of various service provider systems.
- It must be mature and must have inclusion and exclusion filters to add, remove attributes, support matching technology to accommodate transcription errors.
- It must support probabilistic matching technology, should have single best record notion, ability to lock individual attributes in a Single Best Record to prevent them being updated by an automated process.
- It should provide standards-compliant integration infrastructure, which will allow external systems to: Provide patient identification feeds, receive patient information update notifications, Query MPI for patient identifiers, Query MPI for patient information using demographic criteria, Incorporate MPI functionality into end-user-facing client applications, and support incorporation of MPI functionality into enterprise integration solutions.
- The MPI shall provide both real-time and batch matching capabilities
- The MPI shall provide version history for manual reconciliation of unmerged records.
- The MPI shall maintain a single Master Person Registry where intentional multiple representations of the same physical person are linked to a single Master IDMC.

Clinical Document Repository: The Clinical Document Repository shall hold all EHR content for the patient including encounter information, allergies, lab orders and results, medication etc. Every time a new record is created across the state, the record will be sent to the repository. One of the key features of the Repository would be to ensure the original meaning of the information through terminology mediation allowing multiple codes to be linked to each other providing a true longitudinal view of the information.

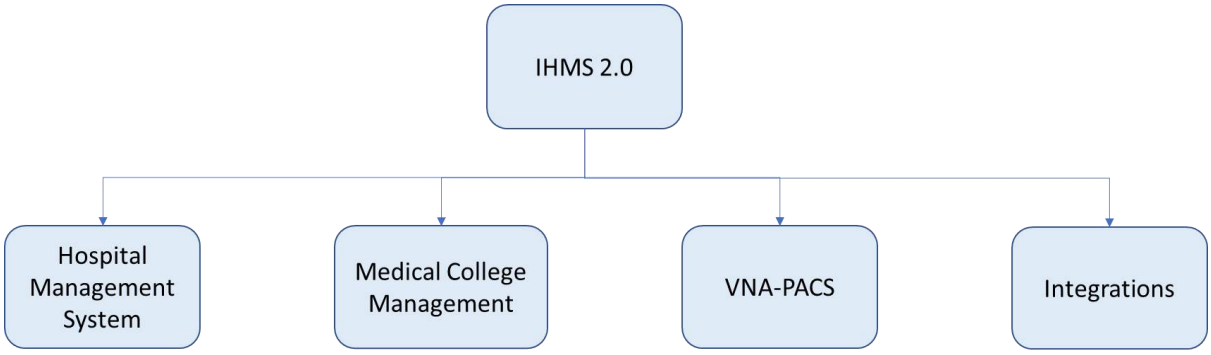
The Clinical Data Repository should capture the following information related to individuals / patients (this is only an indicative list and all information to be captured shall be available from SRS report).

- Patient details like complaints, history, blood group, allergy, clinical findings, investigations, diagnosis, references, operation details shall be maintained over time as and when the patient details are entered in the HMS
- Patient visit details: Details of all episode records shall be captured over time
- Electronic Ordering and Processing: Orders shall be sent directly to the service provider / unit (like Laboratory, Pharmacy, Blood Bank. Transport, Referral, etc) whenever an order is raised.
- Facility for uploading entire case records / images related to investigations for the patient
- Referrals to other units / specialties within the same hospital or to another Hospital

- Search utility for effectively searching all medical details of a patient using unique ID like Aadhaar Card or Jan Aadhaar Card, with due verification process as required
- Colour-coded alerts for prioritizing patients to be attended shall be set for patient examination, investigations, referral and general instructions
- Consultant Notes Entry / Review on daily basis
- Feature for log-in by patient (with secured log-in) and facility for entry of data by patient related to his / her history, complaints, etc
- Facility to patient to retrieve his / her EHR

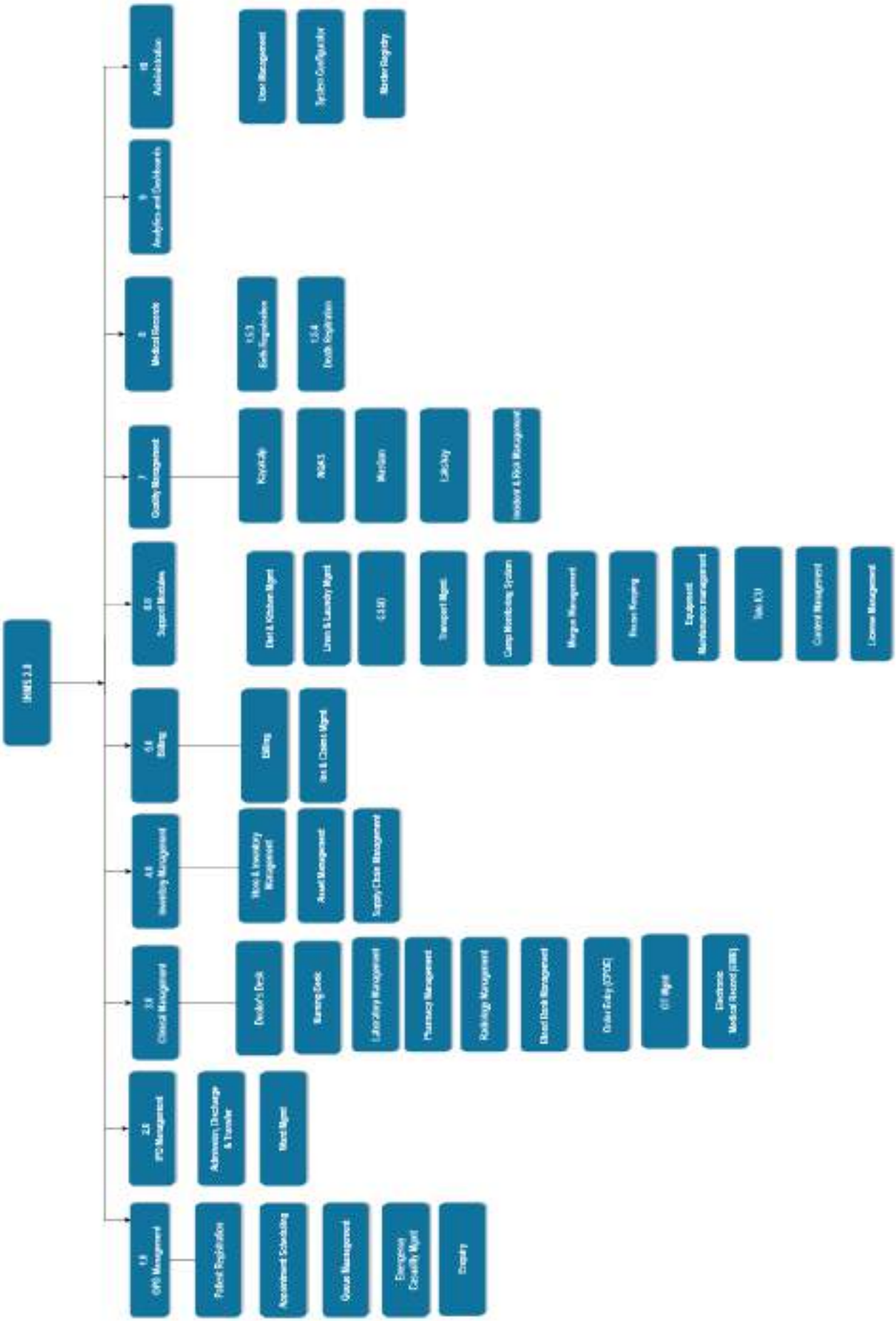
Functional requirement specifications of IHMS 2.0

The broad components of IHMS 2.0 are illustrated below:



Hospital Information System

The Hospital Information System is classified into the following modules:



OPD Management

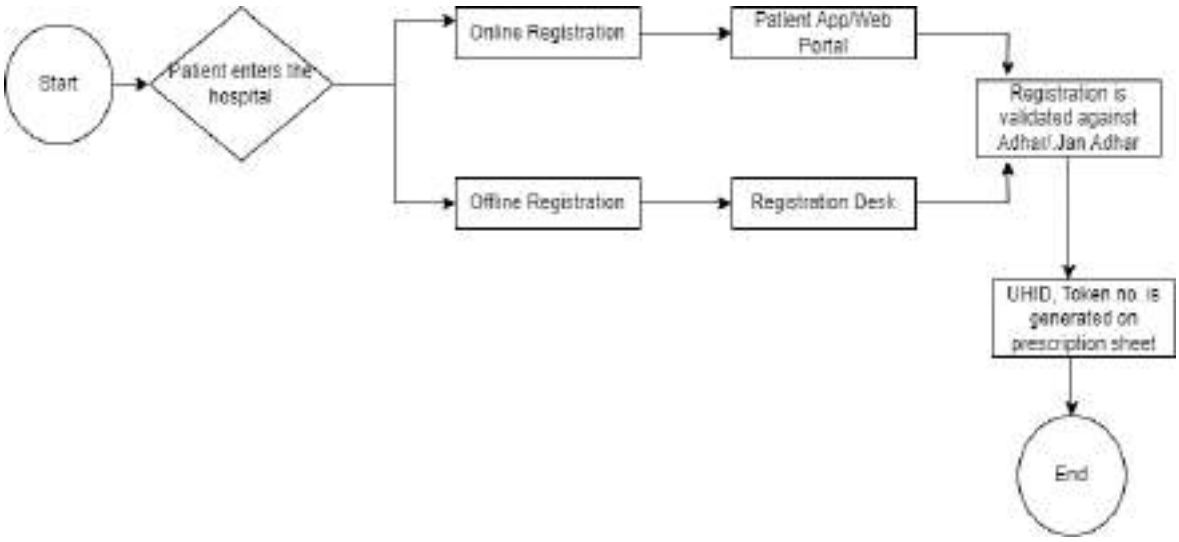
The OPD Management functional module manages the activities that are involved in providing services to a patient visiting the Outpatient Department of a health facility. This ensures that patients receive appropriate care and attention from specialized doctors. The process of visiting the OPD involves the following steps:

- **Patient Registration**
- **Appointment Scheduling**
- **Doctor Consultation**
- **Clinical Assessment**
- **Diagnosis and Treatment**
- **Follow-up Appointments**
- **Billing and Payment**

Patient Registration:

The Patient Registration system plays a crucial role in gathering comprehensive and pertinent patient information, serving as a fundamental step in establishing an Electronic Medical Record (EMR) for improved and efficient healthcare delivery. The system captures essential demographic details and other relevant information about the patient, facilitating the generation of a Unique Health Identification Number (UHID). The UHID serves as a distinct identifier for the patient within the healthcare facility. It can be created using various methods such as assigning a unique number, generating a barcode, or utilizing a QR code. To enhance interoperability and streamline data integration

Process Map



Minimum Functional Requirements:

Following are the minimum Functional Requirements (FR) envisaged for the patient registration system including but not limited to:

FR Code	Minimum Functional Requirements of Patient Registration
REG/01	Online registration facility should be available for patients through web portal or Mobile app.
REG/02	The system should allow the registration of a patient by linking with the Jan Aadhaar ID of the patient. In case Jan Aadhaar ID is not available, the patient should be able register using Aadhaar ID.
REG/03	The system should have the capability to capture Photograph of the patient. The photograph of the patient should be captured using camera devices linked to the system.
REG/04	The system should provide provision to search patient based on various search criteria like Name, Phone number, Aadhaar ID/Jan Aadhaar ID and any other unique identifier
REG/05	It is mandatory that the registration records should be validated and authenticated against the Aadhaar and Jan Aadhar database through integration and Aadhaar or Jan Aadhar may be used as one of the unique identifiers to search the patient in iHMS.
REG/06	Modification in patient demographics shall be allowed with role-based access control.
REG/07	Family tree of each patient is mapped using registration data once registration of all concerned family members is completed. Till then, all records should still be linked and available for search using registration number.
REG/08	Once patient's registration is complete trough Patient App, Web Portal or Registration desk, Unique ID (UHID) should be generated for the Patient.
REG/09	System should have capability to merge multiple UHID to primary UHID of the patient. Once linking of UHID/s are done with primary UHID, EMR of the patient should be arranged sequentially. It should also have provision to unmerge UHIDs.
REG/10	The system should have the option to collect payment for registration fees for out-of-state patients (non-natives of Rajasthan) at the registration counter. The system should have the option to collect payment using UPI QR codes or any other means of digital payment or cash.
REG/11	If the patient uses the mobile app to register, then if the patient is an out-of-state patient, the mobile app should be able to collect the payment using UPI.
REG/12	The system should send notification via SMS / app alert to the patient with details of registration.
REG/13	The system should provide option for an external PHR app to communicate with IHMS2.0 the demographic details of a patient who wishes to register themselves using Scan and Share QR-Code functionality. This will allow the patient to use any PHR app to register themselves in IHMS 2.0 application and make an appointment for a department / unit / doctor.

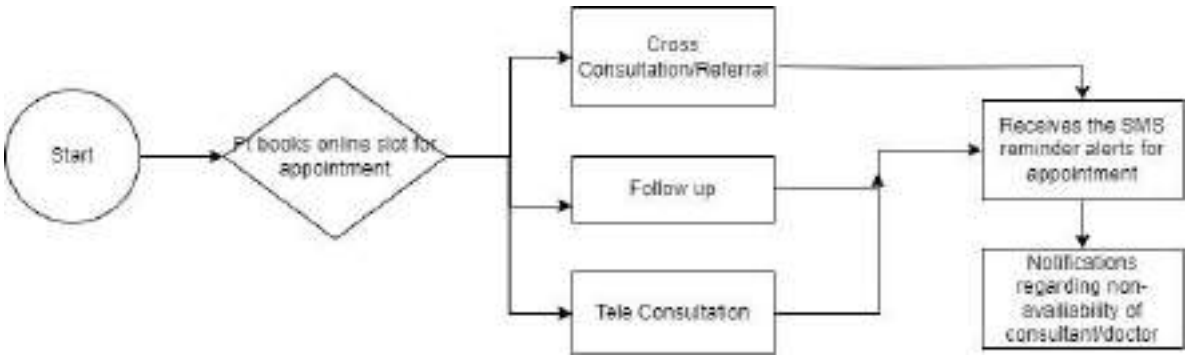
FR Code	Minimum Functional Requirements of Patient Registration
REG/14	The system should have the provision to upload any scanned medical records of the patient at the time of registration or at any other time when the patient brings the medical records for linking with the UHID of the patient. This facility should be available in the web portal and mobile app.
REG/15	The system should be able to generate the necessary analytics and present dashboards on the turn-around-time of registration creation based on role-based-access-privileges.

Appointment Scheduling:

Once the patient registration process is completed the patient will have an option to schedule an appointment for doctors. Here are some key functionalities that an appointment scheduling system should offer:

- **Perform Offline/Online Appointment Scheduling**
- **See Doctor's Availability.**
- **See OPD Timings.**
- **Manage Doctor's Roster.**
- **See Appointment Dashboard.**
- **Send appointment SMS notification**

Process Map



Minimum Functional Requirements:

Following are the minimum Functional Requirements (FR) envisaged for the patient appointment system including but not limited to:

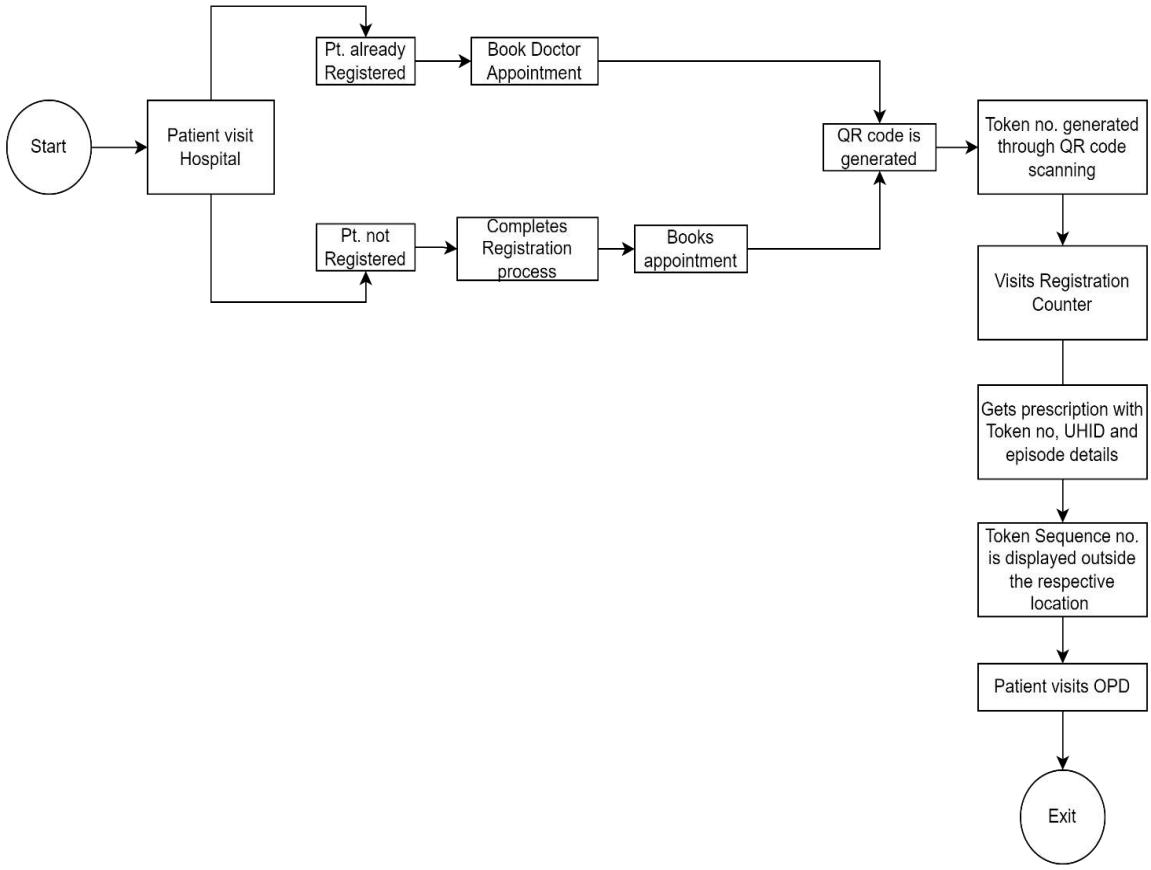
FR Code	Minimum Functional Requirements of Appointment Scheduling
APP/01	After completing the registration process patient can book for a consultation service with the doctor through the Patient Health App or Patient Web Portal or Appointment Counter.
APP/02	The system should have the provision to display all the available & unavailable time slots of a department / unit / doctor on the same screen

FR Code	Minimum Functional Requirements of Appointment Scheduling
	while booking appointment. It should also indicate if the slot is a in-person consultation or tele-consultation.
APP/03	The system should mark the visit as “follow-up” visit if the previous visit was the first visit with the doctor.
APP/04	The system should allow for booking of appointment at the department / unit level or doctor level. This option should be made available as per configuration parameters.
APP/05	There should be provision to allow overbooking at slot level as per the configured settings.
APP/06	The system should allow viewing of the number of providers/doctors in the OPD, their OPD schedule, available slots and available rooms for allocating to the patients
APP/07	The system should allow for the generation of a QR code with all the relevant details of the booked appointment.
APP/08	The system should allow for the check-in of the patient when the patient visits the registration counter to confirm his / her arrival for the appointment on the day of the appointment.
APP/09	The system should allow for the check-in of the patient when the patient uses the mobile app to confirm his / her arrival for the appointment on the day of the appointment by using geo-fencing methods of location tracking.
APP/10	The system should allow for the printing of the OPD sheet with details of patient demographics, UHID, Token No, Episode details at the registration counter. It should also include the QR-Code with the details of the patient in the OPD sheet.
APP/11	The system should have the provision to automatically send notification via SMS / mobile app alert with details of the appointment.
APP/12	The system should also allow for the booking of appointments for Lab investigations, Radiology studies, Minor / Major procedures as per configurations defined in the Masters of IHMS 2.0
APP/13	The system should send notification via SMS / app alert with the details of the booked appointment.
APP/14	The system should send notification via SMS / app alert with the details of the check-in activity.
APP/15	The system should have the provision to send a reminder alert on the day of the appointment (if the appointment was made for a future date) via SMS / mobile app alert with the details of the appointment.
APP/16	The system should be able to generate the necessary analytics and present dashboards on the turn-around-time of appointment creation based on role-based-access-privileges.

Queue Management:

Queue Management Module streamlines the physical state of the patient queue and reduces wait time for direct patient interaction departments. The system has the capability of tracking the status of the doctor's availability in OPD, through which the exact wait time of each patient can be obtained. The system can manage the priority patient allotment in OPD. The system captures login time, history taking time and time required for each consultation to calculate the wait time of each patient, this analysis helps the hospital to strategize queue management effectively.

Process Map



Minimum Functional Requirements:

Following are the minimum Functional Requirements (FR) envisaged for the queue management system including but not limited to:

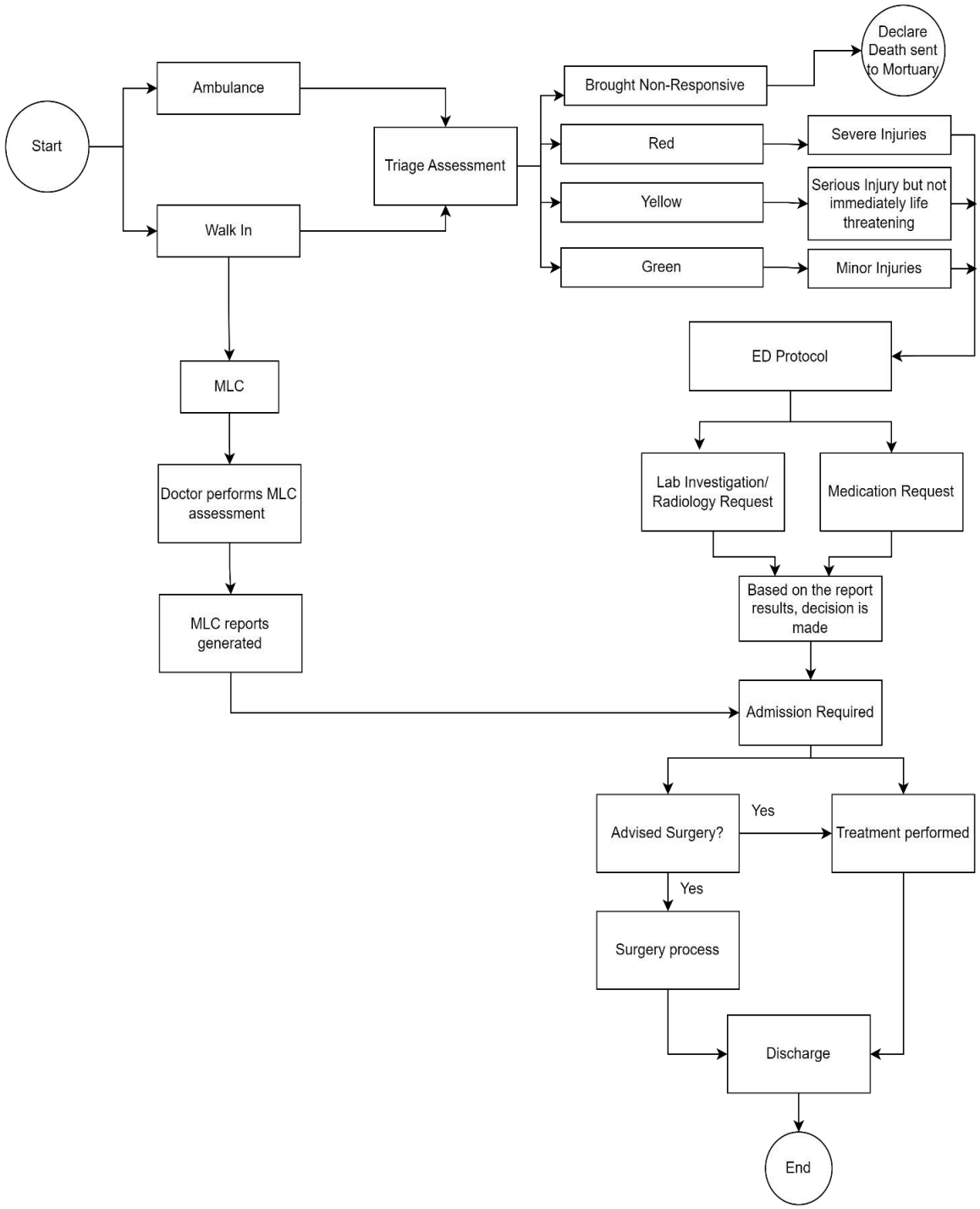
FR Code	Minimum Functional Requirements of Queue Management
QMS/01	The system should have the provision to automatically generate a token for a patient who has checked-in to avail any service in the facility.

FR Code	Minimum Functional Requirements of Queue Management
QMS/02	The system should have the provision to integrate with a token display system, if installed, and display details of the queue with the queue position as per configuration settings.
QMS/03	The system should have the provision to display the token number along with the records of the worklist of the service provider.
QMS/04	The system should have the provision to allow the user in the service provider department to call a patient in the worklist. This activity should allow for the automatic update of the token details in the token display system and patient mobile app.
QMS/05	The system should update the status of the token as consumed when the user has confirmed the completion of activity on the patient.
QMS/06	The system should have the provision to send notification to the patient mobile app when the token number is called.
QMS/07	In case of no-show of the patient, the token number should be taken out of the active queue and moved to a recall queue. The tokens in the recall queue should be called as per defined system configuration settings.
QMS/08	The system should have the provision to allot the token to a patient with an expiry till the end of services in the current day.
QMS/09	If the patient avails multiple services within a single day, then the same token shall be inserted into different services queues for rendering of services.
QMS/10	The system should record date and time details of the when the token was generated / inserted in a queue, when it was called, and when it was consumed.
QMS/11	The system should be able to generate the necessary analytics and present dashboards on the turn-around-time of queue management based on role-based-access-privileges.

Emergency/ Casualty Management

An emergency department also known as an accident and emergency department (A&E), emergency room (ER), emergency ward (EW) or casualty department, is a medical treatment facility specializing in emergency medicine, the acute care of patients who present without prior appointment; either by their own means or by that of an ambulance. Due to the unplanned nature of patient attendance, the ED provides initial treatment for a broad spectrum of illnesses and injuries, some of which may be life-threatening and require immediate attention. The emergency departments of most hospitals operate 24 hours a day.

Process Map



Minimum Functional Requirements:

Following are the minimum Functional Requirements (FR) envisaged for the Emergency Management system including but not limited to:

FR Code	Minimum Functional Requirements of Emergency Management
ERD/01	The system should have the facility to register a patient who has arrived in the Emergency Department with minimal identification details (Name, Gender, Age, Jan Aadhaar ID / Aadhaar ID if available) and generate the UHID if not registered in the system.
ERD/02	The system should have the facility to record other demographic details of the patient post creation of the UHID.
ERD/03	The system should have the facility to register a non-responsive patient with unknown name which can later be updated when demographic details are made available. However, the UHID should be created with minimal information.
ERD/04	The system should have the provision to display the EMR templates related to conducting Triage assessment to the nurses.
ERD/05	The system should allow the triage nurse to assign the patient to the appropriate zone (Red, Yellow, Green or as per system configuration) based on the presenting clinical conditions of the patient.
ERD/06	The system should display the current bed occupancy with details of patient information to the triage nurse and details of vacant beds in each zone.
ERD/07	The system should have the facility to map doctors with emergency OPD / wards as per their weekly working schedule
ERD/08	The system should have the facility to map nurses with emergency OPD / wards as per their weekly working schedule
ERD/09	The system should have the facility to map residents with emergency OPD / wards as per their weekly working schedule
ERD/10	The system should have the facility to allow the care givers to create the appropriate EMR records required during assessment and treatment of the patient using pre-defined templates.
ERD/11	The system should have the facility to allow for ordering of services (labs, radiology, procedures, medications, etc) for the caregivers during the treatment of the patient in Emergency Department.
ERD/12	The system should display a worklist of patients admitted in each zone of the emergency department with the current status (pending, in-progress, completed) of ordered services.
ERD/13	The system should have the facility to display the EMR record of each patient from the worklist of the emergency department.
ERD/14	The system should have the facility to display the current on-duty doctor / residents for each of the medical and surgical specialities of the health institution.

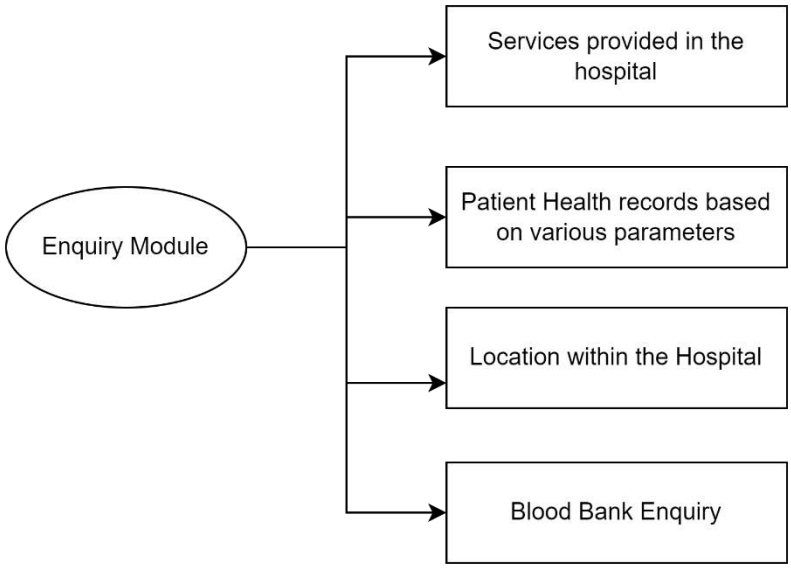
FR Code	Minimum Functional Requirements of Emergency Management
ERD/15	The system should have the option to create a cross-consultation request for assigned doctor / resident of other medical and surgical specialities of the health institution.
ERD/16	The system should have the facility to send a notification automatically via mobile app alert for the requested doctor / resident when a cross-consultation request is created.
ERD/17	The system should have the facility to automatically call the the requested doctor / resident via a phone call when the request doctor / resident has not acknowledged the cross-consultation request in the mobile app.
ERD/18	The system should have the ability to transfer patient from the emergency ward to other wards of medical / surgical specialities based on the request from the attending doctor.
ERD/19	The system should have the ability to transfer patient from the emergency ward to other healthcare facility based on the request from the attending doctor.
ERD/20	The system should have the facility to generate an electronic digitally signed PDF copy of the EMR records generated in the emergency ward.
ERD/21	The system should have the facility to discharge a patient from the emergency ward with a discharge summary created in the system.
ERD/22	The system should have the facility to take a printout of the discharge summary in a pre-defined format.
ERD/23	The system should have facility to transmit all system defined EHR records to the central clinical document repository.
ERD/24	The system should have the facility to conduct OP services in the emergency department which can be configured as per system settings.
ERD/25	The system should have the facility to schedule a follow-up consultation in emergency OP for any follow-up procedure / consultation.
ERD/26	The system should have the facility to schedule a follow-up consultation in regular OP for any follow-up procedure / consultation.
ERD/27	The system should have the facility to scan and upload any external medical records brought by the patient.
ERD/28	The system should have the facility to collect payment for any services rendered to the patient, if applicable.
ERD/29	The system should have the facility to mark a patient as a medico-legal case with reasons for marking as MLC.

FR Code	Minimum Functional Requirements of Emergency Management
ERD/30	The system should have the facility to create the required medical records defined for MLC case management as per state medical council norms.
ERD/31	The system should be able to integrate with the State Police Department IT System for the electronic transmission of MLC reports.
ERD/32	The system should have the facility to upload multiple photographs taken of patients marked as MLC which should become part of the EMR record.

Enquiry

The Enquiry Module in a Hospital Management System (HMS) facilitates the management and handling of inquiries or queries received from patients, potential patients, and other individuals. It serves as a communication interface to address various types of inquiries and provides timely responses.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the enquiry module including but not limited to:

FR Code	Minimum Functional Requirements of Enquiry Module
ENQ/01	The enquiry module should provide information about all hospital departments, blocks, and facilities, including details about emergency services, surgery, paediatrics, obstetrics and gynaecology, cardiology, radiology, etc

FR Code	Minimum Functional Requirements of Enquiry Module
ENQ/02	System should have the facility to check the availability of doctors and staff members. It provides details about their weekly schedules and current locations within the hospital.
ENQ/03	System should have the facility to access comprehensive information about each department, specialty, unit, ward, and outpatient department (OPD).
ENQ/04	System should have the facility to view the cost details associated with medical consultations, procedures, surgeries, diagnostics, and other treatments.
ENQ/05	System should have the facility to view detailed information about admitted, referred, discharged, and deceased patients. This information is handled with strict confidentiality and is only accessible to authorized personnel within the hospital.
ENQ/06	Patients can check the updated status of their allocated beds through the enquiry module and provides real-time information on bed availability and assigns beds to admitted patients.
ENQ/07	Patients can access information about medical consultations, diagnostics, surgeries, therapies, and other healthcare services provided.
ENQ/08	System should have dedicated section for patients to provide their feedback. Patients can share their experiences, suggestions, or complaints, which are valuable for the hospital's continuous improvement.
ENQ/09	Facility to displays upcoming events, health tips, and notices organized or ongoing within the hospital. Patients can stay informed about health-related events, educational sessions, and other activities.
ENQ/10	System should provide comprehensive information about the process of organ donation. Patients can learn about the requirements, regulations, and procedures involved in becoming an organ donor.
ENQ/11	Facility to generate dynamic Management Information System (MIS) reports as per need.

IPD Management

The Inpatient Department (IPD) management module within a hospital management system is specifically designed to handle all activities and functions related to inpatient management. This module automates administrative tasks and provides seamless access to other modules, resulting in improved patient care. Here are some key features and functionalities that the IPD module should encompass**:**

-Admission and Ward Management

-Bed and Ward Availability

-Surgical Management

-Medication and Nursing Management

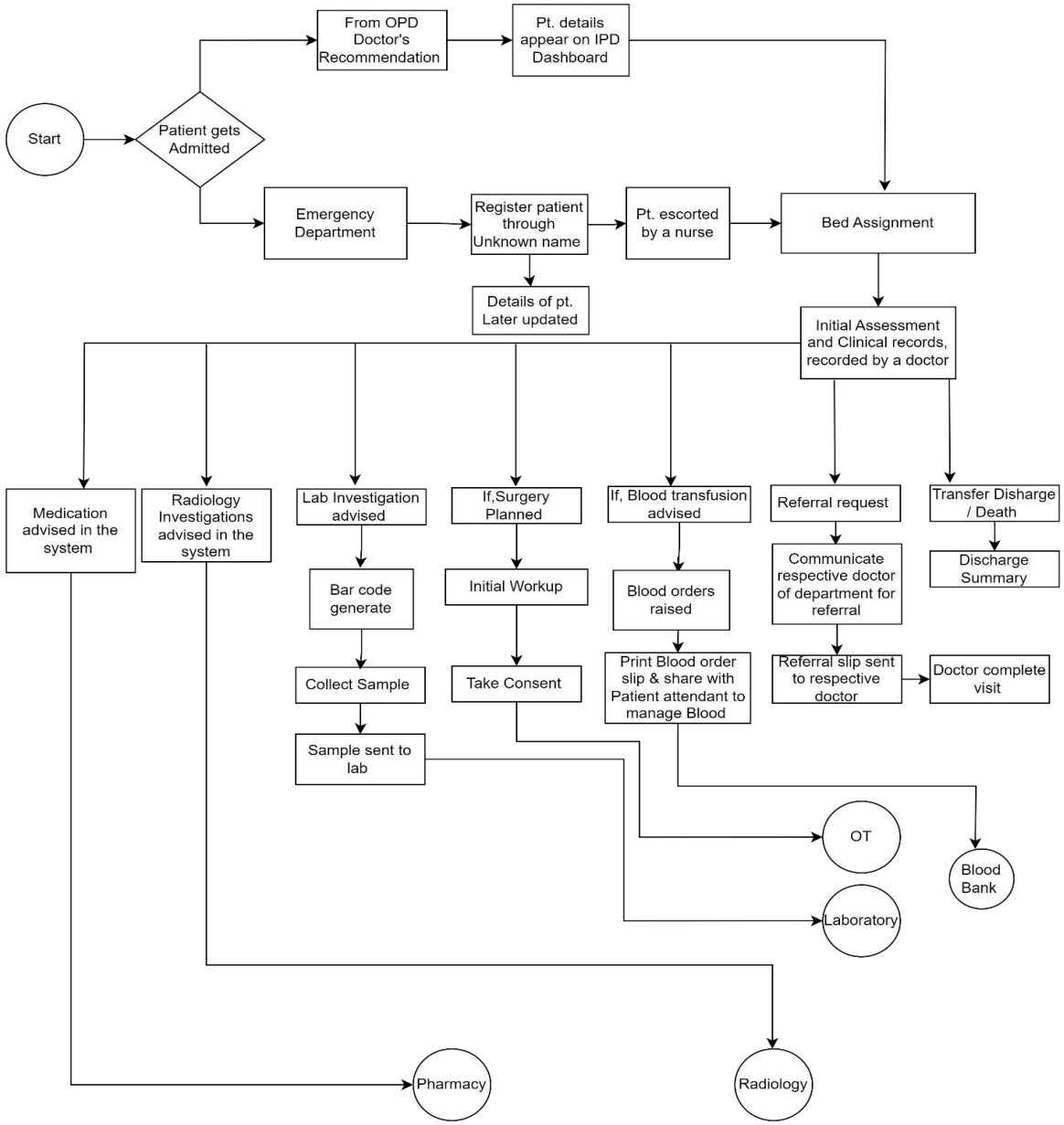
-Charge Slip Generation

-Visit Tracking

-Follow-Up Visits and Multiple Appointments

By incorporating these functionalities, the IPD module streamlines the management of inpatient activities and provides a comprehensive overview of their stay. It enhances efficiency, accuracy, and accessibility of patient data, ultimately leading to improved patient care and outcomes.

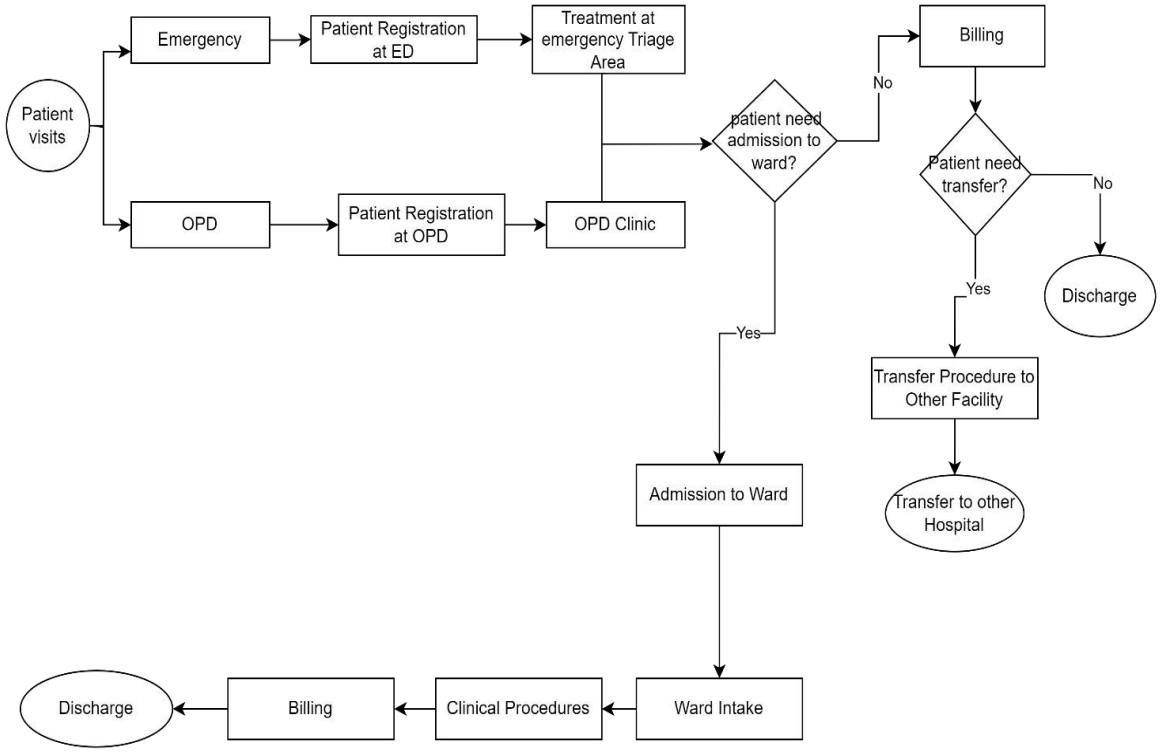
Process Flow



ADT Management

The admission, discharge, and transfer process is one of the most essential hospital workflows. The admission, discharge, and transfer process stores valuable patient information like the medical record numbers, ages, names, and contact information of patients. The patient information within an ADT system can be shared if the need arises. It will allow other health care facilities and programs to have access to valuable and, at times, life-saving information. Admission-transfer-discharge systems are used by healthcare facilities to track patients from their moment of arrival at the institution until departure. The departure can be by either transfer, discharge, or death.

Process Map



Minimum Functional Requirements:

Following are the minimum Functional Requirements (FR) envisaged for the ADT module including but not limited to:

FR Code	Minimum Functional Requirements of ADT Module
ADT/01	The system should have the IPD Dashboard with complete patient details in unit wise. (UHID, name, age, gender, Diet, diagnosis, Status of investigations, procedure, radiology, blood bank, Payer category etc.)
	Emergency Admission
ADT/02	The system should have the facility to display a dashboard of the current status of bed occupancy of the beds / unit / ward assigned to Emergency Department.

FR Code	Minimum Functional Requirements of ADT Module
ADT/03	The system should have the facility to display the current status of bed occupancy of any ward / unit in the healthcare facility with search facility of ward type / speciality.
ADT/04	The system should have the facility to assign a vacant bed to a patient based on the admission criteria. It should also capture details of the admitting doctor, date and time of admission, reason for admission, etc.
	Elective Admission
ADT/05	The system should have the facility to assign a patient requiring admission for a future date into a waiting list for the ward / unit.
ADT/06	The system should have the facility to view the list of patients assigned for admission for a ward / unit.
ADT/07	The system should have the facility to send notification to the patient for confirmation of admission.
ADT/08	The system should have the facility to confirm the admission of a patient on receiving confirmation.
	Planned Discharge
ADT/09	The system should have the provision to mark a patient for discharge.
ADT/10	The system should have the provision to generate a discharge checklist linked to the patient.
ADT/11	The system should have the provision to send notification to all concerned departments for clearance for the “mark for discharge” patient.
ADT/12	The system should have the provision to update the discharge status to “Discharge completed” on getting clearance of all discharge activities.
ADT/13	The system should have the provision to update the status of bed to “Cleaning required” after discharge process is completed.
	Discharge against Medical Advice
ADT/14	The system should have the provision to mark the discharge as “DAMA” if required.
	Death Discharge
ADT/15	The system should have the provision to mark the discharge as “Death” if required. The system should have the provision to create the necessary documentation required to process a death discharge
	Transfer of Patients
ADT/16	The system should have the provision to initiate the transfer of patient from one ward / unit to another ward / unit of the healthcare facility.
ADT/17	The system should have the provision to accept the transfer of patient from one ward / unit to another ward / unit of the healthcare facility.
ADT/18	The system should have the provision to record all details of the transfer of patient within the healthcare facility.
ADT/19	The system should have the provision to record all details of the transfer of patient to another healthcare facility.

Ward Management

Hospital bed/ward management plays a crucial role in streamlining the process of bed assignment and transfer within a healthcare facility. Here are some key features and benefits of an effective bed/ward management system:

-Graphical Representation

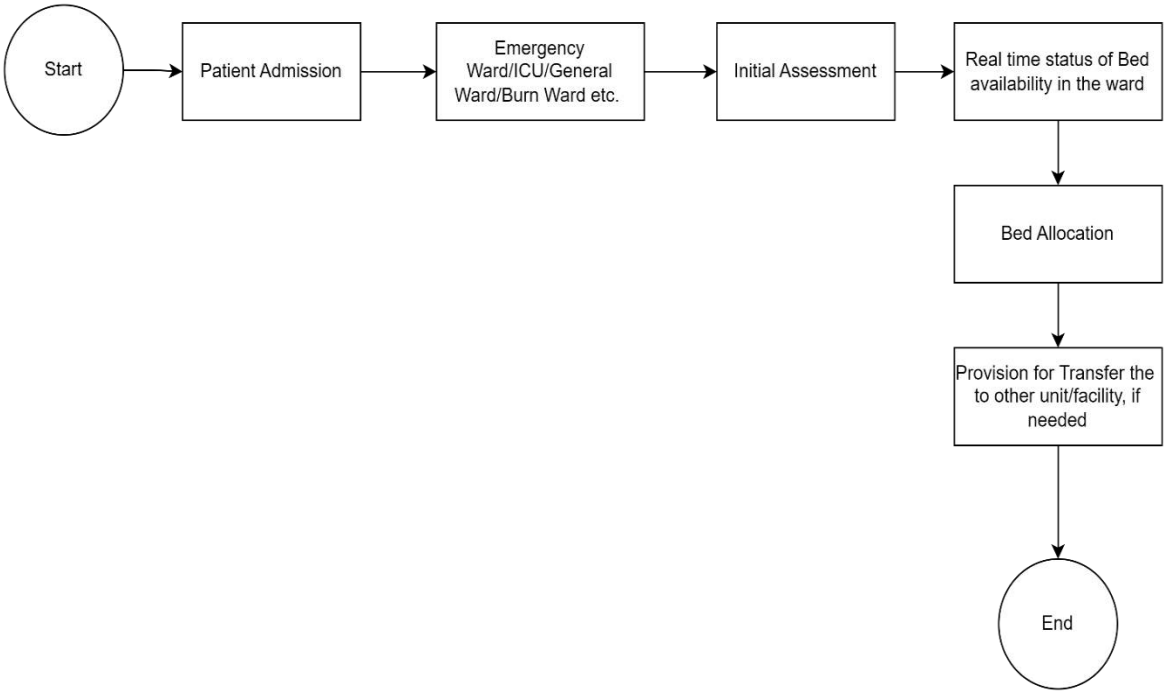
-Real-Time Updates

-Classification and Categorization

-Centralized Information

By incorporating these features, a bed/ward management system enhances the efficiency of bed allocation, reduces manual processes, and provides real-time bed availability information. This ultimately leads to better resource utilization, improved patient flow, and enhanced overall hospital management.

Process Map



Minimum Functional Requirements:

Following are the minimum Functional Requirements (FR) envisaged for the Ward Management module including but not limited to:

FR Code	Minimum Functional Requirements of Ward Management
WMS/01	Provision to generate bar coded for wrist bands, labels,
WMS/02	Provision for reading the bar code generated for the patient

FR Code	Minimum Functional Requirements of Ward Management
WMS/03	Provision to raise drug orders for patient
WMS/04	Display if items received and items requested are not matching.
WMS/05	Also, display list of pending items with remarks if any mentioned in pharmacy module for reason of delay.
WMS/06	Provision to display if the requested Drug is not a part of Patient Entitlement.
WMS/07	Provision to raise a drug return request for patients
WMS/08	Provision to issue stock/drugs from sub-store to patient, with option to display & select the list of alternative drugs, if ordered drug is not available.
WMS/09	Provision to raise a request for MRD folder. Request to be auto generated for services as defined in Service master. Also, provision to acknowledge on receiving the file.
WMS/10	Provision to raise a Blood Unit Request for Patient.
WMS/11	Provision to capture request for discharge of patient i.e., Mark for Discharge by nurse based on verbal orders given by the doctor.
WMS/12	Provision to raise a request to CSSD department:
WMS/13	Provision to raise a dietary request for patient or patient companion/Attendant
WMS/14	Provision to raise a request for linen, acknowledge on receiving & issuing to patient and then return.
WMS/15	Provision to raise a request for cross referral of Inpatients to other specialty Consultants
WMS/16	Provision for nurse to view the list of admissions floor/ wing wise.
WMS/17	Provision to generate Patient's list bed wise for each floor wise, with new admissions for the day to be displayed.
WMS/18	Provision to raise a request for room Maintenance.
WMS/19	Provision to raise Request as Routine/ Urgent for diagnostics, Bedside procedures & Other services/ packages/ bundles for inpatients.
WMS/20	Provision to raise a request for Ambulance and also for food directly from the IPD ward dashboard.

Clinical Management

The Clinical Management module is the essential part of the system and is the primary point for service delivery to the patient receiving treatment. The implementation of Clinical Management module is further organized into eight modules as under.

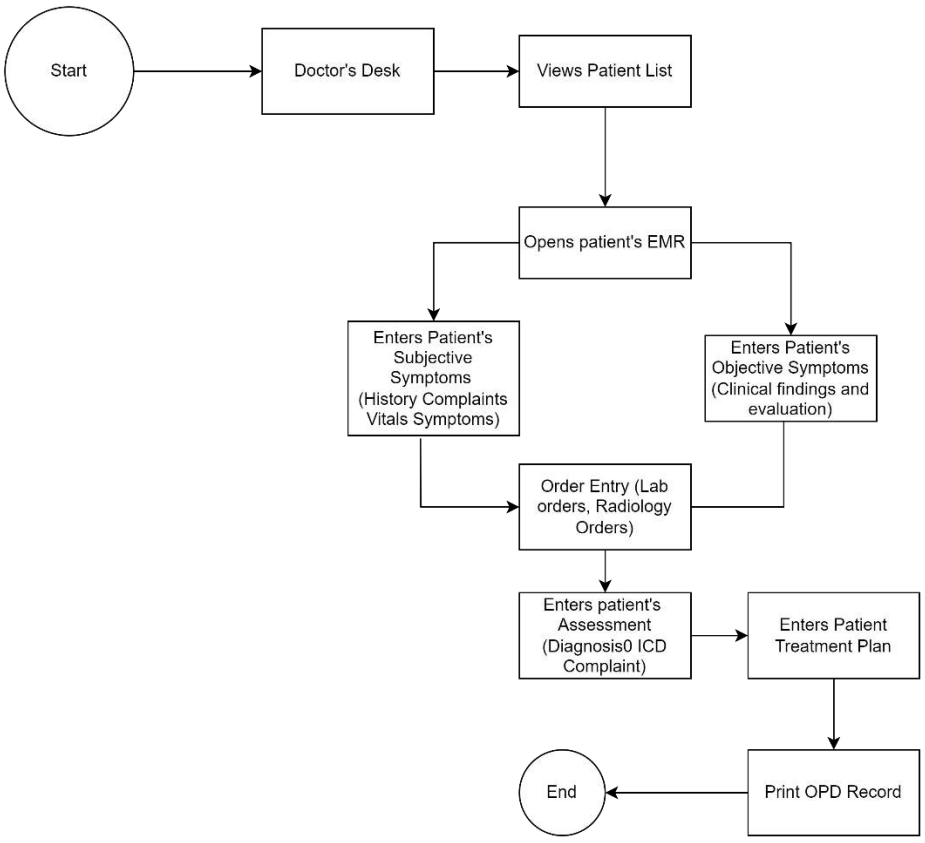
Doctor’s Desk Module

The Doctor's Desk serves as the central point of interaction between doctors and patients, encompassing their entire medical history in a chronological manner. Here are the key features and components of a Doctor's Desk dashboard:

- **Patient Overview**
- **Medical History**
- **Vitals and Allergies**
- **Lab and Radiology Results**
- **Medication History**
- **Documents and Attachments**
- **Notes and Annotations**

By consolidating all relevant patient information into a comprehensive dashboard, the Doctor's Desk allows doctors to quickly access and review key details about the patient's medical history. This helps in making informed decisions, providing personalized care, and enhancing overall patient management.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the doctor’s desk system including but not limited to:

FR Code	Minimum Functional Requirements of Doctor's Desk Module
Common Functions	
DDM/01	The system should have the provision for the doctor to view the daily workload in a calendar format.
DDM/02	The system should have the provision for the doctor to view the complete medical record of the patient in multiple display options – chronologically, medical record type wise, visit wise, etc.
DDM/03	The system should provide a list of medical record templates to the doctor for creation of new medical records. These medical record templates should be department-specific / unit-specific and displayed accordingly.
DDM/04	The medical record templates should be able to capture details such as medical history, subjective analysis, objective analysis, allergy records, provisional and confirmed diagnosis.
DDM/05	The system should have the provision for the doctor to create medical records using the configured medical record templates.
DDM/06	The system should have the provision for the doctor to place investigation orders like lab orders, radiology orders, other diagnostic test orders, OP procedure orders, admission requests, discharge requests, prescription orders, etc.
DDM/07	The system should have the provision for the doctor to order for any major procedures like surgery request with relevant details required for booking of OT and requests to other support departments like CSSD, Diet, Anesthesia, etc.
DDM/08	The systems should have the provision for the doctor to view the status of the orders placed for each patient.
DDM/09	The systems should have the provision for the doctor to view the results of the orders placed for each patient.
DDM/10	The system should have the provision to record SNOMED-CT code for procedures and where applicable.
DDM/11	The system should have the provision to record ICD code for provisional and confirmed diagnosis.
DDM/12	The system should have the provision for the doctor to view the trend analysis of lab results of the patient.
DDM/13	The system should have the provision for the doctor to raise a cross-consultation request for another doctor, transfer care to another doctor.
DDM/14	The system should have the provision for the doctor to view cross-consultations requests received, transfer of patient requests, etc.

FR Code	Minimum Functional Requirements of Doctor's Desk Module
DDM/15	The system should automatically record the start time and end time of each visit (OPD/IPD) along with the name and login ID of the doctor.
DDM/16	The system should have the provision to allow for residents allotted to a department to view the patients assigned to a consultant / doctor.
DDM/17	The system should have the provision for the resident to perform all functional features configured for the doctor as per allowed privileges.
DDM/18	The system should have the provision for the doctor / resident to create any relevant medical certificates as requested by the patient.
DDM/19	The mobile app provided for the doctor / resident should have all features mentioned above as per the configurations and clinical settings.
OPD Functions	
DDM/20	The system should provide a list of patients who have availed appointment for OPD services for the given department / unit / doctor as configured.
DDM/21	The system should have the provision for the doctor to electronically call a patient for OPD consultation.
DDM/22	The system should have the provision for the doctor to mark the patient as "Not seen" if the called patient has not reported for OPD consultation and should automatically move the patient from the list of active patients to a separate tab for "Not seen" patients.
DDM/23	The system should have the provision for the doctor to mark the OPD consultation of a patient as "Completed" and should automatically move the patient from the active list to another tab containing the "Completed" patients.
DDM/24	The system should automatically set the medical records created in the OPD consultation as read-only once the status of the OPD consultation is set as "Completed".
DDM/25	The system should have the provision for the doctor to update the medical record after the status has been set as "Completed" if required.
DDM/26	The system should have the provision to create a versioned copy of the medical records if it was updated after the status of the visit was set as "Completed" and the latest version will be presented to the user and earlier versions of the records will be made available to authorized users only.
IPD Functions	
DDM/27	The system should have the provision for the doctor to view the admitted patients in department / unit / doctor wise.

FR Code	Minimum Functional Requirements of Doctor's Desk Module
DDM/28	The system should have the provision for the doctor to mark an admitted patient for discharge.
DDM/29	The system should have the provision for the doctor to schedule a surgery for an admitted patient.
DDM/30	The system should have the provision for the resident to execute all functional features of the system in IPD as per allowed privileges.

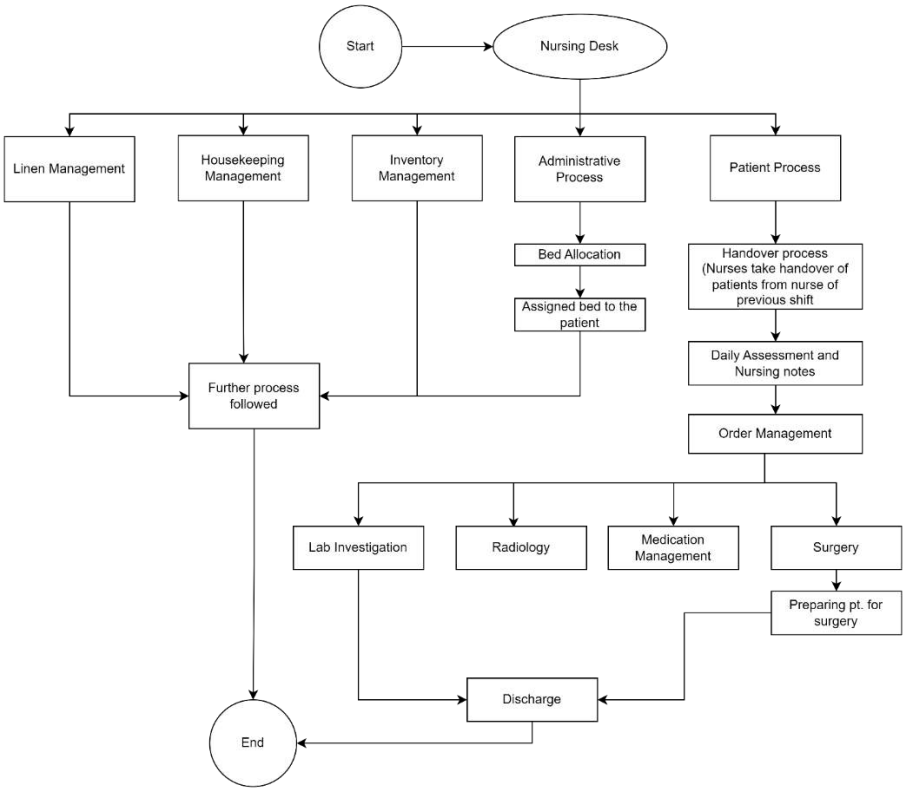
Nursing Desk Module

The Nursing Desk module serves as a vital tool for developing and implementing care plans to enhance the quality of patient care. Here are some general features typically found in a Nursing Desk module:

- **Patient Overview**
- **Care Plan Management:** Assessments, interventions, goals, and expected outcomes.
- **Documentation and Charting:**
- **Communication and Collaboration:** Messaging, alerts, and notifications.
- **Reporting and Analytics**

By incorporating these features, the Nursing Desk module supports nursing staff in developing and implementing effective care plans, optimizing patient care, and promoting positive patient outcomes.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the nursing desk system including but not limited to:

FR Code	Minimum Functional Requirements of Nursing Desk
NDS/01	The system should allow the nursing staff to view the list of admitted patients in their respective department / unit as per allowed privileges.
NDS/02	The system should allow the nursing staff to view the list of patients that are pending for intake process.
NDS/03	The system should allow the nursing staff to conduct the intake process (initial assessment, vitals, general condition, etc.) for the patients in the pending intake list.
NDS/04	The system should allow the nursing staff to view the longitudinal medical record of the admitted patient.
NDS/05	The system should allow the nursing staff to create medical records using pre-configured medical record templates for nursing assessments, daily progress notes, etc.
NDS/06	The system should allow the nursing staff to view the status of pending orders like lab orders, radiology orders, diagnostic orders, procedure orders, medication orders, etc.
NDS/07	The system should allow the nursing staff to record details of medication administration performed on each admitted patient.
NDS/08	The system should provide visible alerts to the nursing staff on pending activities for each admitted patient.
NDS/09	The system should escalate pending alerts to higher management nursing staff on pending activities for each admitted patient using a resolution time escalation matrix.
NDS/10	The system should allow the nursing staff to view the medical charts for IV administration, input/output charts, trend of vitals, etc.
NDS/11	The system should allow the nursing staff to place orders for clinical and non-clinical services delivered to the admitted patient.
NDS/12	The system should allow the nursing staff to raise indents for requesting medicines, blood product request, diet orders, linen items, surgical consumables, etc.
NDS/13	The system should allow the nursing staff to coordinate the activities to fulfill the discharge process for each patient.
NDS/14	The system should allow the nursing staff to view the billing charges for each admitted patient.

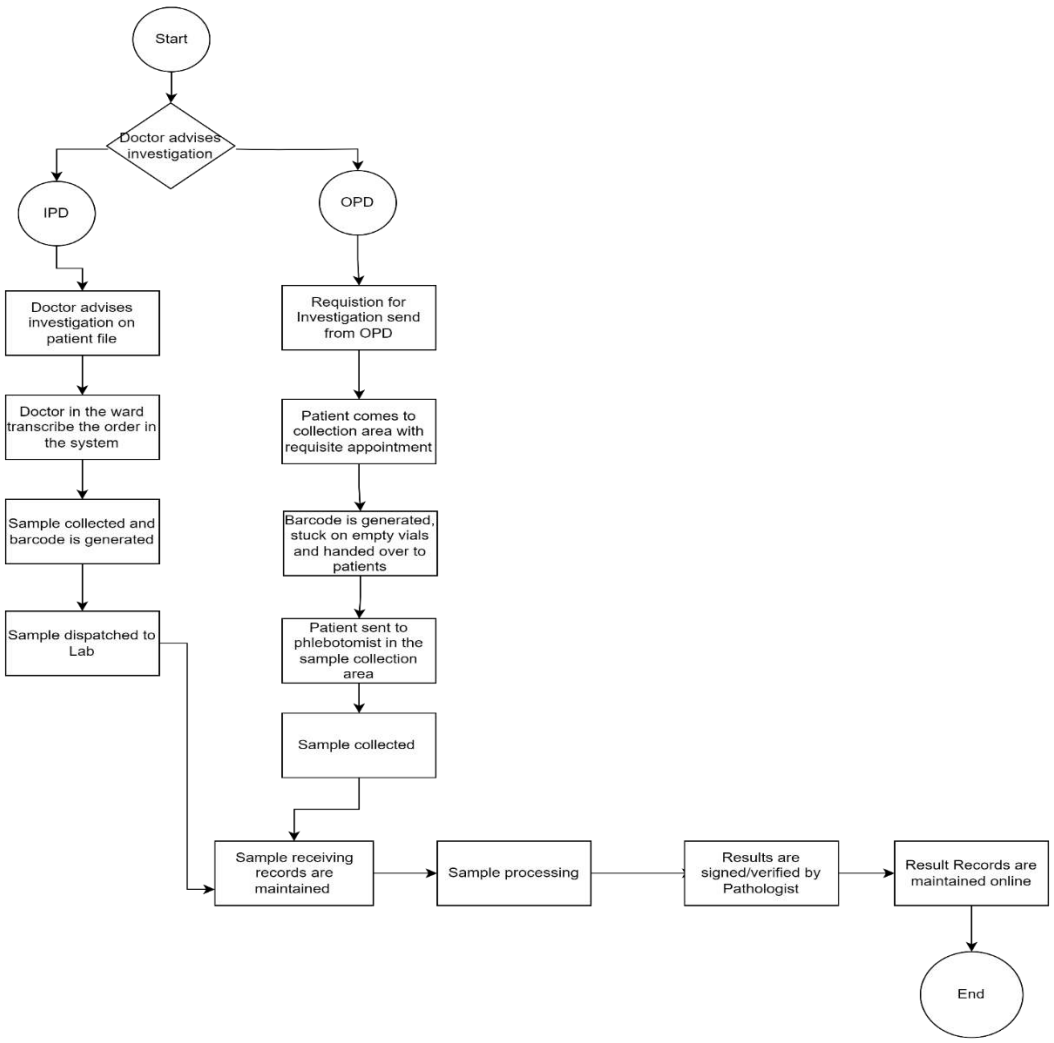
Laboratory Management Module

The Laboratory module is a crucial component of hospital management systems, as it automates the entire process of investigation requests and result delivery to the respective departments or doctors. Here are the key features and functionalities of the Laboratory module:

- **Request Management**
- **Test Disciplines:** The Laboratory module supports a wide range of tests.
- **Test Grouping and Sample Type**
- **Sample Number Generation**
- **Result Entry**
- **Hold and Recall of Lab test report**
- **Result Approval**
- **Result Delivery**

By utilizing these features, the Laboratory module streamlines the entire testing process, from request management to result delivery. It ensures efficient handling of investigation requests, accurate recording of test results, and timely delivery of results to facilitate prompt medical decision-making and patient care.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the lab module including but not limited to:

FR Code	Minimum Functional Requirements of Laboratory Management
LAB/01	The system has the capability to support Patient Registration functionality, i.e., Quick Registration Details & Detailed Registration Details
LAB/02	The system has the capability to support uploading the scan copy of TRFs (if any), Lab Form, Prescription of the patient available, corresponding to the Specimen No/ Lab No, for viewing at various stages.
LAB/03	The system the capability to support addition, modification & deletion of Test/ Profile/ Panel for Patients.
LAB/04	The has the functionality for recollection of samples for which samples are rejected
LAB/05	The system has the capability to support Patient & Request merge functionality, when patient or requests have been incorrectly entered into the system.
LAB/06	The system supports Request tracking functionality using Patient ID/ Sample ID etc., allowing the addition or viewing of details of a patient's request record, such as Panels/ Profile/ Test ordered/deleted/modified, results changed and so on.
LAB/07	The system has the functionality to record/view/edit internal comments corresponding to a Patient in its lifecycle of the sample
LAB/08	The system has the functionality to inform the date and time of report availability to the patients depending on the services availed by SMS/email.
LAB/09	The system has the functionality to configure the number of bar codes to be printed per sample, as per sample collection policy
LAB/10	The system has the capability to accept order transactions from another information system through HL7 interface
LAB/11	The system has functionality to retrieve patient records by partial name (first/ middle/last name), mobile number, Patient ID, location wise, Jan Aadhaar, Aadhaar etc.
LAB/12	The system has the capability of Barcode printing while sample collection/ Specimen Label Printing as required
LAB/13	The system has the capability to support Barcode- pre- printed and printed post registration (both) to complete the sample processing workflow.

FR Code	Minimum Functional Requirements of Laboratory Management
LAB/14	The system also should provide the functionality to allow repeat printing of barcode on requirement (if the earlier one is damaged/ lost/ to be added in a new tube)
LAB/15	The system has the functionality to create a batch and print a bar code for that batch of samples, being sent to the Receiving Point/ Location.
LAB/16	The system has the functionality to select option for sending report to patient via e-Mail during Registration.
LAB/17	The system has the capability to add-on a test to the same sample, with or without billing based on various scenarios
Sample Collection and Distribution	
LAB/18	The system has the capability to support the Specimen Receipt functionality allowing receiving single specimens, either by scanning a barcode or by entering a specimen number.
LAB/19	The system has the capability support re-routing Specimen Dispatch / Receipt functionality enabling Panels/specimens rerouting to an alternate lab for testing in the case where the usual performing lab is unable to complete the testing.
LAB/20	The system supports Turn Around Time (TAT) functionality for tracking and monitoring of sample receipt and distribution
LAB/21	The system has the capability to support Specimen/sample, receipt/ dispatch/status tracking functionality displaying all the tracking information on an individual specimen/sample with the date, time and responsible user for each action.
LAB/22	The system should support Outstanding Lists & labels functionality displaying the Collection Lists/ Labels for outstanding batches/ samples and enables receipt of these batches/ samples with/ without collection date and time update.
LAB/23	The system should support Barcode scanning functionality enabling scanning of bar code to reflect receipt
LAB/24	The system should provide the ability to update sample acknowledgement status for the requisitions displayed
LAB/25	The system has the ability to track the status of the sample in its complete lifecycle based on the Bill No / Barcode id/ Patient Id or single bar code generated during Patient Registration.
LAB/26	The system has the functionality to handle remotely registered samples, not to appear in the worklist till it arrives in the sample receipt area of the Lab

FR Code	Minimum Functional Requirements of Laboratory Management
LAB/27	The system has the functionality to record and view/ add internal comments from Registration / Sample Receipt / Sample Acknowledgement stage
LAB/28	The system has the functionality to provide a prompt to show the sample quantity, type of container, special handling remarks to be populated/ collected as part of sample collection.
LAB/29	The system has the functionality for generating pending list which need to be highlighted based on various criteria's as required.
LAB/30	The system has the capability to support rejection of batch/ individual sample through bar code scanning or entering bar code number
LAB/31	The system has the capability to display samples-in-transit/ Pending receipt, at any point of time based on various criteria like location/ lab name/ collection centre/ Referral Hospital name/ Hub etc.
LAB/32	The system has the capability to support rejection of sample, providing reason in the comments throughout the sample lifecycle and rejection comment need to be popped up as alerts in the system
LAB/33	The system has the capability to support creation of an appropriate workflow, in case of rejected/ repeat collection of samples
LAB/34	The system has the capability to display samples-in-transit/ Pending receipt, at any point of time based on various criteria like location/ lab name/ collection center/ Referral Hospital name etc.
LAB/35	The system has the functionality to display the type of tube and the number of tubes required for collection of the sample, depending on the tests to be conducted
Testing	
LAB/36	The system has the capability to take results directly based on defined criteria from the Instrument application which are capable to communicating with the system bi-directionally
LAB/37	The system has the capability to provide an option to enter result manually, for tests performed in Instruments which are able to communicate bi-directionally
LAB/38	The system has the capability to import/ export graphs/diagrams/ demographic details of patients from other sources/ applications.
LAB/39	The system should not accept any abnormal value recorded in result entry like "0" in any field and provide pop up alert flagging the abnormal value.
LAB/40	The system has the capability be enabled to interface unidirectionally / bidirectionally with Lab equipment's/instruments listed. Apart from the integration with the equipment's, it enables

FR Code	Minimum Functional Requirements of Laboratory Management
	Accepting/Transmitting results, Sending results for Validation, results changing, holding, deleting, repeating, rerunning etc.
LAB/41	The system shall provide an option to the User if he/she wants to record repeat test values in the result entry screen.
LAB/42	The system shall provide the option to record manual result entry for tests, performed in the instruments, in a single screen.
LAB/43	The system has the capability to support sample storage & archival process in terms of automating the location details and other associated details for traceability
LAB/44	The system has the capability to provide option to record results for multiple tests for a single person in one department in one instance.
LAB/45	The system shall provide the option to enter the Test results in a batch, with respect to the tests performed in that batch. This functionality can be customized as per department needs.
LAB/46	The system shall provide the option to track samples which need to be processed again due to any reasons.
LAB/47	The system can provide the functionality to trace the original result, if the result is changed subsequently
LAB/48	The system has the functionality to store images that are grabbed from microscope and option to put that as part of report
LAB/49	The system facilitates Histopathology workflow result entries along with generating worksheets with slide no
LAB/50	The system shall provide the functionality for automatic calculations of test results derived from other field results.
LAB/51	The system has the capability to support Query to view the Panel/profile details using Lab no, patient id, Bar Code number etc.
LAB/52	The system has the capability to provide Work-List functionality allowing listing of test requests waiting to be performed. It should also support viewing outstanding tasks based on selective parameters like labs, users, departments etc.
LAB/53	The system has the Turn Around Time (TAT) functionality allowing for tracking & monitoring of samples in various stages of sample lifecycle including testing.
LAB/54	The system has the capability to provide Request Entry functionality enabling result entry - panel (entry and Change), display result entry (general entry), work-list result entry etc.
LAB/55	The system provides vertical Result Entry functionality enabling to enter details of test results for an entire panel/profile, using a vertically formatted scrolling result entry form.

FR Code	Minimum Functional Requirements of Laboratory Management
LAB/56	The system provides horizontal Result Entry functionality enables to enter details of test results for an entire panel/profile (to a maximum of 12 items), using a horizontal formatted result entry form.
LAB/57	The system has the functionality to view/ enter/ authenticate results by Patient/ Test/ Group/ Panel/ Category/ Department depending on the type of workflow followed in the laboratory
LAB/58	The system has the functionality to generate critical value alarm based on result entry
LAB/59	The system has the capability to support inter department and intra department sample sharing work flow for performing testing of samples
LAB/60	If there are multiple tests to be performed on a single sample and partial testing has been completed, rejection/ acknowledgement can be supported by the system, for rest of the tests if the sample is not sufficient to test/ repeat testing has been ordered
LAB/61	The system has the functionality to print aliquot labels when more than one test is drawn in the same collection tube.
LAB/62	The system has the capability to support Split Sample & taking the samples for testing as per the process flow of the Lab after splitting.
LAB/63	The system shall provide the flexibility to perform tests based on Primary Bar Code (If necessary, based on Secondary Bar code, if any)
LAB/64	The system has the capability to support Serology, Cytology, Cytogenetics workflow to complete end to end testing of the samples
Validation	
LAB/65	The system has the capability to provide Panel details in terms of elaboration in the validation screen if other tests are ordered by the same patient, details of the patient demographics etc. In cases where the sample involves tests in other departments as well, in the validation screen of the system can have the other department result also, for view to the person who is validating the result, to correlate the result.
LAB/66	The system has the capability to show the sample receipt time & date in the result validation screen
LAB/67	The Validation screen in the system is simple and provides option for validating each specimen after searching based on specimen no, i.e. single panel validation.
LAB/68	The system has the capability to display Test Results in Graphical format and option to display graph for co-relation of 2/3 tests results need to be in place.

FR Code	Minimum Functional Requirements of Laboratory Management
LAB/69	The system can show in the validation screen, the number of records left for validation.
LAB/70	The system ensures through access control that Result entry and changing result entry can be strictly available to the department people only. No other department people has the capability to record results/ change results for other departments. For changing validated results, the right can be restricted only to the HoDs/ Supervisors.
LAB/71	The system has the capability to maintain the audit trail of all changes performed in the results post those are recorded.
LAB/72	The system provides the option that while validating the record, the screen can mention somewhere in the screen from which location/lab and which user has recorded the result. If there have been any changes in the result value, the screen should also show the list of people who has edited the record.
LAB/73	The system can provide an option that while validation of a result record, the validation executive should have the option to view Patient demographic details, contact number of the person, his/ her physician's contact number, on pressing some key, rather than going to different windows completely
LAB/74	The system can provide the functionality that reports of a department is appearing in the validation list of the department only. Moreover, the reports once validated in a level will not appear in that level again.
LAB/75	The system has the functionality to place the records in FIFO (without priority of department) for validation queue, irrespective of departments
LAB/76	The system provides the functionality of displaying full details of results for individual panels by request number.
LAB/77	The system provides Validation functionality enabling reviewing and releasing of results. There should be two types of validation possible in the application, i.e. single request validation & general validation.
LAB/78	The system has the capability to generate Worklist based on different parameters like tests, patient demographics etc. are generated for the user to track details.
LAB/79	The system has the capability to provide Result Acceptance/ Rejection functionality of the application allows accepting / rejecting result entry in the validation screen.
LAB/80	The system can allow results validation involving different interfaces for validation - single panel, multiple etc.

FR Code	Minimum Functional Requirements of Laboratory Management
LAB/81	The system has the capability to support auto-validation protocol based on CLS guidelines
LAB/82	The system allows modification post approval as per rights based
LAB/83	The system has the functionality that report should be available to single user while time of verification or approval
LAB/84	The system has the functionality that the results falling under predefined criteria's, general validation should be performed (batch validation)
LAB/85	The system should support reject or recollect feature on verification and approval screen
Reporting	
LAB/86	The system shall provide an option to generate Report in various formats like html, pdf, word, tif, .gif etc., noneditable formats.
LAB/87	The system provide option to integrate results involving multiple tests in multiple locations/ labs/ departments to provide one view to the customer on results obtained.
LAB/88	The system shall provide the option to search the patient lab data using the search criteria and option to reprint the lab report should be there based on role-based access.
LAB/89	The system shall provide flexible reporting involving reports creation & customization
LAB/90	The system can store lab reports with the patient record for future reference by the Patient
LAB/91	The system supports customized reporting needs as per Government regulations during epidemic like during Swine Flu, Dengue etc.
LAB/92	The system has the functionality to print the bar codes on the reports of the Patient as well while reporting.
LAB/93	The system has the facility to print report with images attached for that test
LAB/94	The system has the capability to place digital signature for all people who are validating a panel containing multiple tests (more than one doctor validating the report) in the reports
LAB/95	The system provides the functionality to upload the Reports over the Internet & e-mail reports.
LAB/96	The system provides functionality to handle rules-based report routing.

FR Code	Minimum Functional Requirements of Laboratory Management
LAB/97	The system has the capability to print multiple department reports in one page, if required
LAB/98	The system provides functionality to enable result entry for qualitative result entry through work-list result entry
LAB/99	The system has the capability to support Result Reporting functionality to report the results after validation is complete, based on various grades defined for the respective tests.
LAB/100	The system has the capability to provide Report templates for descriptive reports
LAB/101	The system has the capability to support web reports & reports over mobile app for the performed tests after results are published
LAB/102	The system provides the option to add Antibiotics to the master list for the culture antibiotic sensitivity etc. by the authorized lab user
LAB/103	The system has the capability to perform configuration of a test in the application enabling User to create a new test, recording details for the test and mapping them to Parameters.
LAB/104	The system provides the functionality to configure Reference Ranges with respect to Patient's age/gender and equipment and associated interpretation.
LAB/105	The system has the functionality to enable the users to create the list of units. And subsequently, the Units need to be mapped to samples and parameters through the application.
LAB/106	The system has the capability to capture the list the organism names which are used for Microbiology Culture reports. The application should also provide the functionality to capture the source for mapping of Organism Antibiotics and capturing list of Antibiotics. The system should be able to map the organism to source & Antibiotics.
LAB/107	The system has the easy to set-up functionalities and use flexible rules like if any test result reaches a specific value, additional panel/ test is added to panel based on rule.
LAB/108	The system provides the functionality enabling recording of the Reference and Delta Ranges.
LAB/109	The system provides the ability for result parameter creation involving creation of parameters for results reporting. Result name, result type and units etc.
LAB/110	The system allows Units Creation involving capturing the conversion factor while creating unit - conventional unit name & S.I. unit name

FR Code	Minimum Functional Requirements of Laboratory Management
LAB/111	The system allows creating Package/ Profile definition to define Packages/Profiles (Packages/Profiles are group of tests) and mapping of the same to tests
LAB/112	The system has the capability for Security management/ role-based access management for the users
LAB/113	The system has the capability to maintain table of lab-defined panic, delta and reference result ranges based on age and sex.
LAB/114	The system has the capability to support Regulatory compliance for current regulatory requirements
LAB/115	The system provides the functionality to define master hierarchy involving Package>Profile->Test->Parameters
LAB/116	The system has the functionality to define the Schedule Master in detail
LAB/117	The system has the capability to support Lab wise configuration test masters to run the business.

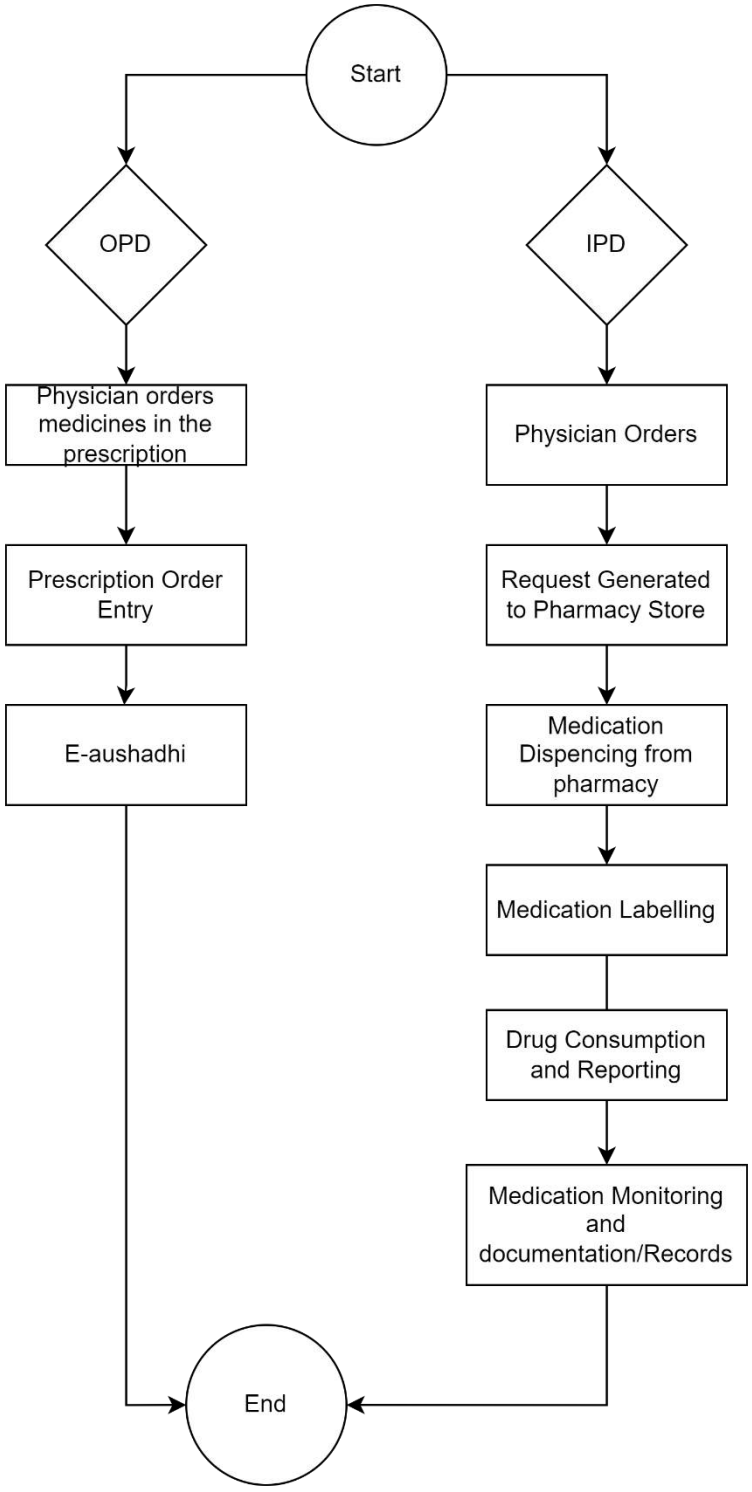
Pharmacy Management Module

The Pharmacy Management module is a vital component of hospital management systems as it oversees the comprehensive management of drugs and medical consumables essential for patient treatment. Here are the key features and functionalities of the Pharmacy Management module:

- **Drug and Consumable Inventory**
- **Requisition Management**
- **Stock Management**
- **Supplier and Vendor Management**
- **Medication Dispensing**
- **Billing and Invoicing**
- **Drug Information and Drug-Drug Interactions**
- **Reporting and Analytics**

By incorporating these features, the Pharmacy Management module streamlines the processes related to drug and medical consumable management within the hospital. It ensures the availability of necessary medications, facilitates accurate dispensing, and contributes to effective inventory control and cost management.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the pharmacy module including but not limited to:

FR Code	Minimum Functional Requirements of Pharmacy Management Module
OPD Functions	

FR Code	Minimum Functional Requirements of Pharmacy Management Module
PHR/01	Complete Item Details (like expiration date, available stock, batch no. etc) for Inpatient or Outpatient Requests
PHR/02	Issue of drugs to inpatients and outpatients.
PHR/03	Expiration Date Tracking and Highlighting for Drugs near to expiration date.
PHR/04	Alternate Drug Details.
PHR/05	Colour-coded alerts for drugs expiring within 3 months or 6 months.
PHR/06	Indent Generation Based on Minimum Stock Levels
PHR/07	Create multiple pharmacies and link them to specific wards or OPDs.
PHR/08	Partial Drug Dispensing if any drug is less or not in stock
PHR/09	Automatic update of stock as soon as a drug is issued to a patient.
PHR/10	Add or remove favourite drugs.
PHR/11	Drug Consumption Reporting for inpatient and outpatient
PHR/12	Queue Management Display outside Pharmacy
PHR/13	Functionality of Lifeline Fluid Stores.
PHR/14	Demand Collation for Drug Distribution
PHR/15	Facility for Empanelment of Suppliers.
PHR/16	Providing Drug Testing Interface to enrolled supplier and enrolled Laboratory
PHR/17	Generate Rate Contracts, Purchase Orders, and challans.
PHR/18	Return drugs to Drug Warehouses and to the supplier.
PHR/19	Drug Transfer from one Drug Warehouse to another Drug Warehouse.
PHR/20	Quality control of drugs.
PHR/21	Condemning drugs in the system.
PHR/22	Budget Allocation to hospitals, Drug warehouses, and health facilities.
PHR/23	Dynamic MIS Reporting facility
PHR/24	Integration with e-Aushadhi.

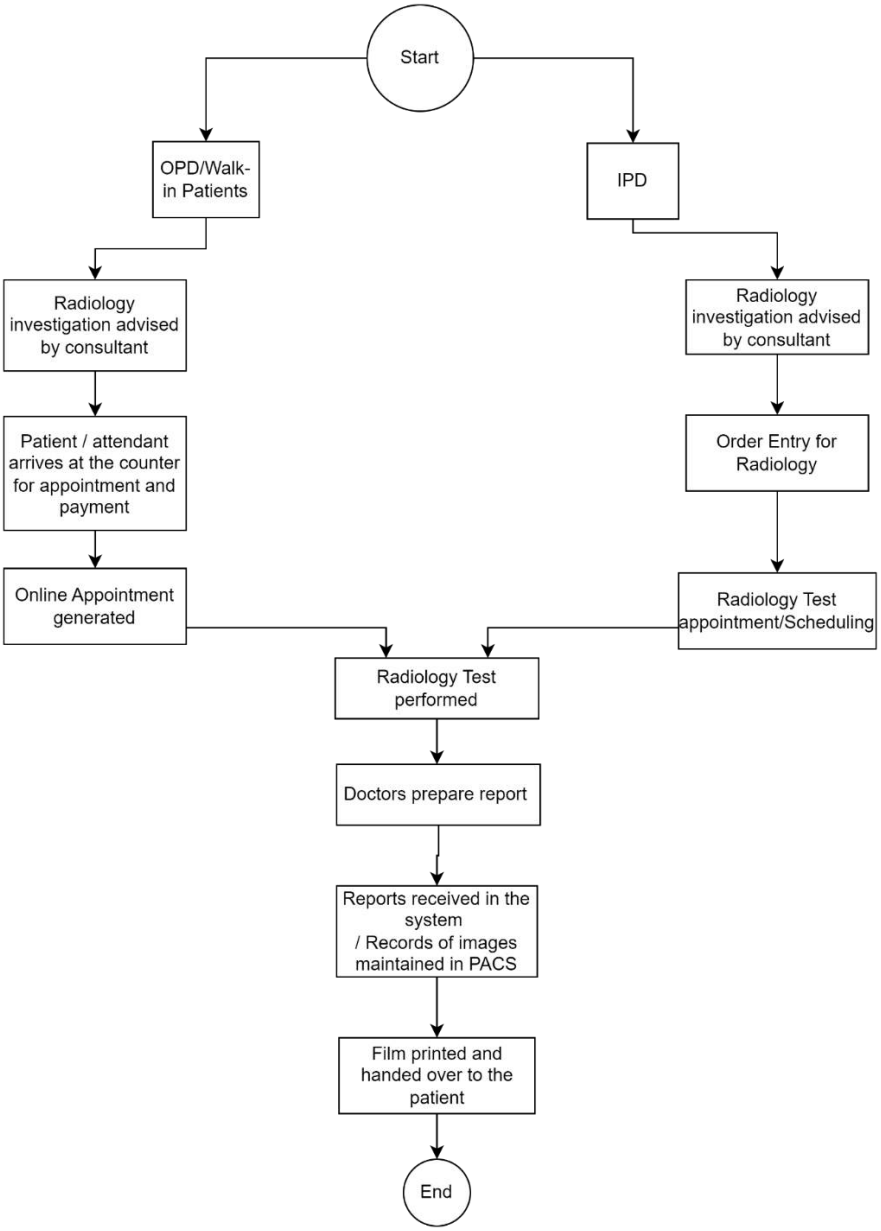
Radiology Management Module

The Radiology Management module is a critical component of hospital management systems that specifically caters to radiology services such as X-ray, scanning, ultrasound, CT scans, MRI, and more. Here are the key features and functionalities of the Radiology Management module:

- **Service Management**
- **Resource Scheduling**
- **Test Order and Tracking**
- **Result Management**
- **Report Generation**
- **Integration with Patient Records**
- **Billing and Documentation**

By incorporating these features, the Radiology Management module enhances the efficiency and effectiveness of radiology services within the hospital. It facilitates resource scheduling, test order management, result tracking and reporting, and seamless integration with patient records, ultimately contributing to better patient care and diagnosis.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the radiology module including but not limited to:

FR Code	Minimal Functional Requirements of RIS
RIS/01	The module should be HL7 complaint and provision of maintaining a service master with records of all the tests conducted and functionality of generating different MIS reports
RIS/02	The module should provide investigation ordering process. Any suggestions and recommendations of Radiology investigations by the doctor should be reflected in the Radiology management system
RIS/03	The module should provide radiology test appointment /scheduler for scheduling radiology test for patients
RIS/04	The system should be capable of interfacing with the PACS and incorporating Radiology management facilities.
RIS/05	The system should have provision to allow tests to be performed only after the billing is done.
RIS/06	Image library function for research and marking interesting cases must be available
RIS/07	Patient registration module with ability to create study orders and forward them to the Modality using DICOM MWL.
RIS/08	Scheduling of patient appointments is required
RIS/09	User should be able to create multiple study orders and schedule the orders for different modalities
RIS/10	User should be able to mark patients under various categories like MLC, HIV etc and generate a report of such patients
RIS/11	User should be able to ad Contrast information for any study
RIS/12	User should be able to add charges for any study and generate invoice & collection reports
RIS/13	User should be able to generate statistical reports
RIS/14	Should be able to print/scan patient consent forms for various studies
RIS/15	User should be able to scan & attach prior reports as DICOM file
RIS/16	Worklist should display status of the study in realtime
RIS/17	Automated Critical Results Alert system is required

Blood Bank Management Module

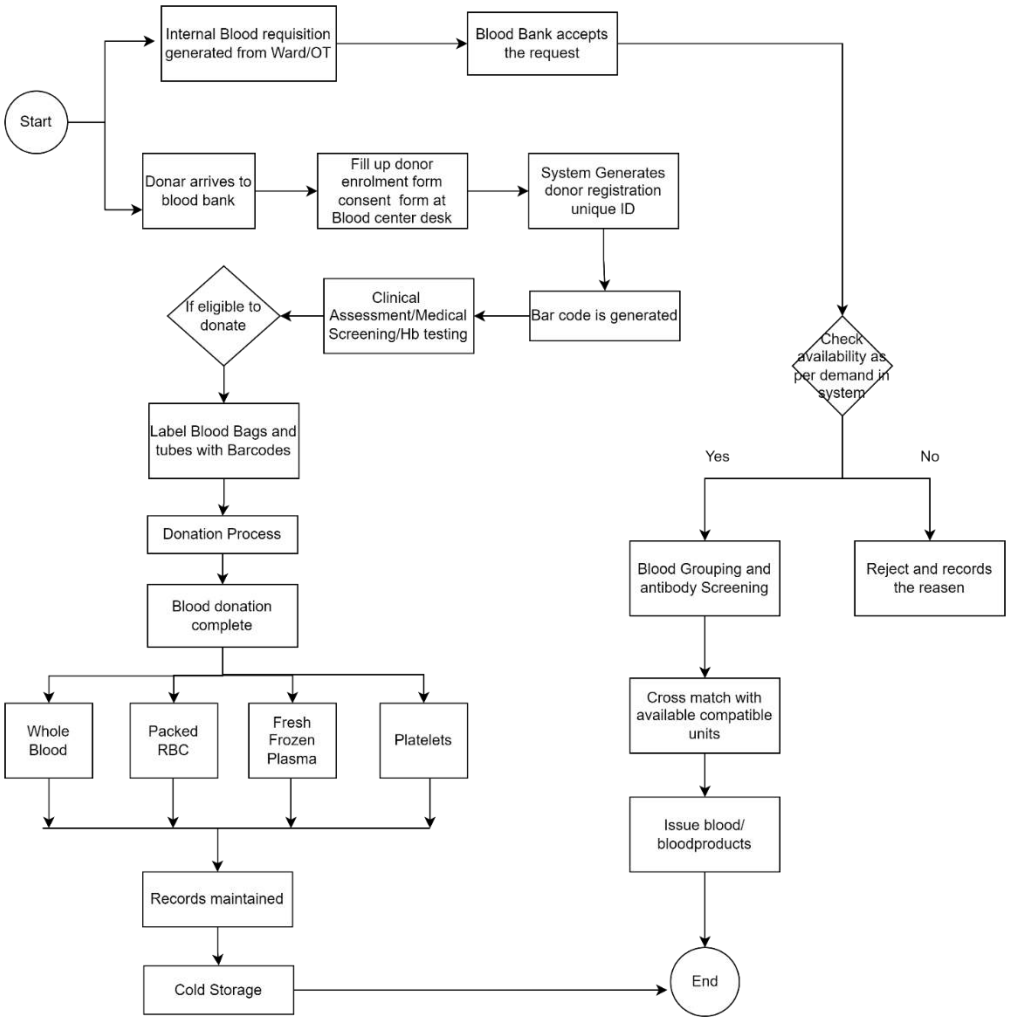
The Blood Bank Management module is a critical component of hospital management systems, specifically designed to handle various functionalities related to blood bank operations. Here are the key features and functionalities of the Blood Bank Management module:

- **Blood Requisition Management**
- **Blood Collection and Donation Management**

- **Blood Transfusion Process**
- **Donor and Recipient Management**
- **Blood Inventory Management**
- **Quality Control and Safety Measures**
- **Reporting and Analytics**
- **Integration with Hospital Systems**

By incorporating these features, the Blood Bank Management module streamlines and optimizes blood bank operations. It ensures efficient management of blood requisitions, donation processes, blood transfusions, and inventory control, ultimately contributing to patient safety and effective healthcare delivery.

Process Map



Minimum Functional Requirements for Blood Bank

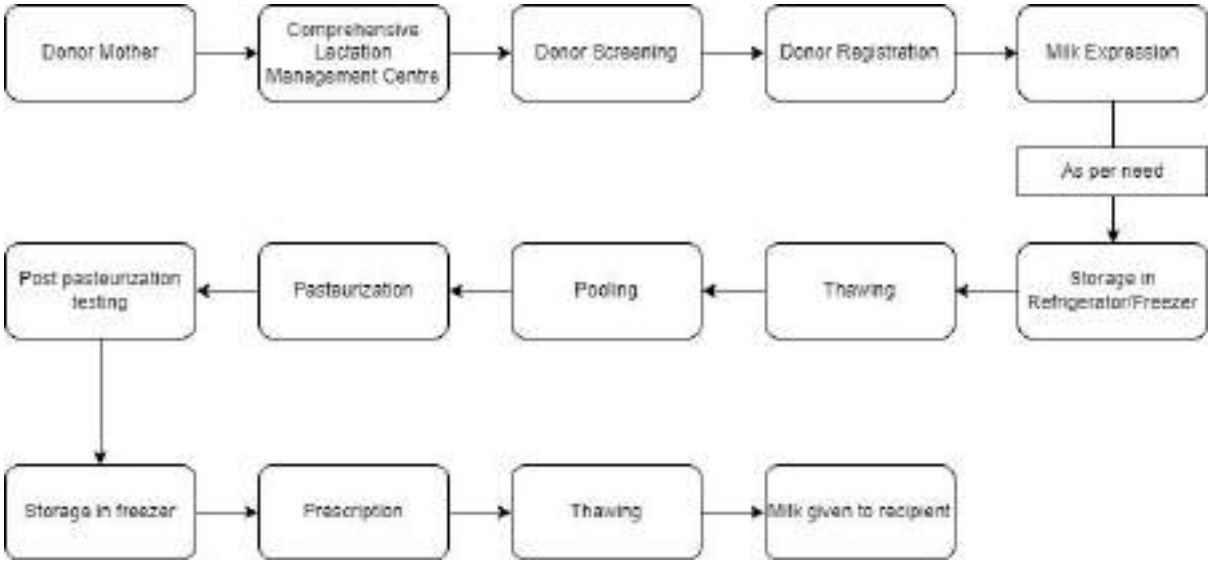
Following are the minimum Functional Requirements (FR) envisaged for the blood bank module including but not limited to:

FR Code	Minimal Functional Requirements of Blood Bank
BBM/01	Facility to configure blood groups and various blood components.
BBM/02	Blood Donation: Facility to capture physical and disease related details of a donor in advance and also facility to capture post donation condition of the donor.
BBM/03	Blood Component Breakup: Facility to capture details about various components that each blood unit is broken into.
BBM/04	Facility to display waiting patients/attendants outside the blood bank for queue management.
BBM/05	Provision shall be there for professional donor identification through biometric.
BBM/06	Blood Group Test and Serology Test Results: Facility to capture test results information for blood group tests and Serology tests like HIV, HBsAg, VDRL, HCV, HEV and malaria parasite.
BBM/07	Quarantine and Stock: After screening, blood is stored and its Expiry Date is marked on it. The Expiry Date can vary for whole blood and for blood components.
BBM/08	Blood Procurement Request: Facility for raising request for blood or blood components by the doctor.
BBM/09	Cross Match and De-cross: Facility to capture all data for cross match of the blood samples and for de-cross of blood samples so that crossed blood bag(s) can be issued to some other patient, if the raised request has been cancelled.
BBM/10	Component Issue and Return back: Facility to capture data for the final issue of the component or whole blood as per the blood procurement request. Also facility to capture information of returned back blood bags.
BBM/11	Mass Issue and Receive: Facility for capturing and issuing blood in mass which is basically very helpful during camps and special program events.
BBM/12	Reports: For providing details like blood issued, discarded, returned bag and donation details etc.
BBM/13	A summary module for Blood Storage Centre (BSC) – to be used by institutions that have BSC but not a Blood Bank.
BBM/14	Facility to issue blood from Blood Bank to Blood Storage Centre and to receive back unused units of blood issued to Blood Storage Centre.
BBM/15	Facility to incorporate RFID tag and Bar Code at the time of generation of blood bag at the time of collection blood.
BBM/16	Integration with E-Rakhtkosh.
BBM/17	Facility to generate MIS Reports as per need.

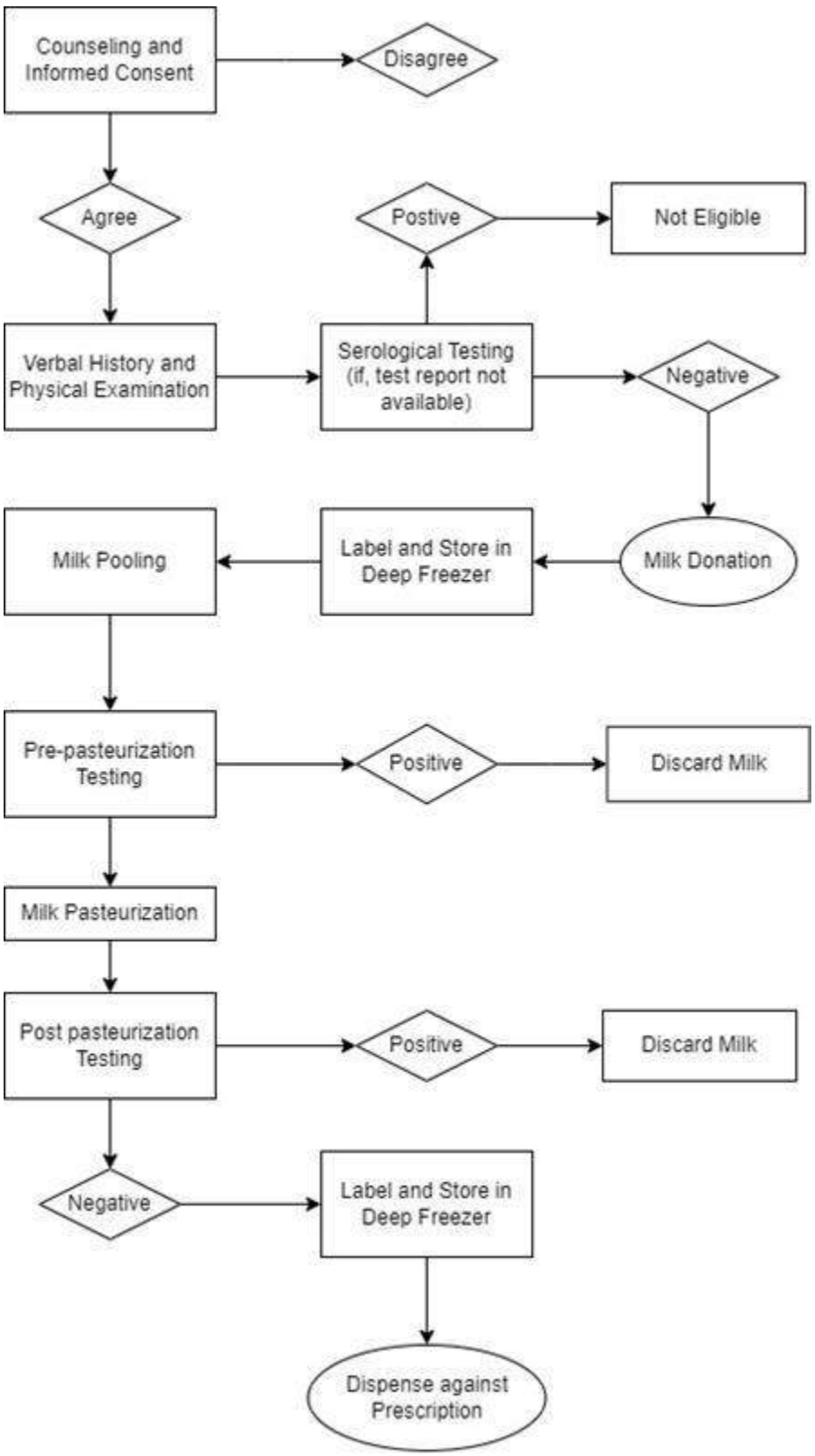
Comprehensive Lactation Management Centres

Comprehensive Lactation Management Centres (CLMCs) are specialized healthcare facilities or units dedicated to providing comprehensive support and care for breastfeeding mothers and their infants. These centres offer a range of lactation and breastfeeding services, education, and resources to ensure successful breastfeeding experiences. The primary goal of CLMCs is to promote and support breastfeeding, recognizing its numerous benefits for both mother and child. They are staffed by trained and certified lactation consultants or specialists who work closely with mothers, offering personalized assistance and guidance throughout their breastfeeding journey. Comprehensive Lactation Management Centres play a crucial role in supporting and promoting breastfeeding as the recommended method of infant nutrition. By offering expert assistance and a nurturing environment, they contribute to increasing breastfeeding rates, improving maternal and infant health outcomes, and fostering a positive breastfeeding experience for families.

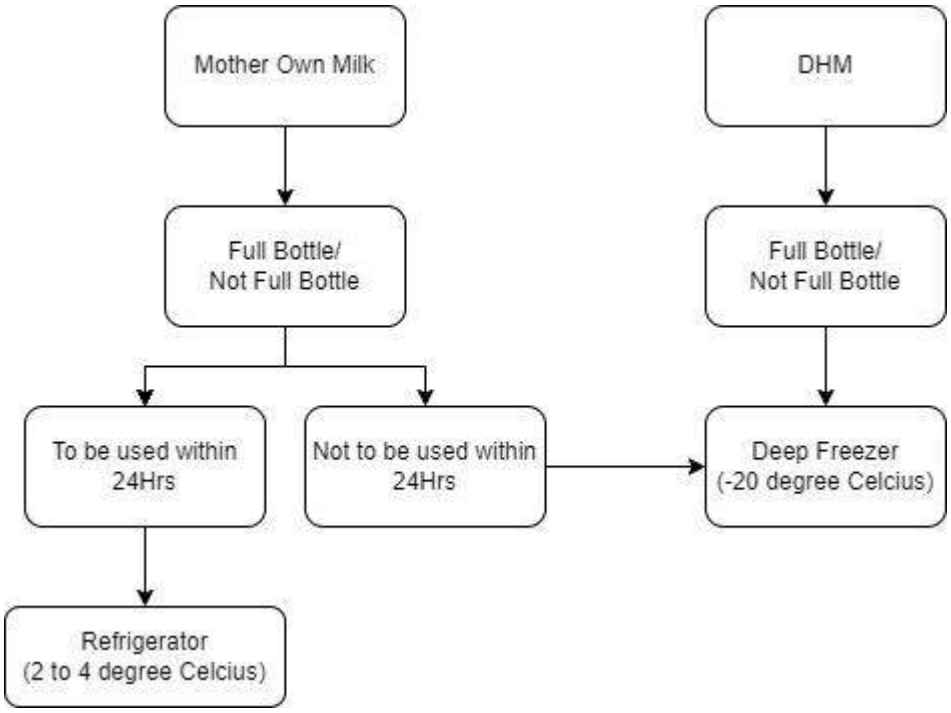
Process Diagram for workflow of CLMCs



Process Flow Chart for collection of Donor Milk



Process Flow Chart for Pre-Pasteurization Storage of Donor Milk



***DHM – Donor Human Milk**

Minimum Functional Requirements for Comprehensive Lactation Management Centre

FR Code	Minimal Functional Requirements of Comprehensive Lactation Management Centre
	Registration of Human Milk Donor
CLMC/01	The system should have the provision of registering a lactating woman using the Jan Aadhaar ID /Aadhaar ID as a human milk donor.
CLMC/02	The system should have the provision of recording consent details of the human milk donor.
CLMC/03	The system should have the provision to register the reason for referral to CLMC.
CLMC/04	The system should have the provision to register the category of donor as Mothers whose babies are in ICU, Mothers who are in postnatal / ICU, Volunteer lactating donor mothers, Lactating women among staff of the hospital
	Registration of Human Milk Recipient
CLMC/05	The system should have the provision of registering a new-born baby using UHID as a human milk recipient.
CLMC/06	The system should have the provision of recording consent details of the human milk recipient. As the recipient is a new-born baby, the consent must be taken from the parent / surrogate-decision maker.
	Health Screening of Human Milk Donor
CLMC/07	The system should have the provision of screening the human milk donor by conducting serological tests (HIV 1 or 2, Hepatitis B, Syphilis, Hepatitis C) and

FR Code	Minimal Functional Requirements of Comprehensive Lactation Management Centre
	according to the exclusion criteria present in the “National Guidelines on Lactation Management Centres in Public Health Facilities”, June 2017, MoHFW, GoI.
CLMC/08	Provision of temporary disqualification if the human milk donor is suffering from any disease as mentioned in the “National Guidelines on Lactation Management Centres in Public Health Facilities”, June 2017, MoHFW, GoI.
	Counselling of Human Milk Donor
CLMC/09	The system should have the provision of accessing counselling material from within the application regarding hygiene protocols and other points regarding milk donation.
CLMC/10	The system should have the provision of accessing educational materials containing the type of milk expression, suitability of each method and collection techniques.
CLMC/11	The system should have the provision of accessing educational materials describing the hygiene-protocols to be observed during the milk donation process.
	Human Milk Collection
CLMC/12	The system should have the provision of capturing the details of the collection of human milk (like CLMC id, donor ID, date and time of donation, container id, date of freezing, date of pasteurization, date of expiration, etc).
CLMC/13	The system should have the provision to print a barcode label containing identifying data elements for the human milk collection.
CLMC/14	The system should have the provision to mark the status of the collection as “collected” once the barcode of the bottle is scanned after collection.
	Processing of Donor Human Milk (DHM)
CLMC/15	The system should have the provision of capturing the steps of pre pasteurization for mother’s own milk and donor human milk as per the “National Guidelines on Lactation Management Centres in Public Health Facilities”, June 2017, MoHFW, GoI.
CLMC/16	The system should have the provision of capturing pasteurization steps as per the “National Guidelines on Lactation Management Centres in Public Health Facilities”, June 2017, MoHFW, GoI.
	Testing and Storage of Pasteurized DHM
CLMC/17	The system should have the provision of capturing post pasteurization testing, pooling, and storage of DHM as per the “National Guidelines on Lactation Management Centres in Public Health Facilities”, June 2017, MoHFW, GoI.
	Dispensing of Human Milk

FR Code	Minimal Functional Requirements of Comprehensive Lactation Management Centre
CLMC/18	The system should have the provision of capturing dispensing details of milk as per first in first out basis such as, the oldest milk is used first.
	Other Requirements
CLMC/19	The system should have the provision of capturing the discarded milk which should have details like serial no., batch no., reason for discard as per the "National Guidelines on Lactation Management Centres in Public Health Facilities", June 2017, MoHFW, GoI.
CLMC/20	The systems should have the provision of generating MIS reports as per the standard reporting guidelines of State Govt and GoI like volume of milk collected, no. of recipients, no of donors, thawing details, pasteurization details, serological testing details etc.
CLMC/21	The system should have the provision to link counselling material in the form of audio/video and other awareness material regarding milk donation and breast feeding to the patient record in the web-application portal.
CLMC/22	The system should have the provision to of make available counselling material in the form of audio/video and other awareness material regarding milk donation and breast feeding to lactating mothers in the mobile app.

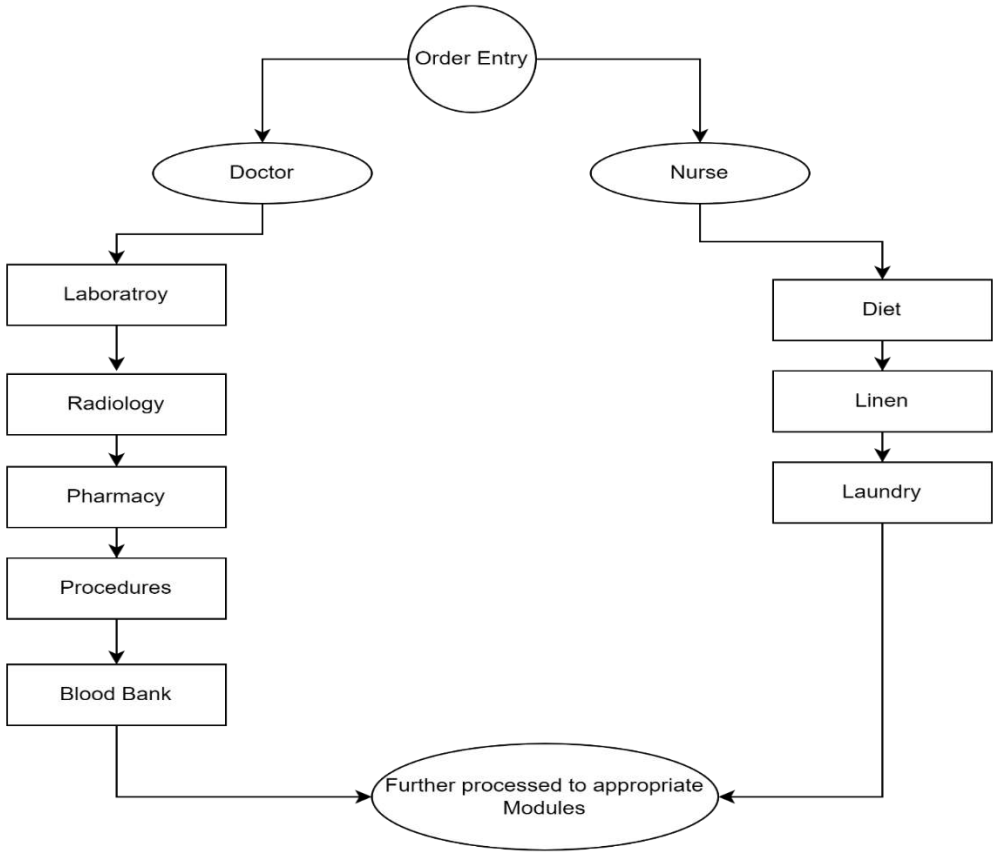
Order Entry (CPOE) Module

The Computerized Physician Order Entry module is an essential component of hospital management systems that enables doctors to electronically enter and send medication and investigation orders instead of relying on traditional paper-based methods. Here are the key features and benefits of the CPOE module:

- **Electronic Order Entry**
- **Enhanced Accuracy and Safety**
- **Decision Support:** Drug interaction alerts, dosage range checking, and allergy warnings.
- **Order Workflow Management:** Routing orders to the appropriate departments.
- **Integration with Pharmacy and Laboratory**
- **Order Documentation and Retrieval**
- **Audit Trail and Accountability**

By implementing the CPOE module, hospitals can improve the accuracy, efficiency, and safety of medication and investigation order management. It reduces errors, enhances decision support, facilitates order processing, and ensures comprehensive documentation and retrieval of orders for improved patient care.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the CPOE module including but not limited to:

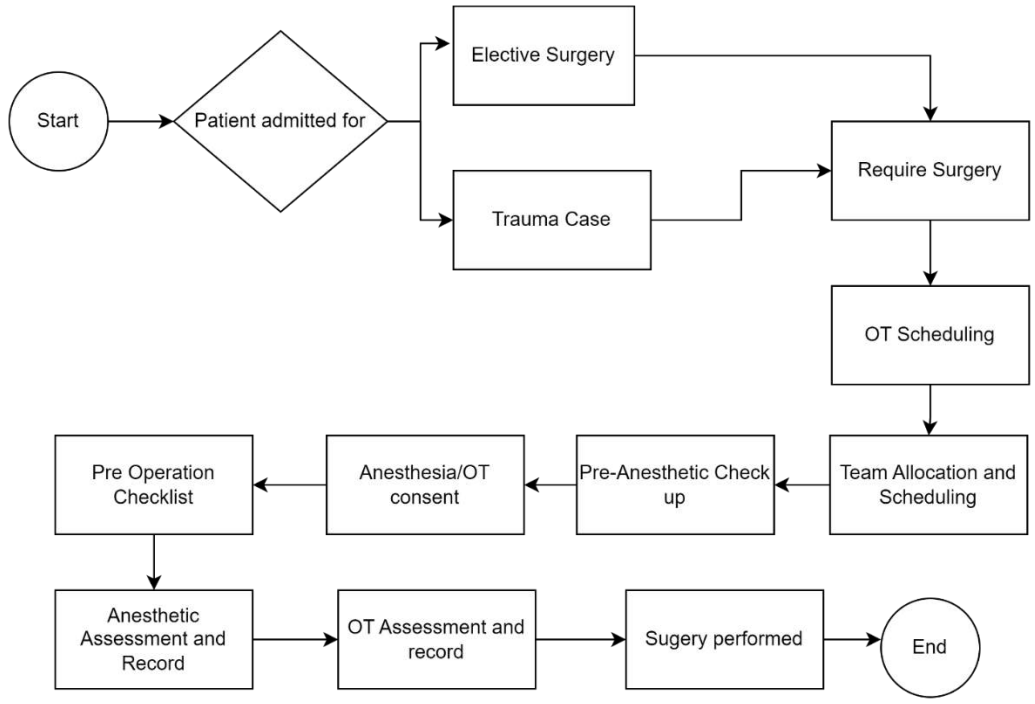
FR Code	Minimal Functional Requirements of CPOE
CPO/01	The module should have facility to order for Investigations and services for patients. Stat / urgent is required.
CPO/02	The module should have facility to alerts or prompt regarding allergy to drugs.
CPO/03	The module should have facility to prescribe drugs to patients and provide option to print documents such as progress note, prescription, service order, etc.
CPO/04	The module should have facility be display medication history i.e., drugs advised to patient and provision to define alternative drugs.
CPO/05	The module should have Pop-Up facility for duplicate orders.
CPO/06	The module should have facility to define favorite order items.

FR Code	Minimal Functional Requirements of CPOE
CPO/07	The module should have provision for request requisition for admission and configurable templates and form for notes and discharge summary.
CPO/08	The system should have provision to use digital signature.
CPO/09	The system should have provision to tag sensitive diagnosis such as HIV.
CPO/10	The system should have facility to assign ICD code for provisional and confirmed diagnosis.
CPO/11	The system should have facility to assign SNOMED-CT code for procedures and other applicable areas.
CPO/12	The system should have the facility to provision for order sets linked to ICD and SNOMED-CT codes.

OT Management

Operation Theatre module caters to the scheduling of operation theatres, surgery team, patient tracking, operation theatre consumable management, accounting and Operation theatre roster and notes.

Process Map



Minimum Functional Requirements:

Following are the minimum Functional Requirements (FR) envisaged for the OT module including but not limited to:

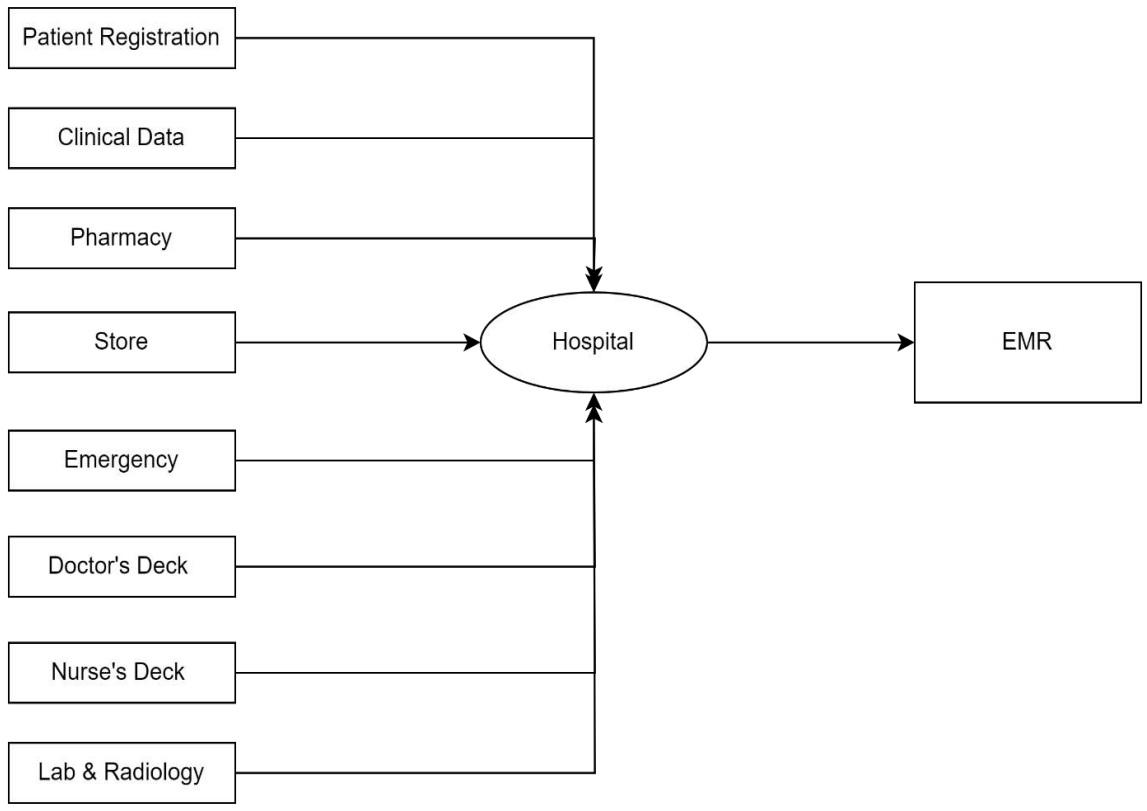
FR Code	Minimal Functional Requirements of OT Management
OTM/01	Provision to do scheduling of surgery from OT & modify or cancel booking.
OTM/02	Provision to re – schedule booked slots for other time/ date
OTM/03	Provision to define OT slots based on Dr./Specialty assigned to each OT.
OTM/04	Provision for OT booking without Registration of patient
OTM/05	Provision to define theatre unavailability. Once theatre marked as unavailable, same should be reflected in all booking screens.
OTM/06	Provision to generate waiting list or virtual list for OT
OTM/07	Provision to capture name of the anesthetist at the time of scheduling.
OTM/08	Provision to define the duty schedule of anesthetists, junior medical staff, nurses, & attendants.
OTM/09	Should generate alerts for the Unit - anesthetists, junior medical staff, nurses, & attendants who are required to perform the operation. It should be shown in the Work List of the concerned Doctors & Nurses.
OTM/10	Provision to define deposit charges for OT as per the surgery grade, time & specialty.
OTM/11	Provision to define equipment charges based on classification of equipment
OTM/12	Concept of Emergency charges to be added to surgeon fee e.g.: Doctor comes on a Sunday to perform a surgery due to emergency
OTM/13	Provision to define OT packages
OTM/14	Feature to display list of scheduled surgeries / tentative admission list as on a date in Medical records department module.
OTM/15	Provision to generate an OT list one day before surgery and do rescheduling if required, then generate a OT List in the morning on the day of surgery (reflecting surgeries as per rescheduling done), & then generate OT list for the day on the next day reflecting any emergencies taken in between etc.
OTM/16	Option to select the consent form specific to the particular surgery with a unique bar-code number (system generated) along with the patient details for patient consent with manual signature.
OTM/17	Provision to perform pre op checklist
OTM/18	Provision to perform and capture ‘Time out’ before procedure-before the start of surgery/procedure in operating room to confirm the right patient, right surgery on right body site.

FR Code	Minimal Functional Requirements of OT Management
OTM/19	Provision to mark arrival of Inpatient from ward to OT/ Department & capture Reason for delay in patient transfer
OTM/20	Provision to capture end time of surgery with exit from OT to recovery room and from recovery room to patient bed location.
OTM/21	Provision to define surgeons as Primary surgeon, assistant surgeon, 2nd assistant surgeon etc.
OTM/22	Provision to change the procedure scheduled

Electronic Medical Record (EMR)

An electronic medical record (EMR) is a digital version of all the information typically find in a provider's paper chart: medical history, diagnoses, medications, immunization dates, allergies, lab results and doctor's notes. EMRs are online medical records of the standard medical and clinical data, mostly used by for diagnosis and treatment. Comprehensive and accurate documentation of a patient's medical history, tests, diagnosis and treatment in EMRs ensures appropriate care throughout the provider's clinic. EMRs are more than just a replacement for paper records. They effectively allow communication and coordination among members of a healthcare team for optimal patient care.

Process Map



Minimum Functional Requirements:

Following are the minimum Functional Requirements (FR) envisaged for the Electronic Medical Records (EMR) module including but not limited to:

FR Code	Minimal Functional Requirements of EMR
EMR/01	The system should have the provision to define clinical record templates for collecting medical information about a patient during the OP visit and IP visit.
EMR/02	The system should have the provision to define clinical record templates for creating medical documentation pertaining to different medical and surgical specialties of a healthcare facility.
EMR/03	The system should have integrated patient EMR viewer that provides a cross- disciplinary where a patient focused View of clinical information stored in Clinical Data Repository is provided.
EMR/04	The system should be able to display EMR records either visit-wise, chronological order, medical record type wise or any other grouping method.
EMR/05	The system should have the provision to display a time-based view of health episodes that have occurred in the patient health journey. It should be arranged on an earliest to latest episode list. The facility user should be able to click on any episode and view the activities and reports pertaining to the episode.
EMR/06	The system should have the provision to provide access to information in the form of result data, text documents, scanned documents, images and waveforms from interfaced medical devices, as well as integrated clinical systems.
EMR/07	The system should have the provision to maintain an ICU monitoring chart in the system to monitor the hourly/daily update of vitals.
EMR/08	The system should have the provision to create monitoring interval schedule to monitor vitals for a patient admitted in a healthcare facility.
EMR/09	The system should have the provision to record the vitals of a patient admitted in the health care facility according to the monitoring interval schedule set for the patient.
EMR/10	The system should have the provision to display the clinical information for different types of data groups like clinical summary, history, observations, etc.
EMR/11	The system should have the provision to create medicine administration schedule to administer medications to patients admitted in a healthcare facility for all types of medications.
EMR/12	The system should have the provision to record details of administration of medication prescribed to patients admitted in the healthcare facility.

FR Code	Minimal Functional Requirements of EMR
EMR/13	Facility to attached scanned documents to patient records which might include photographs, reports and other relevant documents and must include all necessary tools and mechanisms that will facilitate the process.

Inventory Management

The Material Management Suite is a crucial component of hospital management systems that focuses on efficient inventory storage, packaging, protection, and movement within the warehouse. The suite consists of five modules, each serving specific functions to ensure effective material management. Here are the descriptions of these modules:

- **Store and Inventory Management**
- **Asset Management Module**
- **Supply Chain Management**

By incorporating these modules into the Material Management Suite, hospitals can streamline their inventory processes, optimize material storage and distribution, enhance procurement efficiency, and effectively manage fixed assets. This results in improved inventory control, reduced costs, enhanced resource utilization, and ultimately, better overall hospital management. Materials & Management suite is further organized into five modules:

Store and Inventory Management

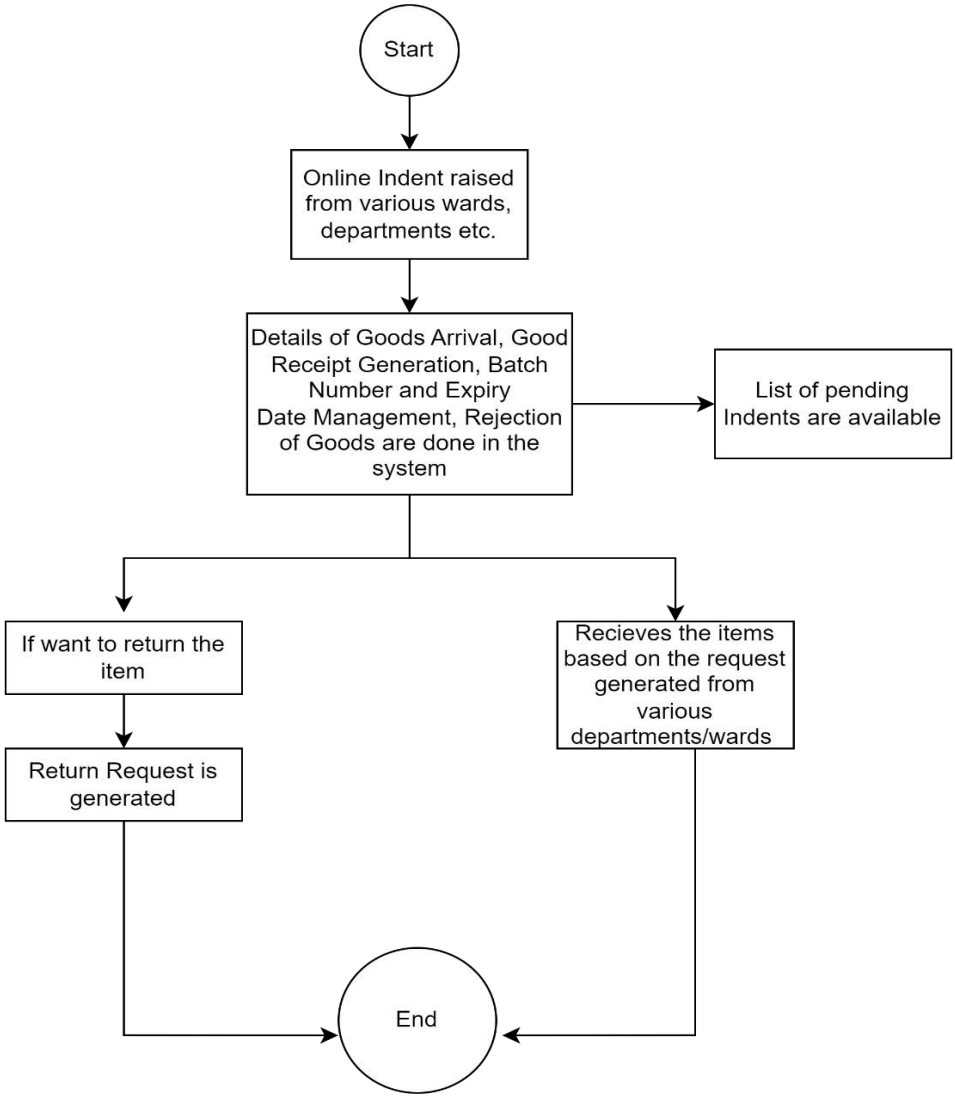
A stock control system, also known as an inventory control system, is a set of processes and tools used to manage and maintain inventory levels within a store or business. Its main responsibilities include:

- **Inventory Tracking**
- **Reorder Point Management**
- **Supply Chain Integration**
- **Demand Forecasting**

Reporting and Analysis

While store management involves various aspects of running a store, including employee management and customer service, a stock control system specifically focuses on the management and maintenance of inventory levels. Both are important for the smooth operation of a store and ensuring customer satisfaction.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the inventory module including but not limited to:

FR Code	Description
INV/01	System should have provision to track auto indent and online request from various departments.
INV/02	System should track all requests through a separate unique store ID.

FR Code	Description
INV/03	Stores Setup: (a) Item Master (b) Generic Name Master (c) Unit Master (d) Item Type: Master (e) Item Class Master (f) Kit Master
INV/04	System Providing facility to raise indents.
INV/05	System Providing facility to returning items to the store.
INV/06	Goods Arrival Details, Good Receipt Generation, Batch Number and Expiry Date Management, Rejection of Goods, etc.
INV/07	Maintenance of Ledger: Opening Balance, Total Receipts, Total Issues, Closing Balance of Items, and Condemnation and Auction of Items
INV/08	Inter-hospital Item Sharing on need-based basis
INV/09	List available of pending indents
INV/10	The system should provide integration with E-Aushdhi for management of medicine stock
	The system should provide integration with E-Upkaran for management of medical assets.
INV/11	Generate Dynamic MIS Reporting

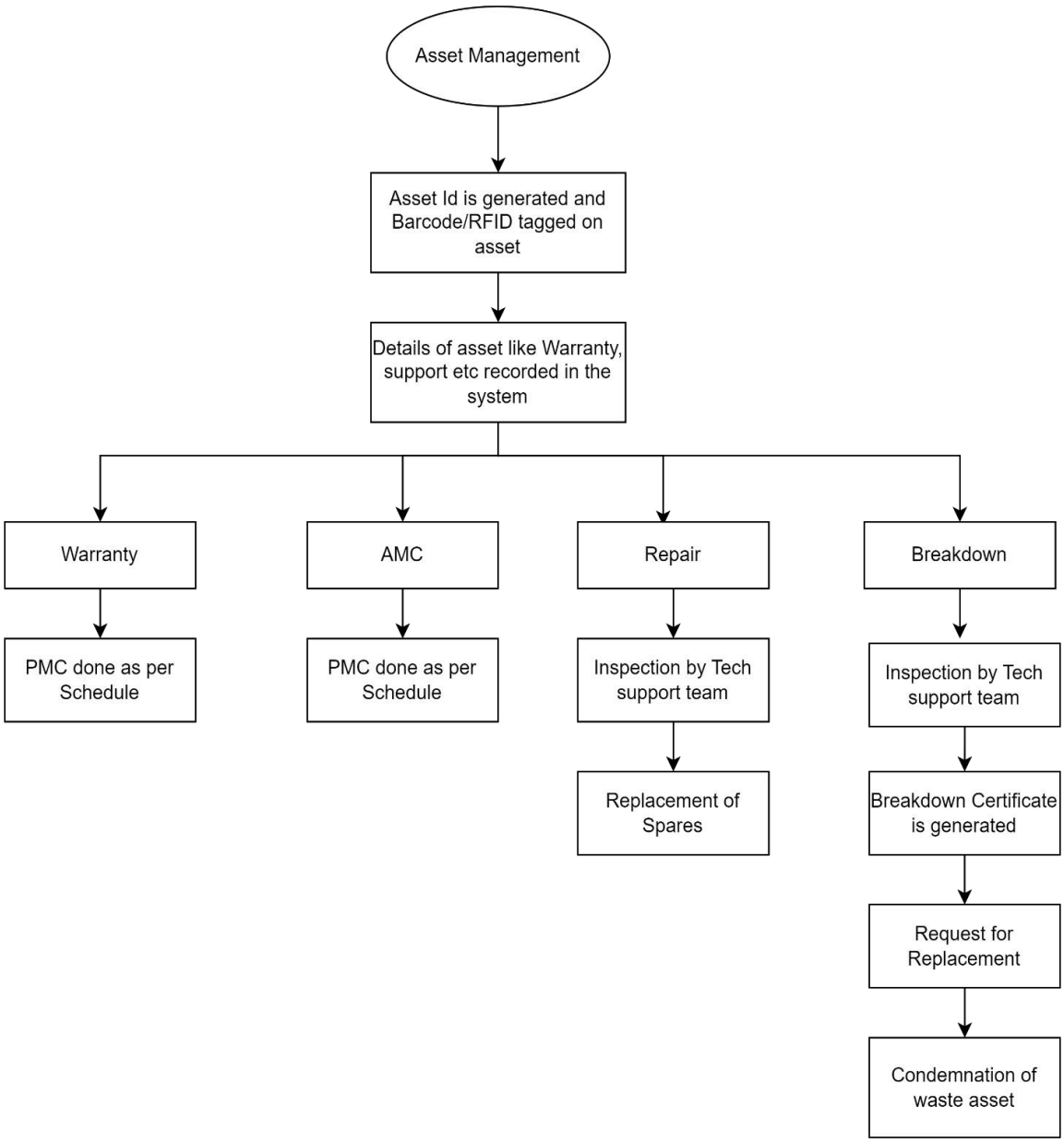
Asset Management

Asset management is a crucial process in healthcare organizations, where it involves the systematic and cost-effective planning, acquisition, maintenance, operation, and disposal of machinery, equipment, and physical assets. In the context of healthcare, asset management plays a vital role in ensuring that critical equipment within a hospital or healthcare facility is well-maintained, tested, and kept in reliable working condition at all times. Here are some key points about the importance of asset management in healthcare organizations:

- **Equipment Reliability:** Equipment and other physical assets are properly maintained and functioning reliably.
- **Minimizing Downtime:** By implementing preventive maintenance schedules and conducting regular inspections.
- **Cost Efficiency**
- **Regulatory Compliance:** Comply with various regulations and standards related to equipment maintenance, safety, and performance.
- **Asset Tracking and Utilization**
- **Risk Management**
- **Asset Disposal**

By implementing effective asset management practices, healthcare organizations can optimize the performance and reliability of their equipment, reduce costs, ensure regulatory compliance, and improve patient safety and care delivery. It is a vital component of maintaining a well-functioning healthcare facility.

Process Map



Minimum Functional Requirements

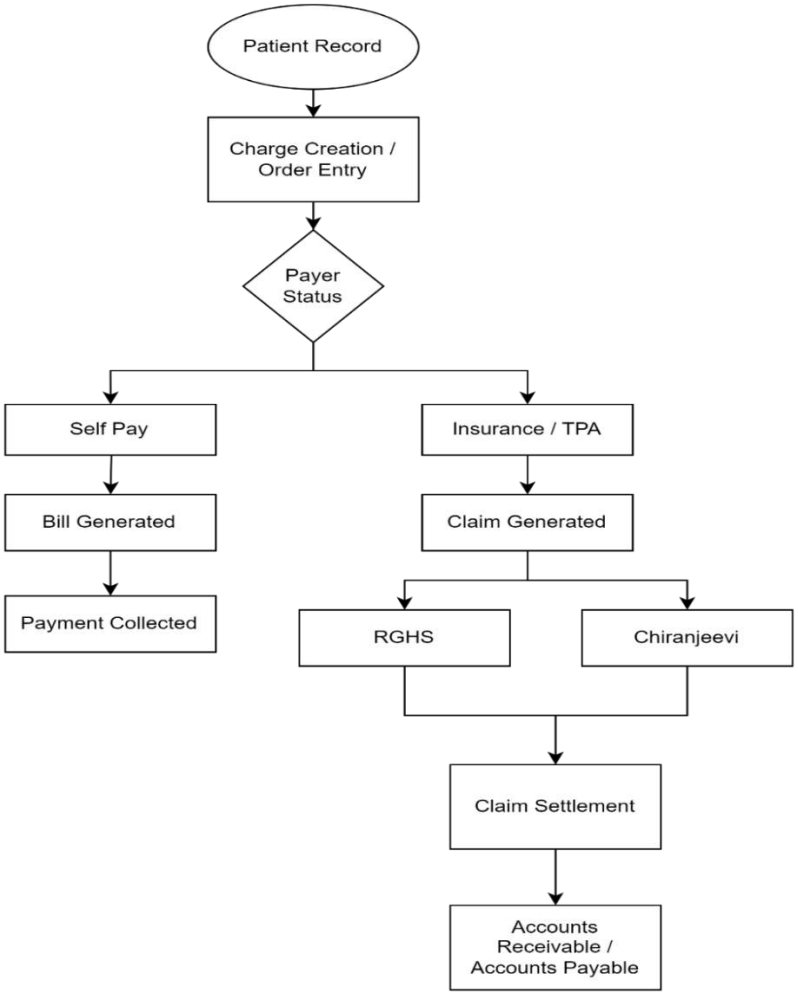
Following are the minimum Functional Requirements (FR) envisaged for the inventory module including but not limited to:

FR Code	Minimal Functional Requirements of Asset Management
AM/01	System should have at least the following functionalities: • Procurement Cycles for assets management • Stock verification • AMC and maintenance Schedules, • Transfer Assets • Maintain accounts record book • Depreciation value • Retire/ Scrap Assets

Billing

The Billing is a critical component of a comprehensive Hospital Management System that handles financial transactions, invoicing, and billing processes within a healthcare organization. It ensures accurate and efficient management of financial records. The Billing module allows to manage all the financial/billing of the patients and charge for the services they were provided by the healthcare facility. This module to be integrated with Reception of the healthcare facility for bill collection, pharmacy, OTC, wards management module and doctor station for details of tests.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the Billing module including but not limited to:

FR Code	Minimal Functional Requirements of Billing Module
BIL/01	System should maintain charges for various process provided to both Outpatient and Inpatient. Billing module should have provision of different rule engine for different patient categories.
BIL/02	Payment agreement and tariff should be configurable at patient's category.
BIL/03	System should have provision for provisional bill.
BIL/04	System should have provision to configure the bill series.
BIL/05	System should have facility for advance deposit.
BIL/06	Charges for the services should be posted in the bill as per the billing rule configuration.
BIL/07	The system should have printing facility of the payment receipt and final bill.
BIL/08	Integration with UPI.

Support Modules

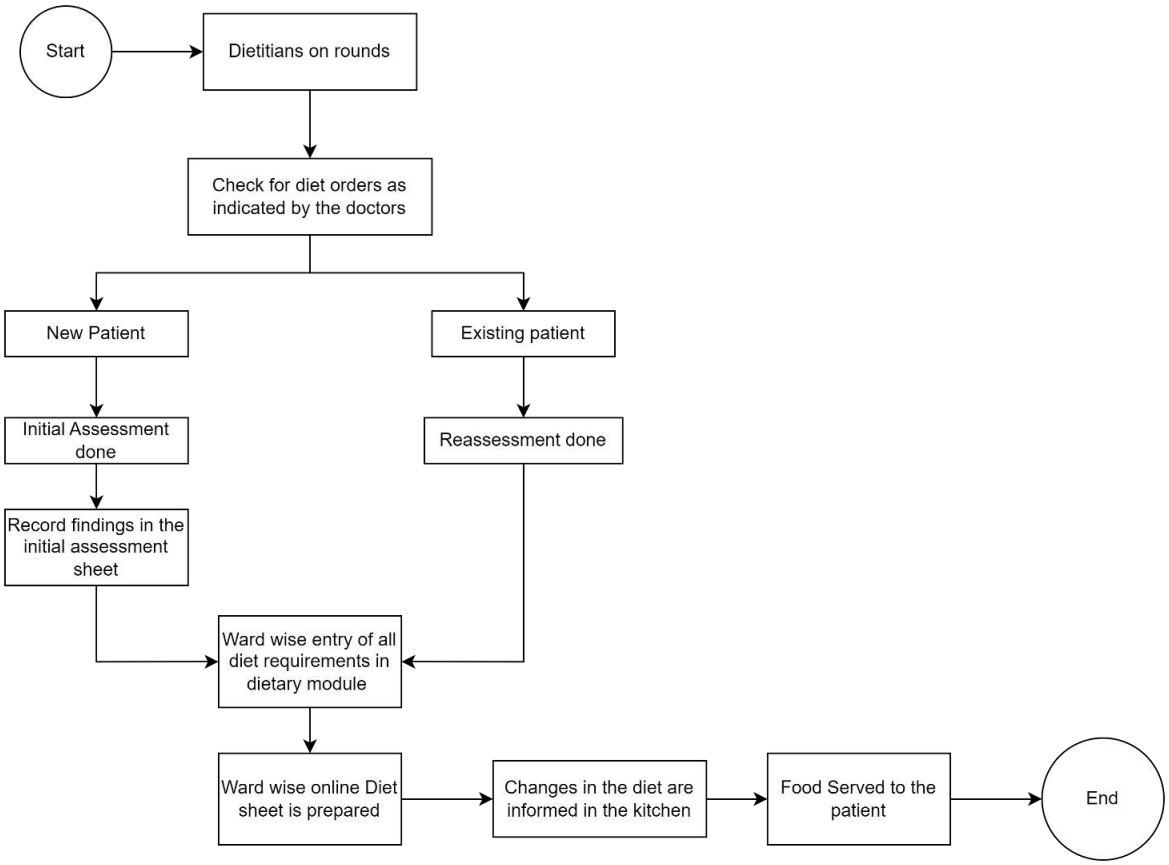
Diet & Kitchen Management

The module designed for kitchen management serves a crucial role in providing meals to inpatients based on the dietary instructions prescribed by the dietician. Here are the key functionalities and benefits of such a module:

- **Diet Prescription**
- **Meal Scheduling and Customization**
- **Recording of Meal Orders**
- **Alerts and Notifications**
- **Inventory and Consumable Management**
- **Efficiency and Accuracy**

Overall, the kitchen management module optimizes the process of providing meals to inpatients. It streamlines diet prescription, meal customization, inventory management, and communication, leading to improved patient satisfaction and efficient kitchen operations.

Process Map



Minimum Functional Requirements:

Following are the minimum Functional Requirements (FR) envisaged for the Diet module including but not limited to:

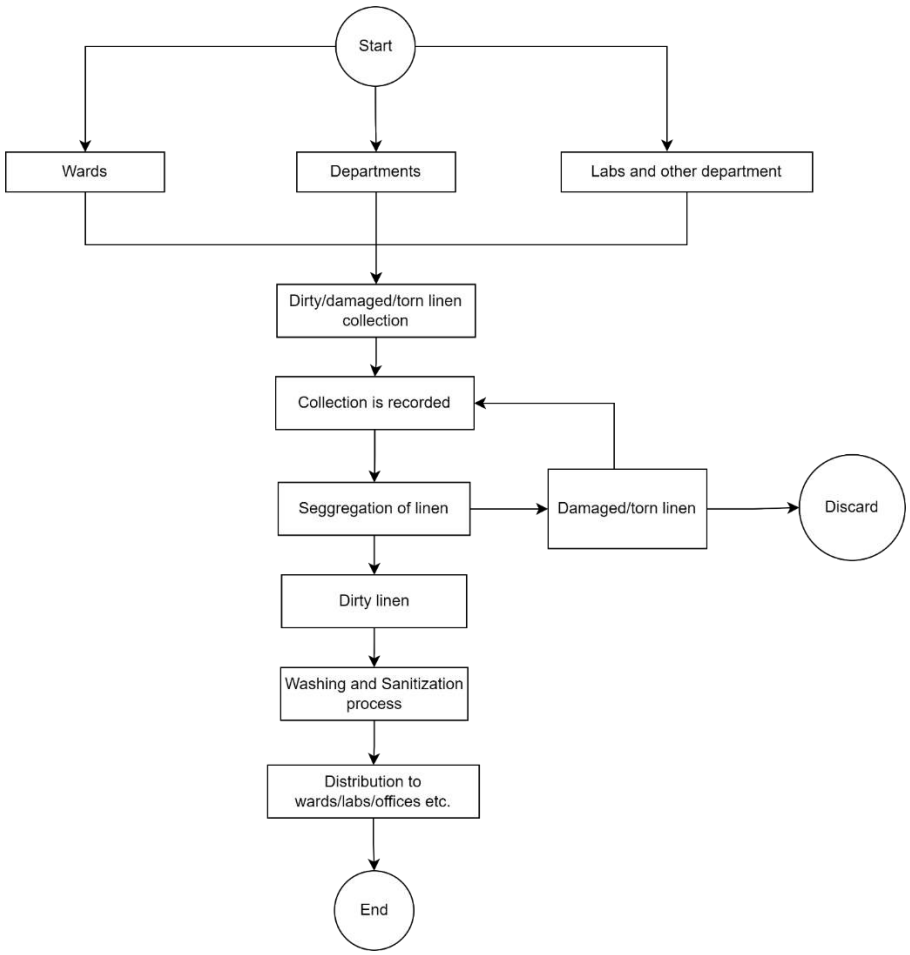
FR Code	Minimal Functional Requirements of Diet Module
DKM/01	Nutritional Assessment of Patients facility
DKM/02	Facility to record details like type of diet and diet items taken, caretaker details, time of administration
DKM/03	Should maintain the dietary history of the admitted patient
DKM/04	Generate ward-wise Diet Sheet specifying the number and types of diets ward-wise
DKM/05	Provision to generate diet sheet floor wise
DKM/06	Provision to discard food items & to capture relevant reason for discard.
DKM/07	Provision to raise a diet request for patient by nurse
DKM/08	Provision to cancel diet request
DKM/09	Provision to update Diet sheet of patient while on rounds using a mobile app or tablet.

FR Code	Minimal Functional Requirements of Diet Module
DKM/10	Provision to capture Food delivery details.
DKM/11	Track the time taken to serve the food at Inpatient floors
DKM/12	Provision to generate floor wise admission list & to intimate Floor Dietician about new admission via SMS.
DKM/13	Provision to generate daily diet summary.
DKM/14	Provision to generate report of food wastage.
DKM/15	Provision to raise indent against discarded item.
DKM/16	Provision to define meal & diet specification groups.

Linen & Laundry Management

The Linen & Laundry service in a hospital plays a critical role in ensuring an adequate supply of clean and well-maintained linen for various users within the facility. The basic tasks include sorting, washing, extracting, drying, ironing folding, mending and delivery. A reliable laundry service is of utmost importance to the hospital. In today's medical care facilities, patients expect linen to be changed daily. An adequate supply of clean linen is sufficient for the comfort and safety of the patient thus becomes essential. The term 'hospital linen' includes all textiles used in the hospital including mattresses, pillow covers, blankets, bed sheets, towels, screens, curtains, doctors' coats, theatre cloth and tablecloths. Cotton is the most preferred and frequently used material. The hospital receives all these materials from different areas like Operation Theatres, wards, outpatient departments and office areas. The OT linen materials need special care since it has to be washed & sterilized carefully. The system should be able to maintain a Linen data base.

Process Map



Minimum Functional Requirements:

Following are the minimum Functional Requirements (FR) envisaged for the Linen & Laundry Management module including but not limited to:

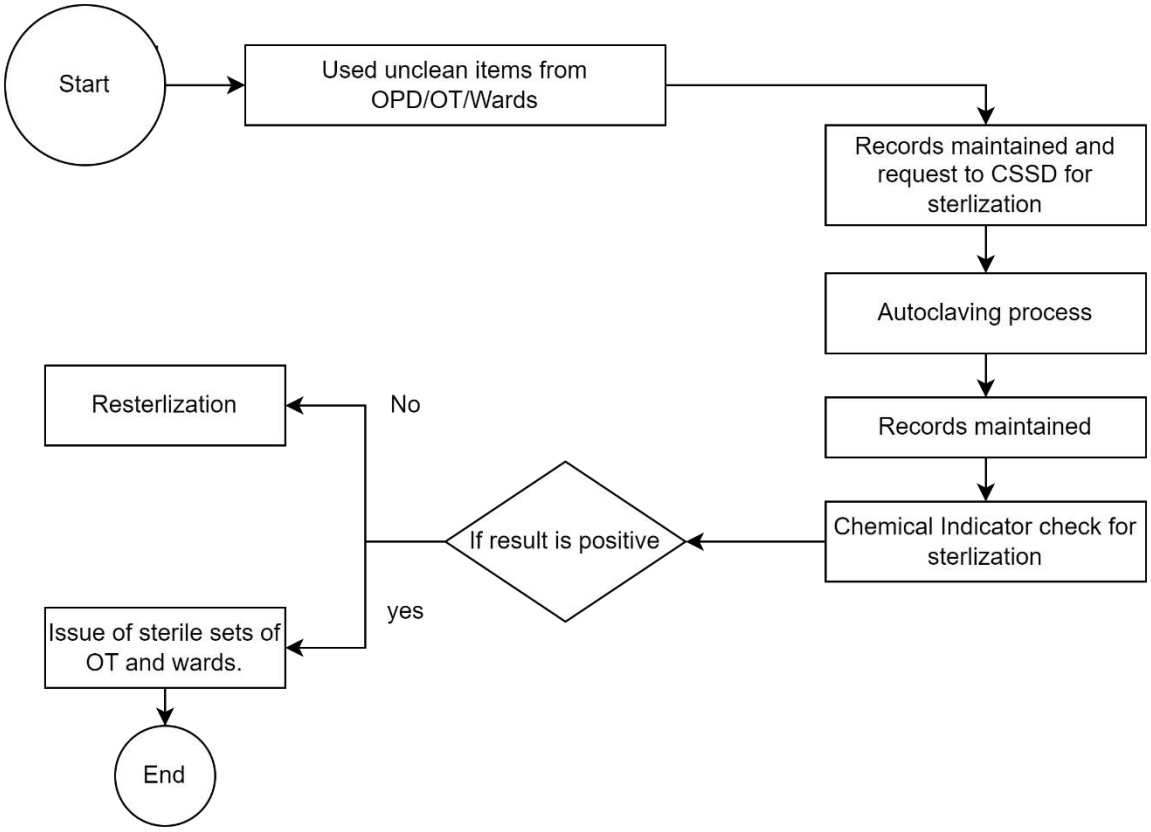
FR Code	Minimal Functional Requirements of Linen and Laundry
LIN/01	Provision to capture data of new linen received from tailors or vendors and update the inventory status at ward level and hospital level Have different kind of classification & nomenclature for different kind of linen and laundry.
LIN/02	System to capture linen inventory at floor level.
LIN/03	Provision to capture linen condemnation by condemnation committee. Option to procure new linen against condemnation.
LIN/04	Provision to capture daily stitching account.
LIN/05	Laundry supervisors give material to tailor for making different types of linen
LIN/06	Provision to calculate daily & monthly chemical & Consumable consumption.

FR Code	Minimal Functional Requirements of Linen and Laundry
LIN/07	Option to capture any special request is given by nurse or department like extra-large size patient uniform or child admitted in male ward.
LIN/08	Provision to issue uniforms to new employee as per their designation, Department and requirement. On the issue update the inventory.
LIN/09	Provision issue linen against loss. Linen issued against loss to be depleted from laundry stock.
LIN/10	Provision to capture details of new stitch linen send for Internal washing.
LIN/11	Provision to capture data of linen stock at ward level.
LIN/12	Provision to capture details of washing load.
LIN/13	Details will capture data pertaining how much kg linen loaded in washing machine, date, time, type of linen, chemical, unloaded time.
LIN/14	Provision to make entry of new linen in current stock.
LIN/15	Laundry authority will make entry in system of new linen received from vendor.
LIN/16	Provision to lodge complaints about linen.
LIN/17	Type of complaint can be stained or torn patient linen or shortage of linen.
LIN/18	Complain can be received from Customer Care, Nurse or directly from patient.
LIN/19	Provision to escalate complain if not resolve at first level.

Central Sterile Services Department (CSSD)

The Central Sterile Supplies Department manages information pertaining to of sets of sterile supplies to any department in the hospital that requires sterile supplies. The CSSD Module provides facilities to enter details of drums, packs and trolleys. Packs can be assembled or broken down into components as required. The assembly operation will automatically decrease the stock of the components and increase the stock of the pack. Similarly, dismantling the pack will do the reverse. The system will be linked to the OT Scheduling system to enable required trays to be prepared and sent to the OTs based on the schedule of surgeries. The system will be linked to the Patient Billing System to enable automatic charging based on items used.

Process Map



Minimum Functional Requirements:

Following are the minimum Functional Requirements (FR) envisaged for the CSSD management module including but not limited to:

FR Code	Minimal Functional Requirements of CSSD
CSS/01	Provision to record day-by-day autoclave process of drums and trays to sterilization department, maintained by wards or other patient care / reporting units, etc.
CSS/02	This will follow the functionalities defined in 'Store module' and capture package details, issue and receipt of inventory.
CSS/03	The items/ articles/ tools/ instruments are used in OT, OPD, IPD and Emergency, as required. These items /articles/ tools need to be sterilized after usage. These should be recorded and tracked through the system
CSS/04	After usage for medical procedure, the items/ articles/ tools/ instruments are taken to Auto Clave lab for sterilization. The details of these items/ articles/ tools/ instruments should be entered in the system and status should be updated
CSS/05	Auto clave machine operator after collecting items/ articles/ tools/ instruments puts them into the machine for sterilization. Entry should

FR Code	Minimal Functional Requirements of CSSD
	be made into system regarding details of items/ articles/ tools/ instruments and the status should be updated
CSS/06	After a scheduled time, the operator takes items/ articles/ tools/ instruments out of Auto clave machine and update the status in the system. An alert should be generated for staff nurse to collect or receive items/ articles/ tools/ instruments, as applicable
CSS/07	Staff nurse collects items/ articles/ tools/ instruments and arrange them for use in concerned OT / Minor OT or other departments as applicable. The Staff nurse should be able to update the status in the system
CSS/08	Provision to raise a request for sterilized set by departments such as OT, ICU
CSS/09	Once the number of non-sterilized equipment go below a set margin alert should be generated for Department Head
CSS/10	Provision to display the current quantity available of material with user & CSSD
CSS/11	Provision to print Expiry date stickers at the processing time based on packing material.
CSS/12	Provision to accept partial receiving within set.

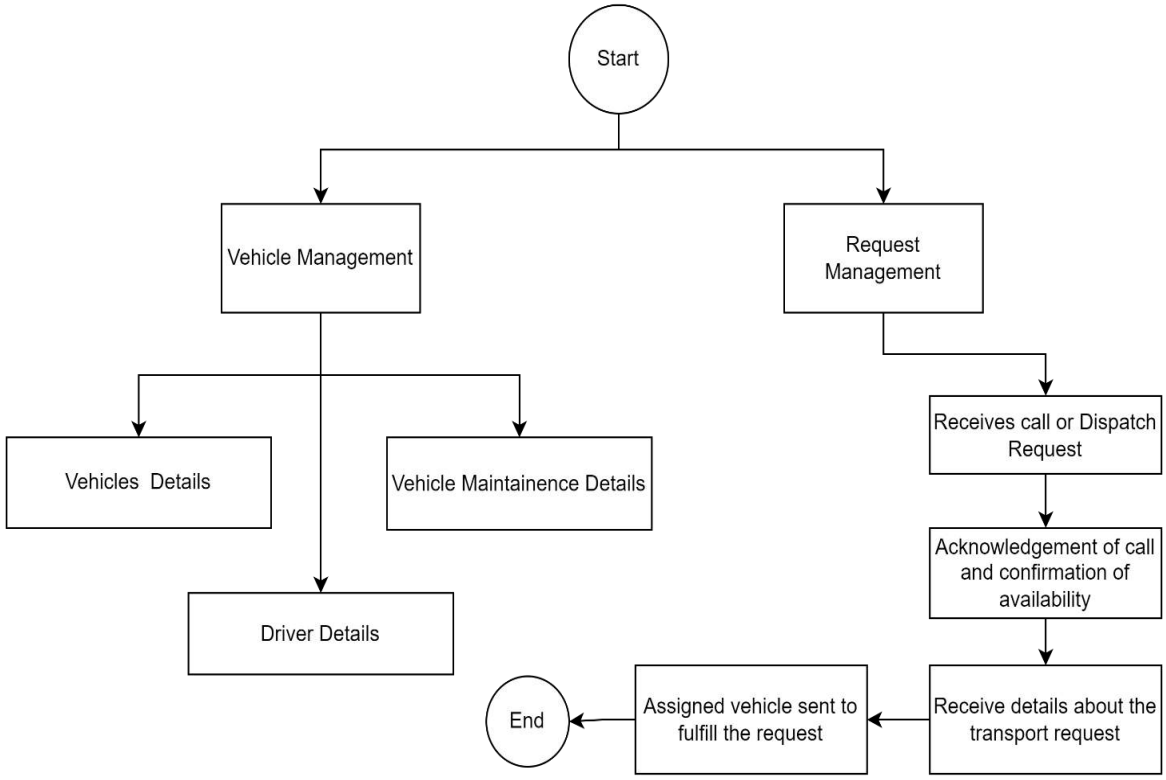
Transport Management

The Transport Management module in an Integrated Hospital Management System focuses on efficiently managing the operations and resources related to ambulance services within a hospital or healthcare organization. It helps streamline ambulance dispatch, tracking, and monitoring, ensuring timely and effective emergency response. Here are the key features and functionalities of the Transport Management module:

- **Ambulance Booking and Scheduling**
- **Ambulance Dispatch and Routing**
- **Real-Time Tracking and Monitoring**
- **Resource Allocation**
- **Emergency Response Integration**
- **Reporting and Analytics**

It allows for streamlined booking, dispatch, and tracking of ambulance vehicles, ensuring prompt emergency response and efficient patient transfers. This ultimately contributes to improved patient care, better resource utilization, and enhanced overall emergency management within the healthcare organization.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the transport management module including but not limited to:

FR Code	Minimal Functional Requirements of Transport
TRN/01	System should have the facility to booking and scheduling of ambulance services
TRN/02	Maintain details of vehicles and ambulances allotted to the hospital or health facility, like cost, purchase date, purchased from, fitness details, vehicle registration number, etc
TRN/03	Maintains driver's details like licence number, licence type, licence validity date, experience of the driver, etc.
TRN/04	Maintains accident details of vehicles like type of accident, accident date, cause of accident, expenditure on repairs, etc.
TRN/05	Vehicle Maintenance details like cost of maintenance, workshop name and address, date of maintenance, repair work and expenditure, etc. are maintained.
TRN/06	Filling Station Management
TRN/07	Fuel consumed by a vehicle in the mentioned period plus expenses incurred for the same (Fuel Consumption and Expense Tracking)

FR Code	Minimal Functional Requirements of Transport
TRN/08	Fuel consumption report for a specific period
TRN/09	Facility to integrate 108 ambulance services with the iHMS Software Solution.
TRN/10	Vehicle and Ambulance Assignment facility for transportation of Doctor or Patient to and from the Hospital.
TRN/11	Generate Dynamic MIS Reporting
TRN/12	Dashboard should give a real time status ofall the ambulance fleet at any given point.
TRN/13	patient should be able to book for ambulance throughonline portal or helpline
TRN/14	Module should be integrated with emergency response systems, such as emergency helplines or disaster management systems.

Help Desk

The Help Desk module in an Integrated Hospital Management System (IHMS) serves as a centralized platform for handling and resolving various types of user inquiries, issues, and support requests within the system. It provides a dedicated support system to address user concerns and ensure smooth operations. Here are the key features and functionalities of the Help Desk module:

- **User Support Ticketing**
- **Ticket Assignment and Tracking**
- **Knowledge Base and FAQs**
- **Communication and Collaboration**
- **Escalation and SLA Management**
- **Reporting and Analytics**

User Feedback and Satisfaction Surveys: The Help Desk module may include features for collecting user feedback and satisfaction ratings. After a support ticket is resolved, users can provide feedback on their experience, helping administrators assess the quality of support services and identify areas for improvement.

The Help Desk module in an IHMS ensures that user inquiries and support requests are efficiently managed and resolved. It provides a reliable support system, promotes effective communication between users and support staff, and maintains user satisfaction. By implementing this module, hospitals can enhance user experience, address system issues promptly, and ensure smooth operations of the IHMS.

Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the help desk module including but not limited to:

FR Code	Minimal Functional Requirements of Helpdesk
HDM/01	The complaints should be registered in the module, which may be received through portal, telephonic, verbal or in written form.
HDM/02	The module should allow users, such as hospital staff or system users, to raise support tickets for assistance with system-related inquiries, technical issues.
HDM/03	System should have the functionality to tracks the progress of each ticket.
HDM/04	System should have the provision communicate through email, chat, or messaging within the system.
HDM/05	The system should provide Report/Dashboard to provides analytics on support ticket performance, including response time, resolution rate, and user satisfaction

Camp Monitoring System

The Camp Monitoring System in an Integrated Hospital Management System (IHMS) is designed to manage and monitor healthcare camps conducted by hospitals or healthcare organizations. These camps are typically organized to provide medical services, screenings, vaccinations, or health awareness programs to a specific group of people or community. Here are the key features and functionalities of the Camp Monitoring System:

- **Camp Planning and Scheduling**
- **Participant Registration**
- **Service Management**
- **Queue Management**
- **Medical Records and Documentation**
- **Reporting and Analytics**
- **Communication and Notifications**

The Camp Monitoring System in an IHMS helps hospitals and healthcare organizations effectively manage and monitor healthcare camps. It ensures efficient participant registration, service management, and queue management. It facilitates the documentation of medical records and generates reports for evaluation and analysis.

Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the camp monitoring system including but not limited to:

FR Code	Minimal Functional Requirements of Camp Monitoring System
CMM/01	System should have provision to plan and schedule healthcare camps. This includes selecting the camp location, setting up

FR Code	Minimal Functional Requirements of Camp Monitoring System
	camp dates and timings, and identifying the specific services or activities to be conducted during the camp
CMM/02	System should capture the participants or individuals who will be attending the healthcare camp
CMM/03	Management of services offered during the camp. This includes services such as medical consultations, health screenings, vaccinations, diagnostic tests, or health education sessions
CMM/04	The system should have feature for managing participant queues during the camp
CMM/05	The system should capture, and maintenance of medical records and documentation related to the camp. This includes recording health assessments, test results, prescribed medications, and any follow-up recommendations or referrals for participants.
CMM/06	System should have the facility to generates reports and provides analytics related to the healthcare camps

Morgue Management

Morgue Management in an Integrated Hospital Management System involves the efficient and systematic management of deceased individuals within the hospital morgue. It encompasses various processes related to the handling, storage, identification, documentation, and release of deceased bodies. Here are the key features and functionalities of the Morgue Management module:

- **Deceased Registration**
- **Body Handling and Storage**
- **Identification and Labeling**
- **Autopsy Management**
- **Documentation and Record-keeping**
- **Release and Transfer**
- **Reporting and Analytics**
- **Security and Access Control**

The Morgue Management module in an IHMS streamlines the processes involved in managing deceased individuals within the hospital morgue. It ensures proper documentation, storage, identification, and release of deceased bodies, maintaining records for legal and administrative purposes.

Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the Morgue Management module including but not limited to:

FR Code	Minimal Functional Requirements of Morgue Management
MOM/1	The system should allow hospital staff to register and document details of deceased individuals.
MOM/2	The system should facilitate the management of deceased bodies within the morgue.
MOM/3	Feature for tracking the movement of bodies.
MOM/4	System should provide mechanisms for accurate identification and labelling of deceased bodies.
MOM/5	System should have provision to manage and track autopsy procedures.
MOM/6	Provision to maintain and issue certificates for dead bodies released to keen of decedents.
MOM/7	A dashboard should reflect all these details and capable of generating MIS reports for the list of bodies.

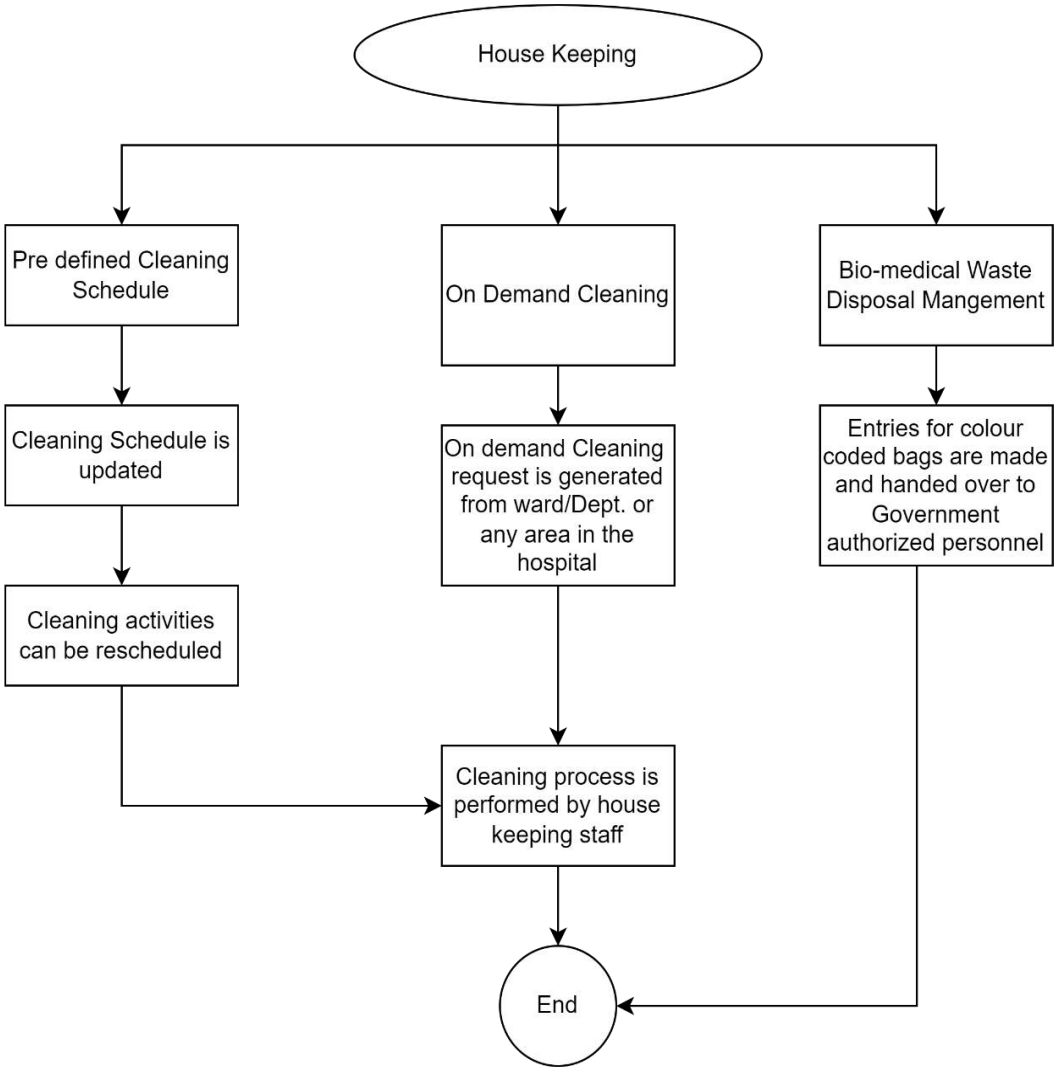
Housekeeping

Housekeeping is an essential department in hospitals, responsible for ensuring cleanliness and maintenance of rooms, public areas, back areas, and the surrounding environment. Here are some key points about the role and responsibilities of the housekeeping department:

- **Cleanliness and Hygiene**
- **Room Preparation**
- **Maintenance and Repair**
- **Waste Management**
- **Inventory Management**
- **Training and Staff Management**

By fulfilling these responsibilities, the housekeeping department plays a vital role in creating a clean, comfortable, and aesthetically appealing environment for guests, patients, employees, and visitors.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the housekeeping module including but not limited to:

FR Code	Minimal Functional Requirements of Housekeeping
	Cleaning Scheduler
HKM/01	The system should have the provision to create a cleaning schedule for the healthcare facility.
HKM/02	The system should have the provision to create a cleaning checklist for the various type of clinical and non-clinical areas within the healthcare facility.
HKM/03	The system should have the provision to requisition stock required for cleaning activities.

FR Code	Minimal Functional Requirements of Housekeeping
HKM/04	The system should have the provision to accept stock issued against raised stock indents.
HKM/05	The system should have the provision to mark a defined area as “cleaned” after the cleaning process is completed.
HKM/06	The system should have the provision for a supervisor / nursing staff to approve the cleaning activity.
	Cleaning of In-patient Beds
HKM/07	The system should have the provision to display the inpatient beds of a healthcare facility that have been marked as “Discharged”.
HKM/08	The system should have the provision to mark the status of the inpatient bed as “Cleaned” after cleaning has been completed.
	On-Demand cleaning
HKM/09	The system should have the provision for any facility user to create a request for cleaning services for a particular area.
HKM/10	The system should be able to alert a housekeeping staff with the details of an on-demand cleaning request.
HKM/11	The system should have the provision to update the status of the cleaning request as “Cleaned” once the activity is completed.
HKM/12	The system should have the provision to allow the requesting facility user to approve the pending cleaning request.
	Bio-medical Waste Management
HKM/13	The system should have the provision to accept collection bags for bio-medical waste management issued from the store.
HKM/14	The system should have the provision to create a record in the system capturing details of Source of BMW waste, Weight of the collected waste, Type of collected waste, credentials of the staff collecting the BMW waste.
HKM/15	The system should have the provision to generate barcode label with the required information for tracking.
HKM/16	The system should have the provision to record receipt of collected BMW waste bags at the central collection room.
HKM/17	The system should have the provision to mark the status of all collected bags in one operation as “Transferred to collection agency” once the agency collects the same.

Equipment Maintenance

The Equipment Maintenance module is a crucial component of hospital management systems that focuses on managing the maintenance of both medical and non-medical equipment within the hospital. Here are the key objectives and functionalities of the Equipment Maintenance module:

- **Maintenance Planning and Scheduling**
- **Work Order Management**
- **Equipment Tracking and History**
- **Preventive Maintenance**
- **Breakdown Maintenance and Repair**
- **Inventory Management**

By incorporating these features, the Equipment Maintenance module enhances the efficiency and effectiveness of equipment maintenance within the hospital. It enables proactive maintenance planning, effective work order management, and minimization of equipment downtime. Ultimately, it contributes to maintaining optimal equipment performance, ensuring maximum uptime, and minimizing disruptions to healthcare services.

Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the equipment maintenance module including but not limited to:

FR Code	Minimal Functional Requirements of Equipment Maintenance
EQM/01	System should have provision to keep and maintain the records for all the equipments.
EQM/02	System should generate unique equipment number at the time of asset entry.
EQM/03	System should maintain the history of all the equipments.
EQM/04	System should have provision to record initial cost, description and book value of the Asset.
EQM/05	The system will have the ability to plan, schedule, monitor/track and record maintenance activities.
EQM/06	The system should send an alert for Maintenance.
EQM/07	The system should be able to project the status if the complaint / request is not resolved as per defined timelines
EQM/08	The system should have a provision to condemnation the equipment.
EQM/09	System should have proviion for seamless coordination with AMC or other technicians.
EQM/10	Integration with E-Upkaran

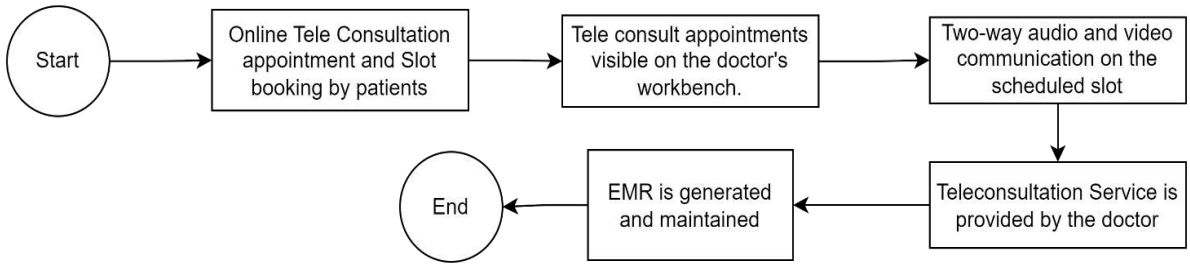
Tele ICU

The Tele ICU module in an Integrated Hospital Management System (IHMS) is designed to provide remote monitoring and management of critical care patients in the ICU. It leverages telemedicine technology to connect ICU patients with remote intensivist physicians, enabling real-time monitoring, consultations, and interventions. Here are the key features and functionalities of the Tele ICU module:

- **Remote Patient Monitoring**
- **Video Conferencing and Communication**
- **Data Integration and Analysis**
- **Alarms and Alerts**
- **Remote Interventions and Orders**
- **Documentation and Reporting**
- **Security and Privacy**

By Tele ICU module in an IHMS, hospitals can extend their critical care capabilities, improve patient outcomes, and enhance access to specialized care. It enables remote monitoring, consultations, and interventions, reducing the need for physical presence in the ICU while maintaining high-quality care. The Tele ICU module also promotes collaboration, knowledge-sharing, and efficient resource utilization in critical care settings.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the Tele ICU module including but not limited to:

FR Code	Minimal Functional Requirements of Tele-ICU Solution (Hub)
TEL/01	The system should autogenerate the availability of doctors at hub site for Consultation.
TEL/02	The set up should have reliable high-speed internet connectivity with redundancy to ensure uninterrupted communication.
TEL/03	The system should be secured and encrypted communication channels to comply with healthcare data privacy regulations
TEL/04	The system should have centralized dashboard for simultaneous monitoring of multiple ICU patients in different locations
TEL/05	The system should have provision of switching between different ICUs and patient views easily.

FR Code	Minimal Functional Requirements of Tele-ICU Solution (Hub)
TEL/06	The system should be integrated with electronic health record (EHR) systems from connected ICUs to access patient histories, lab results, and real-time data.
TEL/07	The system should provide real-time data feeds from bedside monitors and medical devices for continuous patient monitoring.
TEL/08	The system should have inbuild decision support tools for remote clinicians to make informed decisions.
TEL/09	The system should have access to evidence based guidelines and clinical protocols.
TEL/10	The system should have real-time alerting and notification systems to inform remote clinicians about critical events and patient condition changes.
TEL/11	There should be provision of customizable alarm thresholds for vital signs and other parameters.
TEL/12	The system should have two-way audio and video communication for remote consultations between Tele-ICU clinicians and bedside teams.
TEL/13	The system should provide access to patient records and historical data within the EHR for comprehensive patient assessment and decision-making
TEL/14	The system should have ability to document patient assessments, interventions, and care plans within the system.
TEL/15	The system should generate the required documents for consultation, medications etc. and should generate a note for medical record creation.
TEL/16	The system should monitor and report the key performance indicators (KPIs) such as response times, patient outcomes, and compliance with clinical guidelines.
TEL/17	The system should be compatible with various EHR systems and medical devices used in the connected ICUs.
TEL/18	The system should be scalable in terms of infrastructure to accommodate additional ICU's or patient load as needed.

FR Code	Minimal Functional Requirements of Tele-ICU Solution (Patient Site)
TELS/01	The system should be able to store patient details admitted to each bed in the ICU.
TELS/02	The system should be integrated with telemedicine communication equipment (e.g., cameras, microphones) to facilitate remote consultations with the Tele-ICU hub

FR Code	Minimal Functional Requirements of Tele-ICU Solution (Patient Site)
TELS/03	The system should be integrated with various ICU equipment's like ICU monitors, infusion pump and other medical devices which are useful in monitoring the patient.
TELS/03	The system should be integrated with Laboratory for sharing the data with Hub facility.
TELS/04	The system should be integrated or connected with imaging services for sharing the reports to Hub facility.
TELS/05	The system should be integrated with the training material for operating the software by staff.

Content Management

Information, Education, and Communication management module for developing and implementing strategies to effectively communicate information to target audiences, educate them about specific topics, and influence their attitudes and behaviours. The goal is to raise awareness and enhance knowledge.

Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the IEC module including but not limited to:

FR Code	Minimum Functional Requirements of Content Management System
IEC/01	System should have features for creating (uploading content and files), organizing (grouping the required content), and managing training modules for users and patient.
IEC/02	All functionalities in the module should be based on the role-based access control.
IEC/03	There should be provision to download the content for future reference.
IEC/04	System should allow users to access training modules and give assessment, based on the role-based access control.
IEC/05	Solution should support various types of content, such as documents, presentations, videos, quizzes, and assessments
IEC/06	System should have feature to track and report user progress within courses, including completed modules, assessments, and scores.

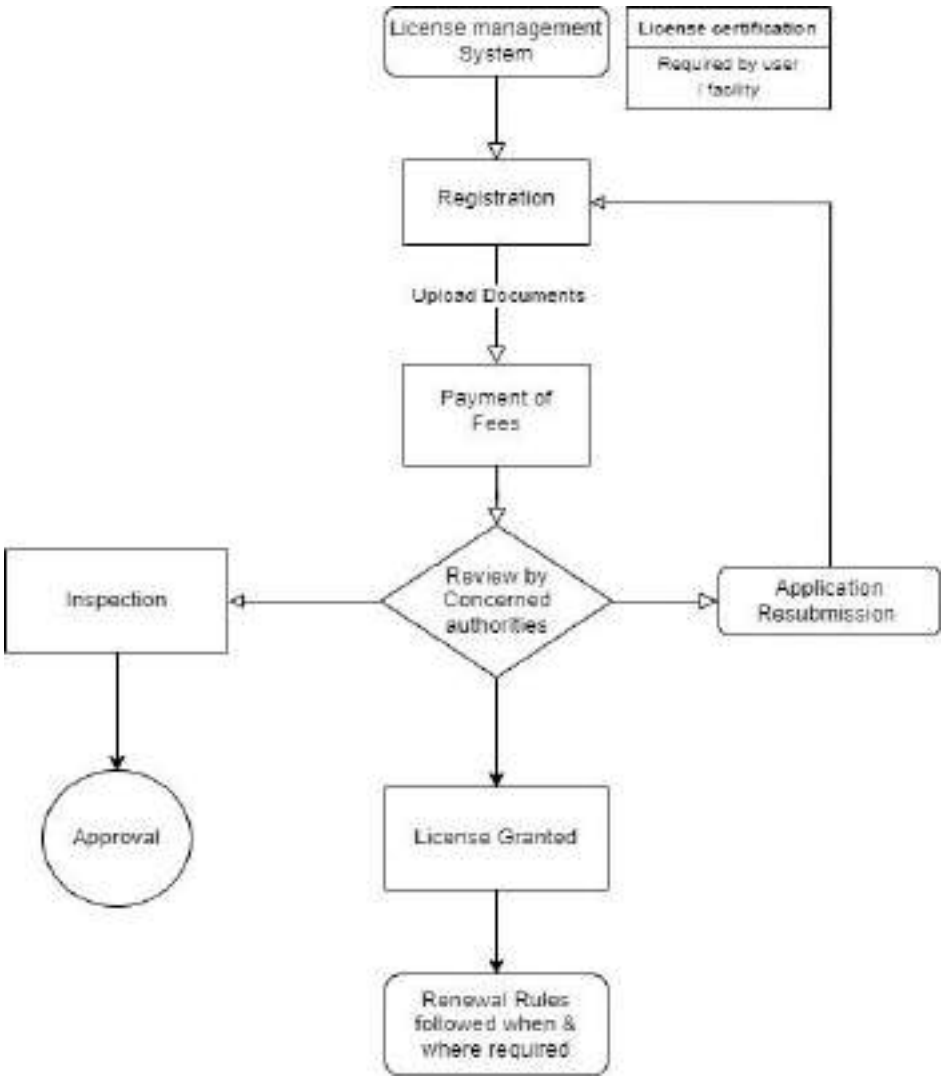
License Management System

Single window system for various licenses, approvals and their regular renewals for the clinics, nursing homes and hospitals. Some common requirements include:

- A central repository of all licensing requirements.

- A single window to apply for licenses would streamline the licensing process
- Electronic submission of applications and supporting documentation
- Automated processing of applications would further speed up the licensing process.
- Real-time tracking of the status of applications
- A user-friendly interface

Process Map



Minimum Functional Requirements

FR Code	Minimum Functional Requirements of License Management
LMS/01	System should allow to select the license type to apply for registration.
LMS/02	System should maintain the unique ID for license applications
LMS/03	System should be integrated with UPI for the payment of license fee,

FR Code	Minimum Functional Requirements of License Management
LMS/04	system should maintain the track of application for licenses.
LMS/05	System should allow to upload/download facility for registration related documents
LMS/06	System should have the functionality to keep the inspection and authorization records.
LMS/07	System should have the provision for the renewal of existing licenses
LMS/08	SMS and mail verification and notification must be there.
LMS/09	All functionalities in the module should be based on the role-based access control.
LMS/10	System should provide all the reports and dashboards for tracking the application and details existing license.

Quality Management

Kayakalp Module

Kayakalp clean environment improves healing and Fastens recovery, besides enhancing patients' experience at health facility. Aim of initiative which to improve and promote the cleanliness, hygiene, waste management and infection control practices in public health care facilities and incentivize the exemplary performing facilities. The scheme is intended to encourage and incentivize Public Health Facilities (PHFs) in the country to demonstrate their commitment for cleanliness, hygiene and infection control practices.

Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the Kayakalp module including but not limited to:

FR Code	Minimum Functional Requirements of Kayakalp module of Quality Management System
KAY/01	The application should allow users to create an account through SSO login or by providing their basic information such as name, contact details, and email address.
KAY/02	The application should have capability to run in Offline mode.
KAY/02	The application should allow to generate the annual workplan for the visits to the facility along with the facility of team formation. Any change in the composed team should be editable in future.
KAY/03	The application should be embedded with the standard checklist of Kayakalp assessment according to the type of facility.
KAY/04	There should be a provision to select the type of assessment like, peer assessment, Internal assessment and external assessment.

FR Code	Minimum Functional Requirements of Kayakalp module of Quality Management System
KAY/05	The application should provide access to the Kayakalp guidelines, which outline the quality standards for healthcare facilities.
KAY/06	The application should allow healthcare facilities to track their progress over time. It should provide visual representations, such as graphs or charts, to help facilities monitor their performance and identify trends or areas where improvement is needed.
KAY/07	The application should support healthcare facilities in creating action plans based on the feedback received from the self-assessment, internal and external assessment.
KAY/08	The application should generate reports summarizing the self-assessment results, performance trends, completed tasks, and overall progress of healthcare facilities.
KAY/09	The application should support different user roles and permissions to ensure appropriate access and control. Users with administrative privileges should be able to manage user accounts, assign roles, and control data visibility.
KAY/10	Provision of creating standard dashboard for the outcome of the visits.
KAY/11	Provision of making changes in the checklist as per the government guidelines.

NQAS Module

National Quality Assurance Standards have been developed keeping in the specific requirements for public health facilities as well global best practices. NQAS are currently available for District Hospitals, CHCs, PHCs and Urban PHCs. Standards are primarily meant for providers to assess their own quality for improvement through pre defined standards and to bring up their facilities for certification. The National Quality Assurance Standards are broadly arranged under 8 "Areas of Concern"– Service Provision, Patient Rights, Inputs, Support Services, Clinical Care, Infection Control, Quality Management and Outcome.

Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the NQAS module including but not limited to:

FR Code	Minimum Functional Requirements of NQAS Module of Quality Management System
NSQ/01	The application should allow users to create an account through SSO login or by providing their basic information such as name, contact details, and email address.
NSQ/02	The application should allow to generate the annual workplan for the visits to the facility along with the facility of team formation. Any change in the composed team should be editable in future.

FR Code	Minimum Functional Requirements of NQAS Module of Quality Management System
NSQ/03	The application should be embedded with the standard checklist of NQAS assessment according to the type of facility.
NSQ/04	There should be a provision to select the type of assessment like, peer assessment, Internal assessment and external assessment.
NSQ/05	The application should provide access to the National Quality Assurance Standards (NQAS) guidelines, which outline the quality standards for healthcare facilities.
NSQ/06	The application should allow healthcare facilities to track their progress over time. It should provide visual representations, such as graphs or charts, to help facilities monitor their performance and identify trends or areas where improvement is needed.
NSQ/07	The application should support healthcare facilities in creating action plans based on the feedback received from the self-assessment, internal and external assessment.
NSQ/08	The application should generate reports summarizing the self-assessment results, performance trends, completed tasks, and overall progress of healthcare facilities.
NSQ/09	The application should support different user roles and permissions to ensure appropriate access and control.
NSQ/10	Provision of creating standard dashboard for the outcome of the visits.
NSQ/11	Provision of making changes in the checklist as per the government guidelines.
NSQ/12	Provision of tracking the journey for NQAS certification.
NSQ/13	Provision of generating reports as per the state/GoI formats.

MusQan Module

MusQan Quality Improvement in health care is a systematic approach that monitors, assesses, and improves the standard of quality care. MusQan is designed to ensure provision of quality child friendly services from birth to children up to 12 years of age. MusQan aims to ensure provision of quality child friendly services in public health facilities to reduce preventable new born and child morbidity and mortality. It encompasses all the pivotal aspects of child growth and development, including the child's physical, mental and social development. In addition, MusQan initiative intends to achieve an explicit improvement in the quality of childcare services in public facilities of India.

Under MusQan, multi-prolonged strategy has been adopted for ensuring the gaps in the SNCUs, NBSUs, Postnatal wards, Paediatric OPD and Nutritional Rehabilitation Centre against the quality standards traversed within the shortest possible time and visible in quality care services.

Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the MusQan module including but not limited to:

FR Code	Minimum Functional Requirements of MusQan module of Quality Management System
MSQ/01	The application should allow users to create an account through SSO login or by providing their basic information such as name, contact details, and email address.
MSQ/02	The application should allow to generate the annual/Quarterly workplan for the visits to the facility along with the facility of team formation. Any change in the composed team should be editable in future.
MSQ/03	The application should be embedded with the standard checklist of MusQan assessment according to the type of facility.
MSQ/04	There should be a provision to select the type of assessment like, peer assessment, Internal assessment, and external assessment.
MSQ/05	The application should provide access to the National Quality Assurance Standards guidelines of MusQan, which outline the quality standards for childcare services from 0-12 years.
MSQ/06	The application should allow healthcare facilities to track their progress over time. It should provide visual representations, such as graphs or charts, to help facilities monitor their performance and identify trends or areas where improvement is needed.
MSQ/07	The application should support healthcare facilities in creating action plans based on the feedback received from the self-assessment, internal and external assessment.
MSQ/08	The application should generate reports summarizing the self-assessment results, performance trends, completed tasks, and overall progress of healthcare facilities.
MSQ/09	The application should support different user roles and permissions to ensure appropriate access and control.
MSQ/10	Provision of creating standard dashboard for the outcome of the visits.
MSQ/11	Provision of making changes in the checklist as per the government guidelines.
MSQ/12	Provision of tracking the journey for MusQan certification
MSQ/13	Provision of generating reports as per the state/GoI formats.
MSQ/14	Provision of generating KPI's for the respective facilities as per MusQan Guidelines.

Incident & Risk Management

The Incident & Risk Management module in an Integrated Hospital Management System focuses on identifying, tracking, managing, and mitigating various incidents and risks within the hospital environment. It helps ensure the safety of patients, staff, and visitors while minimizing potential risks and adverse events. Here are the key features and functionalities of the Incident & Risk Management module:

- Incident Reporting
- Risk Assessment and Mitigation
- Investigation and Root Cause Analysis
- Corrective and Preventive Actions
- Documentation and Reporting
- Compliance and Regulatory Requirements

By Incident & Risk Management module, hospitals can proactively identify and manage incidents and risks, ensuring a safe and secure environment for patients, staff, and visitors. It enables effective incident reporting, investigation, risk assessment, and implementation of corrective measures, ultimately enhancing patient safety and improving overall healthcare qua

2. Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the Incident & Risk Management module including but not limited to:

FR Code	Minimum Functional Requirements of Incident and Risk Management
IRM/01	System should have provision for health facility staff to report incidents
IRM/02	System should capture details such as the nature of the incident, location, date and time, individuals involved, and any relevant information required for investigation and analysis.
IRM/03	There should be provision of incident analysis to identify possible risks and mitigation plans
IRM/04	Tracking the progress of action plans and ensuring their timely completion.
IRM/05	System should provide a centralized repository for storing incident reports, investigation findings, action plans, and related documentation.

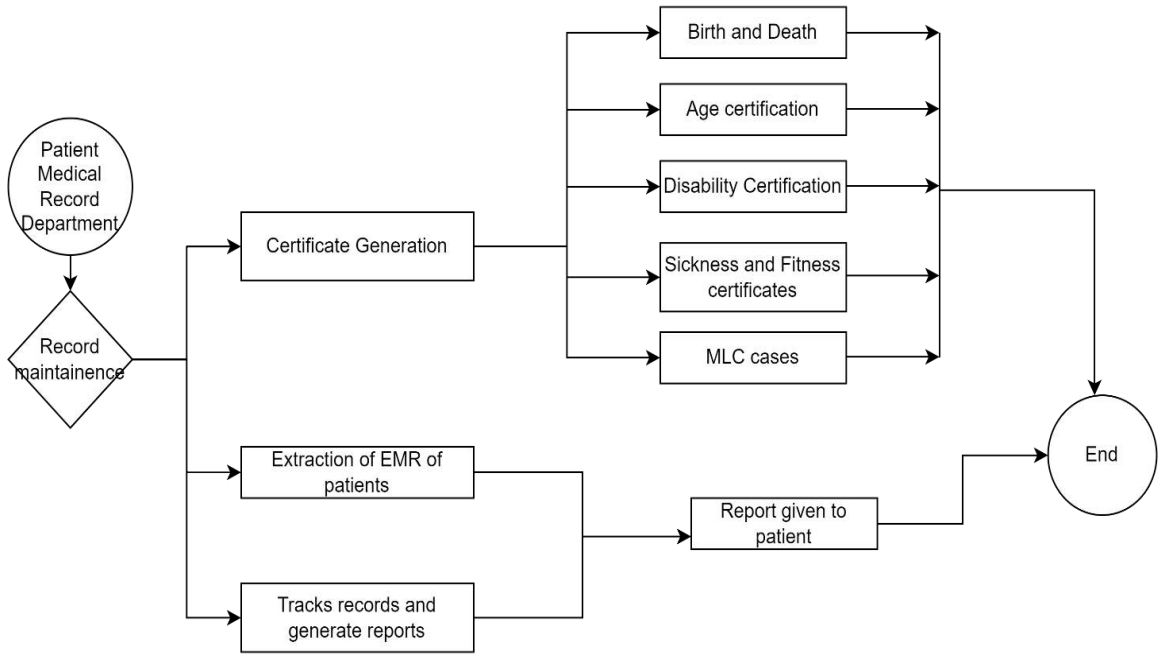
Medical Records

The Medical Records Department module in an Integrated Hospital Management System is designed to manage and maintain patient medical records throughout the healthcare facility. It focuses on ensuring the accuracy, availability, and confidentiality of patient health information. Here are the key features and functionalities of the MRD module:

- **Electronic Medical Records (EMR)**
- **Record Creation and Maintenance**
- **Document Imaging and Scanning**
- **Record Indexing and Retrieval**
- **Record Tracking and Movement**
- **Release of Information**
- **Data Security and Confidentiality**

By MRD module in an IHMS, hospitals can effectively manage patient medical records, improve accessibility to patient information, and enhance the overall efficiency and quality of healthcare services. The module promotes the transition from paper-based records to electronic records, streamlining record management processes, and facilitating better patient care coordination.

Process Map



Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the PMRD module including but not limited to:

FR Code	Minimum Functional Requirements of Medical Records
MRD/01	System should facilitate the automation of records related to patient care (outpatient, inpatient, births, deaths, etc.) and their storage in a systematic manner within the Record Room.
MRD/02	System should have provision for certificate generation like Birth certificates, Death certificates, age certificates, Disability certificates, Sickness and Fitness certificates, MLC cases, etc. and maintaining records of Certificates issued by hospitals.
MRD/03	Extraction of EMR of patient using their credentials/ identity details. Modification of patient details after authorization of competent authority, available.

FR Code	Minimum Functional Requirements of Medical Records
MRD/04	System should have provision for tracking of records and generating reports linked to system usage reports, inward and outward reports, stamp information reports, Court case reports, MLC cases, National and State Human Rights Commission cases, Vidhan Sabha and Lok Sabha Questions, RTI Cases, etc.

Birth Registration

The Birth Registration Module in an Integrated Hospital Management System is designed to facilitate the registration and documentation of births that occur within the hospital. It automates and streamlines the birth registration process, ensuring accurate and efficient record-keeping. Here are the key features and functionalities of the Birth Registration Module:

- **Birth Data Capture**
- **Electronic Birth Certificate Generation**
- **Integration with Civil Registry**
- **Document Management**
- **Reporting and Analytics**
- **Data Security and Privacy**

Birth Registration Module in an IHMS, hospitals can streamline the birth registration process, reduce paperwork, ensure accurate record-keeping, and enhance overall efficiency in managing births within the hospital. It helps in complying with legal requirements, simplifying administrative tasks, and maintaining a reliable and comprehensive birth registry.

Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the birth registration module including but not limited to:

FR Code	Minimum Functional Requirements of Birth Registration
BRM/01	Module should capture the newborn details and record must linked with parents' record.
BRM/02	System should have online facility to apply for birth certificate through patient portal or site.
BRM/03	Integration with gov. portal for birth details.
BRM/04	System should have provision for print facility for birth certificate through the patient portal or site.

Death Registration

The Death Registration Module in an Integrated Hospital Management System facilitates the registration and documentation of deaths that occur within the hospital. It automates and streamlines the death registration process, ensuring accurate and efficient record-keeping. Here are the key features and functionalities of the Death Registration Module:

- **Death Data Capture**

- **Electronic Death Certificate Generation**
- **Integration with Civil Registry**
- **Document Management**
- **Reporting and Analytics**
- **Data Security and Privacy**

Hospitals can streamline the death registration process, reduce paperwork, ensure accurate record-keeping, and enhance overall efficiency in managing deaths within the hospital. It helps in complying with legal requirements, simplifying administrative tasks, and maintaining a reliable and comprehensive death registry

Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the death registration module including but not limited to:

FR Code	Minimum Functional Requirements of Death Registration
DRM/01	System should capture the death details like -cause of death, DOB, case history etc.
DRM/02	Death notification to Insurance department and mortuary department.
DRM/03	System should have online facility to apply for death certificate through patient portal or site.
DRM/04	Integration with gov. portal for death certificate.
DRM/05	In case death is not natural, system should have the provision of notifying the Police department and should be interfaced with the MLC dashboard

Analytics and Dashboard

The dashboard in a health mobile application provides a centralized view of key metrics, trends, and data related to health services and patient outcomes. It presents information in a visually appealing and user-friendly format, allowing users to monitor performance, track progress, and make informed decisions. The dashboard can include various indicators such as patient demographics, service utilization, disease prevalence, and quality of care metrics.

GIS (Geographic Information System) reports in a health mobile application leverage spatial data and mapping capabilities to visualize health-related information geographically. It allows users to analyze and understand health patterns and disparities across different regions. GIS reports can display data on disease outbreaks, healthcare facility locations, accessibility to services, and population demographics. These reports aid in identifying areas of need, planning interventions, and allocating resources effectively to improve health outcomes.

Minimum functional Requirements of this module are as follows:

FR Code	Minimum Functional Requirements of Analytics and Dashboards
DASH/01	Enable access control mechanisms to determine the level of data and functionality accessible to different user roles or groups.

FR Code	Minimum Functional Requirements of Analytics and Dashboards
DASH/02	It should support various types of charts, graphs, tables, and other visualizations to represent data trends, comparisons, and summaries as per the requirement of the Medical and Health Department.
DASH/03	Users shall be able to customize the dashboard layout and select the s9pecific metrics or data as per requirement.
DASH/04	It should provide real-time data updates and schedule data refresh for certain cases where real-time syncing is not possible.
DASH/05	Dashboard shall allow users to filter data based on specific criteria, location, time periods, etc.
DASH/06	Dashboard shall allow to drill down into specific data elements to explore details or access more granular information.
DASH/07	It should support push notifications or alerts to notify users about critical updates, changes, or events.
DASH/08	The mobile dashboard shall have offline capabilities, allowing users to access previously synced data and perform basic operations even without an internet connection.
DASH/09	It should support automatic data synchronization when the device is back online, ensuring the dashboard is up to date.
DASH/10	Provision of updating new features in the Dashboard as per requirement.
DASH/11	GIS reports module shall have the capability to integrate geospatial data from various sources, such as GPS coordinates, addresses, or shapefiles, into the reporting system.
DASH/12	Application shall provide a map interface that allows users to visualize geospatial data on a map include but not limited to displaying points, polygons, lines, heatmaps, or other relevant spatial representations.
DASH/13	Users shall be able to manage and overlay multiple layers of geospatial data on the map. Users shall be able to add, remove, and adjust the visibility and order of different layers.
DASH/14	Users shall be able to apply filters and query the geospatial data to focus on specific areas or criteria by filtering location, attributes, time periods, or other relevant parameters.
DASH/15	Provision for spatial analysis capabilities, allowing users to perform operations such as buffering, spatial joins, proximity analysis, and spatial statistics.
DASH/16	Users shall have the ability to customize the visual styling of the map, including the choice of basemaps, colors, symbols, labels, and thematic representations.
DASH/17	Support geocoding functionality to convert addresses or place names into geographic coordinates. Reverse geocoding shall also be available, to obtain address information based on given coordinates.
DASH/18	Users shall be able to add annotations, markers, labels, or other visual elements on the map to highlight specific locations or information.
DASH/19	Support interactive map features, such as zooming, panning, and clicking on map elements to retrieve associated data or perform related actions.

FR Code	Minimum Functional Requirements of Analytics and Dashboards
DASH/20	Provision to export the data in CSV, PDF, XLSX, etc. formats.
DASH/21	System should integrate with SAS Analytics Platform for data processing and visualization

Administration

User Management

User management in an Integrated Hospital Management System involves the administration and control of user accounts and permissions within the system. It ensures that the right individuals have appropriate access to the system's functionalities and data based on their roles and responsibilities. Here are some key aspects of user management in an IHMS:

- **User Registration**
- **User Roles and Permissions**
- **Access Control**
- **Password Management**
- **User Activity Logging**
- **User Deactivation and Termination**

User management in an IHMS is crucial for maintaining data integrity, ensuring security, and optimizing system usage. It provides administrators with the necessary tools and controls to manage user accounts, assign appropriate roles and permissions, and monitor user activities within the system. By effectively managing user accounts and access, hospitals can protect patient information, ensure compliance with data privacy regulations, and maintain the overall integrity and security of their IHMS.

Minimum Functional Requirements

Following are the minimum Functional Requirements (FR) envisaged for the user management module including but not limited to:

FR Code	Minimum Functional Requirements of Administration
USR/01	Facility to create user by SSO ID by integrating with RajSSO system.
USR/02	If SSO ID is not available, the system should allow for back-propagation of details to create the SSO ID for the user.
USR/03	Facility to assign user roles, departments, stores and hospitals.
USR/04	Facility to give permission to access the MLC tagged files.
USR/05	The privileges assigned to the user should be revoked when the user has left the healthcare facility.
USR/06	Generate audit Log reports of respective user.

Master Registry

Health Professional Registry Master

The Health Professional Registry Master is a comprehensive repository of registered and verified practitioners to deliver modern healthcare services in the state of Rajasthan. It includes health professionals employed by government and private health facilities. This application shall be available as part of RajMasters. IHMS 2.0 will be required to be integrated with RajMasters to query and fetch information regarding health professionals of a healthcare facility during the deployment of IHMS2.0.

Health Facility Registry Master

The Health Facility Registry Master is a comprehensive repository of registered and verified healthcare facilities to deliver modern healthcare services in the state of Rajasthan. It includes government and private healthcare facilities. including hospitals, clinics, diagnostic laboratories and imaging centres, pharmacies, etc. The system allows a health facility to be registered on the system which can then be listed and function within the application.

This application shall be available as part of RajMasters. IHMS 2.0 will be required to be integrated via API with RajMasters to query and fetch information regarding enrolment of health facility during the deployment of IHMS2.0.

Rajasthan Medicare Relief Society

The Rajasthan Medical Relief Society provides financial assistance to needy citizens via cross subsidy and public funding. To enhance the services offered to the public, an integrated system is required to provide the functionality through a connected system.

The minimum functional requirements of the RMRS module are as follows:

FR Code	Minimal functional requirements of Rajasthan Medicare Relief Society
RMRS/01	The system should provide functionality for a complete accounting system to manage the funds received and expenses incurred.
RMRS/02	The system should have the capability to maintain record of sources of funds like Grant from Govt, User Charges, Donations received from Govt., from Bank Interest, donations from public, or from other sources
RMRS/03	The system should have the capability to maintain record of expenses incurred like Salary of Contractual Staff, Security, Furniture Repair, Printing, Stationary, Office Expense, free services to BPL, Training/Seminars, Postal Charges, Linen Purchase, Electricity Repair, Audit Fees, Medicine Purchase, Surgical Instruments purchase, Advertisement, etc.
RMRS/04	The system should be able to generate financial accounting reports for any time-period – daily, monthly, quarterly, yearly or for any custom period.

College Management System

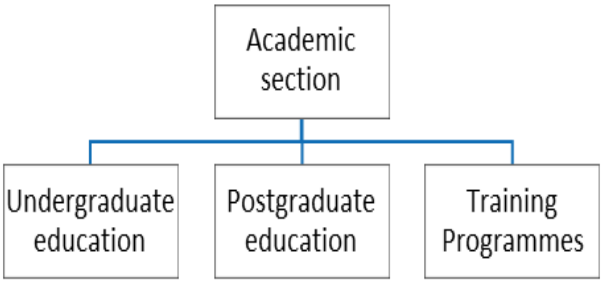
The Hospital Information System is classified into the following modules

Academic Section:

The Academic Section provides the administrative backbone to the various training programs imparted by the medical institutions including student affairs, curriculum

development, training platforms and innovations in education. The Academic Section is entrusted with managing the core academic activities of the Institute, ensuring equal opportunity and high standards of quality. It is the custodian of all syllabuses, statutes, and other eligibility rules governing the teaching and award of various academic degrees. Academic section develops policies and executes academic activities as per set rules, guidelines, and principles, which have evolved over time and change as per current demands.

The administrative aspects of undergraduate, postgraduate, and postdoctoral medical and paramedical courses are being supervised by dedicated staff of the Academic section

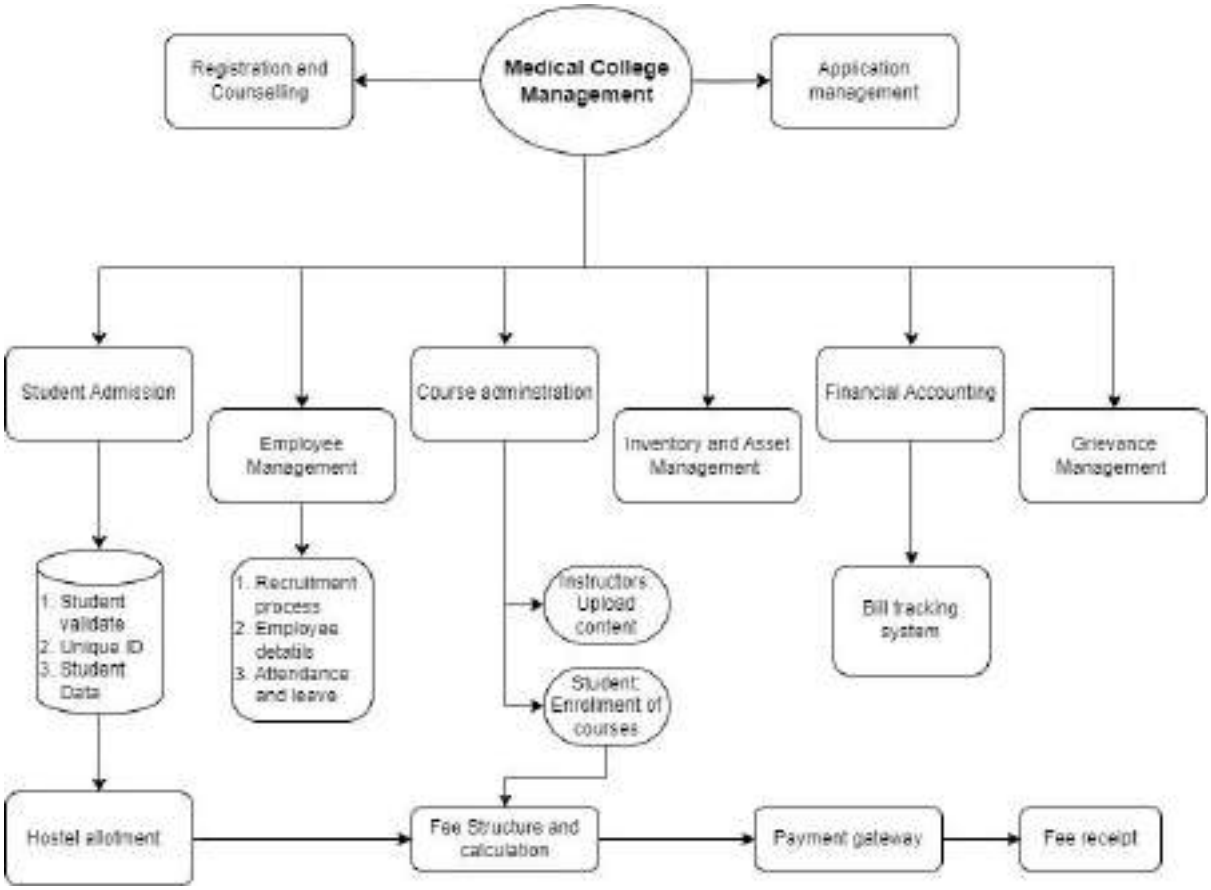


Following is the generalized process for the Academic Section.

Medical College Administration -

The Medical Council of India (MCI), now known as the National Medical Commission (NMC), is the governing body responsible for overseeing medical education in India. The NMC sets standards for medical colleges, approves courses, and regulates admissions and examinations. Medical college management refers to the administration, organization, and coordination of activities related to the functioning of a medical college. It involves overseeing various aspects such as academic programs, faculty management, infrastructure development, student admissions and support, financial management, quality assurance, research promotion, and overall governance of the institution.

Process Flow



Process Description

Step-1	Online forms to fill, save and upload on application portal for specific courses
Step-2	Registration and counselling process and schedules for UG and PG program
Step-3	Post admission, a unique ID is generated and student has access to complete data for easy access
Step-4	Course administration for instructors to upload courses and content while for students to enrol in them and personalize
Step-5	Detailed fee structure is visible and option of online payment and receipt is generated and records are maintained
Step-6	Employee Management helps in providing access to detailed recruitment process, employee details and attendance and leave management
Step-7	Financial accounting helps in taking care all financial issues of college and tracking of all bills
Step-8	Inventory and Asset management maintains a centralised repository of inventory and tracks them
Step-9	Grievance management assists in registering and handling complaints in efficient way

FR Code	Minimum Functional Requirement
	a) Application Management System -
ACD/1	The system should display admission related information and notices in a static and dynamic format
ACD/2	The system should provide online application form for admission to be filled in by the applicant. The occurrence of errors should be minimized using interactive checkboxes, radio-buttons and scroll-down menus
ACD/3	The system should allow the applicant to download and upload admission related supporting documents in the form of Jpeg, word or PDF format
ACD/4	The system should enable the applicant to edit/update/delete application details as per user rights configured
ACD/5	The system should enable the applicant to save the progress of details filled/document uploaded at any step
ACD/6	After form submission verification and payment applicants should be provided with a unique application ID, which the admin shall verify, check details and finally register the applicant in the Education Lifecycle Management Services with all given details
ACD/7	The system should enable the applicant to view the status of the admission using the unique application ID
	b) Registration and Counselling -
ACD/8	Alerts based on calendar and activities (system alerts/ mail alerts/ SMS alerts/ phone alerts) to be enabled for any update.
ACD/9	The system should display process of counselling individually for UG and PG either by uploading the workflow in the PDF format or through a video
ACD/10	The system should display the schedule for counselling session with given details like list of students, date for counselling, timings, venue details, etc.
ACD/11	The system should display the number of seats allotted/vacant category wise in some graphical/pictorial representation (Consisting of details, how many seats are filled/vacant in which branch and which college)
ACD/12	The system should enable the applicant to view and access the final counselling list (consisting details of which students have opted for which college
	c) Student Admission -
ACD/13	The system should provide a search-based option using which details of any students can be easily retrieved using the student's name, roll number etc
ACD/14	The system should allow the admin staff to view the total seats available for admission, number of students admitted, number of vacant seats to avoid data discrepancy

FR Code	Minimum Functional Requirement
ACD/15	The system should enable the student to enter all relevant details onto the online admission form Functionality to download the form and upload the scanned copy should also be supported (electronic signature).
ACD/16	The system should allow the applicant to download and upload admission related supporting documents in the form of Jpeg, word or PDF format
ACD/17	The system should enable the applicant to edit/update/delete and save application details as per user rights configured.
ACD/18	Post admission, a unique student ID should be auto generated; using which student can check the admission progress
ACD/19	The system should allow the admin staff to validate the student data entered at every step and communicate the validation output to all involved stakeholders
ACD/20	The system should generate the admission slip once the admission process is successfully completed. The generated slip should have a barcode for ease of student identification
ACD/21	The system should allow the admin staff to access the student record using barcode scanner in addition to other searchable functionalities
	d) Course Administration (UG/PG/ Training / Workshops) -
ACD/22	The system should allow login user to upload the learning content with specified access rights. This will enable specific user groups to access the content
ACD/23	Users should be able to personalize their learning experience
ACD/24	User interface should be capable of being customized to adapt to the learner's preferences
ACD/25	The system should allow internal user to create templates for the courses and a course content wizard to help create standard courses from templates
ACD/26	The system should allow internal users at medical colleges to create course catalogues and to search and view training courses according to specific rights and roles of individual users in the system
ACD/26	The system should allow internal users at medical colleges to integrate and embed images, presentations and video content from social networking platforms without the need for specialized knowledge of web development (HTML, CSS, JavaScript).
ACD/27	The system should have functions such as course rating/feedback reports.
ACD/28	The system should have provision to allow self-registration and de-registration by a learner for any learning offerings.

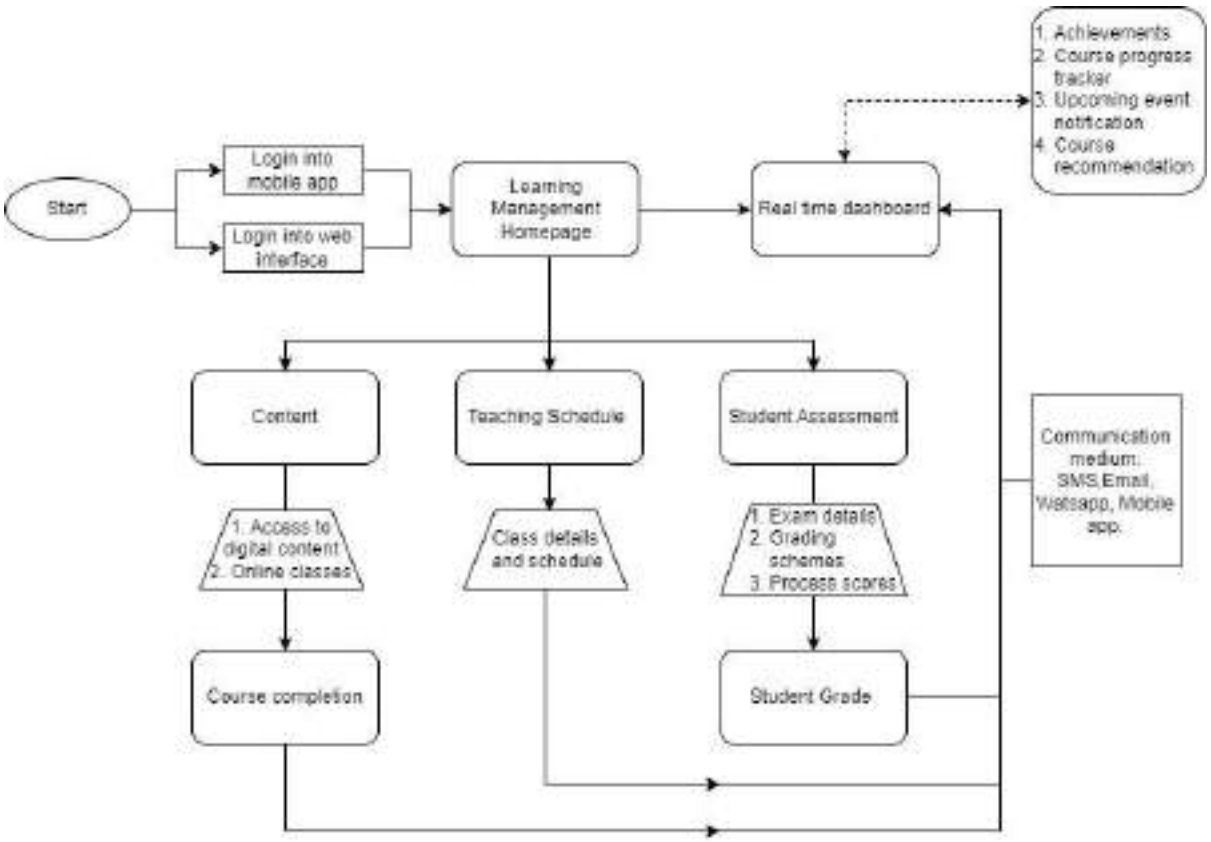
FR Code	Minimum Functional Requirement
ACD/29	The system should support the common file formats such as doc, gif, html, jpeg, mpg, mpeg, pdf, xlsx, docx, ppt, pptx, etc for upload of learning content
ACD/30	Users shall be able to access the Digital learning platform away from organization.
ACD/31	Users shall be uniquely identified and verified.
ACD/32	The system should allow internal users to set access rights to specific files and directories for several different courses
ACD/33	Creation/modification of academic course by specifying the name, total number of seats along with reservation criteria, academic year, etc
	e) Enrolment Administration -
ACD/34	The system should allow online course registration, flexible subject choices in alignment with Competency-Based Medical Education (CBME), check for conflicts at timetable, Teaching Staff, Locations of the Teaching, credit limits and pre-requisites and allow advisors to communicate directly with students on course selection issues
ACD/35	Students should be given a provision to enrol the courses online through the college portal as well as through a mobile application. In all such cases, system should be able to check the Pre-Requisites, Co-Requisites, Anti-Requisites based on the Subject Rules, Examinations rules
	f) Fee Administration -
ACD/36	The system should have fee structure for various programs and courses offered by the medical college. This includes tuition fees, laboratory fees, examination fees, library fees, and any other applicable charges
ACD/37	Automatic fee calculation: Taking into consideration all the crucial factors such as, e-learning classes, extra-curricular activities fees, and much more, the online fee management system calculates fees for every student with high precision
ACD/38	The system should allow student user to pay semester fee using online fee module
ACD/39	The system should be integrated with payment gateway
ACD/40	The system should maintain the student fees and dues record
ACD/41	The system should allow admin staff user to generate & share fee receipt once student fee is successfully received
ACD/42	Fee administration part should be part of Finance department
	g) Employee Management (All HR Activities) -

FR Code	Minimum Functional Requirement
ACD/43	The system should be managed all aspects of recruitment process Publishing job openings, receiving online applications, screen applicants, conduct interviews, award grades, and generate merit list. The HRMS should store their demographic details, educational qualifications, details related to increments, promotions, transfers, and benefits of the employees in a completely secure environment. A dedicated portal for employee should allow them to complete various tasks such as attendance, apply for leave, generate salary slips, apply for loans, and buy insurance.
ACD/44	Faculty attendance system should be integrated with HRIS (will require API from NMC)
ACD/45	there should have integration with e-office for inter office communication
	h) Financial Accounting
ACD/46	The system should take care of all financial issues of the college including incomes, expenses, revenue generation, cash, and bank related transactions
	i) Inventory Management including Asset Management
ACD/47	The system should have tracking and managing various inventory items used within the medical college, such as medical supplies, laboratory equipment, stationery, and consumables.
ACD/48	The system should include features like stock tracking, reordering, inventory valuation, track & manage its assets, including fixed assets like buildings, furniture, equipment, and vehicles.
ACD/49	The system should maintain a centralized repository of asset information, including acquisition details, maintenance records and disposal
	j) Bill Tracking System
ACD/50	This system should allow bills from all departments to be submitted online and presented for approval, Check the status of each bill, (approved, pending or cancelled)
	k) Grievance (Staff/Student) Management
ACD/51	This will help the college to handle complaints in a transparent & efficient way accept complaints online, forward to relevant HOD/department, auto generation of complaint number makes tracking easier

Learning Management System:

Learning Management System (LMS) is a software application or platform designed to facilitate the management, delivery, and tracking of educational and training content. It provides a centralized system for organizing and administering various aspects of learning, including course creation, content distribution, learner enrolment, progress tracking, assessment, and communication**.**

Process Flow



Process Description

Step-1	Content is accessible to all digitally and facilitates sharing and tracking of courses
Step-2	Completion of courses with required criteria shows status accordingly
Step-3	Teaching schedule displays the course and class details with schedule
Step-4	There is then assessment of courses of students that provides exam details, enrolment and grading scheme
Step-5	After completion of assessment, grades are awarded accordingly
Step-6	Overall communication happens through SMS, emails, WhatsApp and mobile app

Minimum Functional Requirements

FR Code	**Description**
	a) Content Management - Faculty, Technical Staff -
ACD/52	The system should facilitate digital content sharing & delivery, performance assessment & tracking. It should enable faculty/technical staffs to access content/reading material and related information prepared/shared by college
	b) Teaching Schedule Calendar -
ACD/53	The system should display relevant course information, such as course codes, titles, descriptions, instructor names, visual representation of the class schedule, including dates, times, and locations for each class session
	c) Student Assessment Management -
	There should be provision to: -
ACD/54	Configure various exam related rules: Different rules regarding processing and adjustment of marks like rules for Grace Marks, Normalization, Eligibility, and Absence.
ACD/55	Define Grade and Configure Grading Scheme: Shall support quantitative and
ACD/56	qualitative grading schemes
ACD/57	Exam Enrolment: Provision for students to register for an exam.
ACD/58	Faculty Authorization for Marks Capturing: Support to ensure only authorized faculty can capture the marks
ACD/59	Student Score/Grade capturing: Capturing the score for batches, session wise and class wise Support for bulk upload is needed, Provision needed to edit the captured score.
ACD/60	Processing Scores: Support to process the captured marks to arrive at the grade based on the grading scheme.
ACD/61	Customizable Report Card: Ability to create a custom report card
ACD/62	Managing Student Promotion: Provision to promote or demote a student Backlog creation to be supported in case a student fails to get the minimum grade.
ACD/63	Publishing results: Declare results based on score Students shall be able to see the score in their self-service module.
ACD/64	Moderation and Re-evaluation
ACD/65	Normalization and Relative Grading
ACD/66	With a single click, the result should be available to all the stakeholders.
ACD/67	Customizable grade cards, transcripts, and final degree certificates

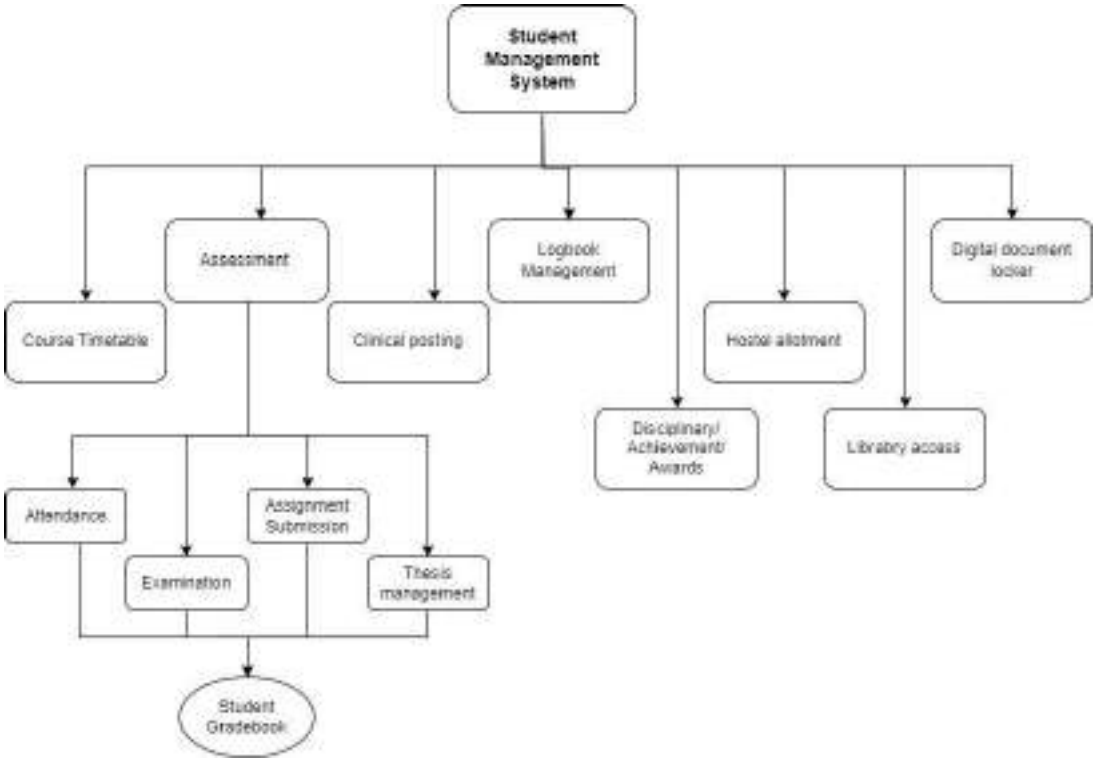
FR Code	**Description**
ACD/68	Automatic exam schedule generation
ACD/69	Multiple evaluation support
ACD/70	Transcript publishing and printing
ACD/71	Award of degree
ACD/72	Evaluation support
ACD/73	Automatic course-based outcomes measurement
	d) Student Grade Management -
ACD/74	After completion of assessments by students, instructors should use this module to grade and provide feedback. This may involve automated grading for objective questions or manual grading for subjective questions Feedback can be given through comments
	e) Online Class Management -
ACD/75	The system should enable the faculty user to conduct live and interactive lecture session sessions
ACD/76	The system should allow the faculty user to allocate the students into different classes (based on academic streams, sections, etc)
ACD/77	The system should allow the faculty user to create/upload the timetable (in daily, weekly, monthly, quarterly, yearly format) and upload the same on the e-classroom module
ACD/78	The system should generate timely notification informing the user about the timetable, important assignment, announcements, etc.
ACD/79	The system should enable the faculty & students to access the e-Classroom using the end computing devices like computer, mobile, tablets, etc
ACD/80	The system should allow the faculty user and students to have a two-way communication for asking questions to students, doubt solving, etc through chat window or audio/video functionality
ACD/81	The system should allow the faculty user to upload/share the lecture materials like presentations, notes, reference links, articles, books, etc which can be easily accessed/downloaded by the students
ACD/82	The system should allow the faculty user to conduct online exams using the e-Classroom module by sharing the exam link which gets activated and disabled as per the exam duration
ACD/83	Facility for uploading of Question Bank should be available
	f) Course Completion Management -
ACD/84	The system should have provision to faculty/administrators to define completion criteria for each course. This may include completing specific

FR Code	**Description**
	modules, achieving a minimum score on assessments, submitting assignments, or participating in discussion forums
ACD/85	Records of students in various semesters of the academic course should be captured. In case of students re-appearing for exams of the same course, details of the same should be captured and made available in the system
	g) Communication Management (SMS, Email, WhatsApp, Mobile App) -
ACD/86	The system should have facility to send announcements or notifications to students through SMS, email, WhatsApp

Student Management System

Student Management System is designed to manage and organize student-related information within educational institutions. It serves as a comprehensive database and administrative tool for handling various aspects of student data, including enrollment, attendance, grading, scheduling, and communication.

Process Flow



Process Description

Step-1	Student has access to course timetable automated with courses registered

Step-2	Provision of all assessments at single place with attendance, examination, assignment submission and thesis management
Step-3	Post assessment, gives the student gradebook based on assessment done
Step-4	Clinal posting is for students/interns/residents that contains post details, requirements, and tracks progress
Step-5	There is logbook section to cover resident's clinical activities and facility to supervise online logbook management
Step-6	Feature to record and track diverse type of achievements, awards or any disciplinary actions taken
Step-7	Hostel allotment shows the current residency of student, hostel payments and other activities
Step-8	Library access is used by students and residents to access library facilities
Step-9	We have repository of all the documents to store them digitally at a single place

Minimum Functional Requirement

FR Code	**Description**
	a) Course Timetable -
ACD/87	The system should confine all the Academic activities as per the Academic year dates and deadlines. It shall have features to manage Programs, Courses, Offering Departments, syllabus, subject allocation, timetable, feedback, and class register etc.
	b) Student Attendance -
ACD/89	The system should create an online attendance register to maintain daily attendance records Generate subject-wise, teacher-wise, or course-wise attendance reports Track and evaluate attendance history to enforce discipline.
ACD/90	• Semester wise Teacher Course Allocation
ACD/91	• Online Daily Attendance entry
ACD/92	• Attendance through staff mobile App
ACD/93	• Attendance through QR codes
ACD/94	• Attendance Rule Configuration
ACD/95	• Course Wise Attendance Report
ACD/96	• Student Attendance report in all subjects
ACD/97	• Attendance module can be integrated with Biometric Smart Attendance Terminal (SAT) and RFID's

FR Code	**Description**
ACD/98	• Automated notifications for absentees
ACD/99	• Dashboards for Attendance
ACD/100	• LMIS should support AI based attendance capturing devices and its supporting services.
ACD/101	• Student attendance should be posted automatically to the college integrated portal
	c) Examination System -
ACD/102	Alerts based on calendar and activities (system alerts/ mail alerts/sms alerts/phone alerts) to be enabled for any update
ACD/103	The system should display the course details and examination pattern; examination timetable should be displayed at appropriate time
ACD/104	The system should allow the students to view & download their examination hall ticket
ACD/105	The system should display the list of question papers of previous years and mock test papers for student's access
ACD/106	The system should display the examination score which the students can view & access
ACD/107	The system should provide access to the faculty to assign test and marks, attendance, etc.
ACD/108	The system should also provide MIS admin with the functionality of viewing and printing any student's examination report
	d) Assignment Submission -
ACD/109	The system should have assignment submission interface where students can upload their files, enter text, or provide relevant links Students may have the option to submit multiple files if required
ACD/110	The system should have provision of a confirmation message or notification to acknowledge of successful submission, review, evaluate, and faculty could provide feedback on the assignments and students should have access to view submitted assignment with evaluation during entire course period
	e) Student Gradebook -
ACD/111	there shall be provision to enter and record student's grades for various assignments, assessments, projects, or exams. The gradebook allows for the input of numerical scores, letter grades, or custom grading scales, depending on the college's grading system
	f) Clinical Posting Management (For Students/Interns/Residents) -

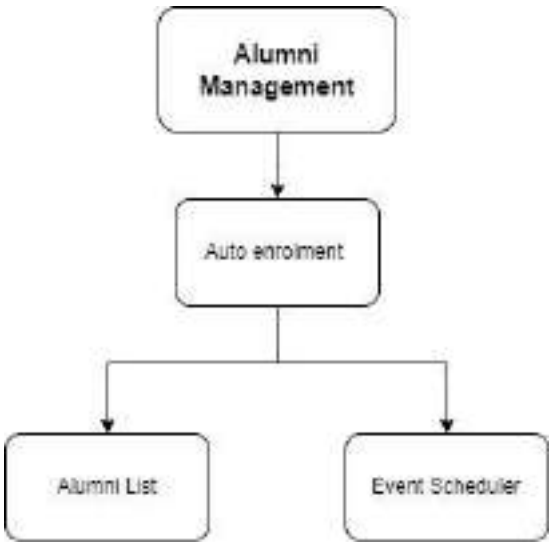
FR Code	**Description**
ACD/112	there shall be a section for clinical posts created by faculty. This section should include features such as intern/resident, post details, requirements, and submission guidelines. Interns/resident can access these assignments, review the instructions, and submit their work directly. Incorporate features that allow interns and faculty to track their progress throughout the clinical posts
ACD/113	Clinical posting attendance should be available for the head of department
ACD/114	there should be integration of teaching schedule and clinical postings made available
	g) Logbook management for Residents -
ACD/115	there shall be dedicated logbook sections within the student management system to cover different aspects of residents' clinical activities. This will include sections for procedures, patient encounters, surgeries, rotations, or research projects
ACD/116	The system should have facility of supervision of online logbook management, at HOD level
	h) Thesis Management -
ACD/117	there shall be provision for students to submit their thesis proposals electronically, assigning of supervisors based on their research interests and expertise, progress tracking, deadlines, reminders, evaluation, feedback and committee management
	i) Hostel Allotment -
ACD/118	This module should automate all the procedures related to hostel, room's information, student information, accounts, payment tracking, a list of hostelers and day-scholars must be generated at any moment of time.
ACD/119	The system should support in managing hostel resources, processing hostel requests for students and faculties, tracking student activity, managing resources and rooms within the hostel block(s), management of fees and various charges/fines incurred by students, marking hostel attendance, and maintaining a gate register
	j) Library Access -
ACD/120	Students/Residents can use the same RFID card issued by the college to access the library facility. Each time students/residents visiting Library, the RFID card needs to be scanned during entry and exit
	k) Disciplinary / Appreciation / Achievements / Awards -
ACD/121	The system should have a feature to record and track diverse types of achievements, such as academic achievements (e.g., high grades, academic competitions), extracurricular achievements (e.g., sports, arts, clubs)

FR Code	**Description**
ACD/122	The system should allow administrators, teachers, or designated personnel to create and manage several types of awards, such as academic awards, sports awards, recognition certificates, or special honours
ACD/123	student should have a profile within the system where their achievements and awards can be recorded
ACD/124	The system should have feature of award nomination, approval process, notification and award ceremony
	l) Digital Document Locker (Course documents, Certificates, No-Dues, etc) -
ACD/125	there shall be provision of a secure and centralized repository for storing and managing several types of digital documents related to students. It allows authorized users, such as administrators, teachers, and students, to upload, access, and organize documents in a structured manner

Alumni Management

Alumni Management System is designed to effectively manage and engage with a community of alumni from an educational institution or organization. It serves as a centralized database and communication tool to maintain connections, track alumni activities, and facilitate engagement between the institution and its graduates.

Process Flow



Process Description

Step-1	Students once completed graduating requirements, automatically gets included into alumni network of college
Step-2	A comprehensive database of all alumni members is visible
Step-3	A schedule of all events that college organises for alumni is displayed

Minimum Functional Requirement

FR Code	**Description**
	a) Auto enrolment -
ACD/126	there shall be provision of automatic inclusion of students into the alumni network or database upon their graduation or completion of their studies
ACD/127	The system should have a mechanism to track student's graduation status, once a student meets the graduation criteria, the system should automatically trigger the enrolment process into the alumni management system
ACD/128	relevant student data should be transferred from the student management system to the alumni management system
	b) Alumni List -
ACD/129	The system should have comprehensive database or directory of all alumni members associated with the college
	c) Event Scheduler -
ACD/130	there shall be provision to administrators or designated personnel to create, manage, and organize various events specifically for alumni of the college

Self-Service Mobile App and Web Portal

Minimum Functional Requirement of the Self-service mobile app and web portal is given below:

FR Code	**Description**
	a) Student profile -

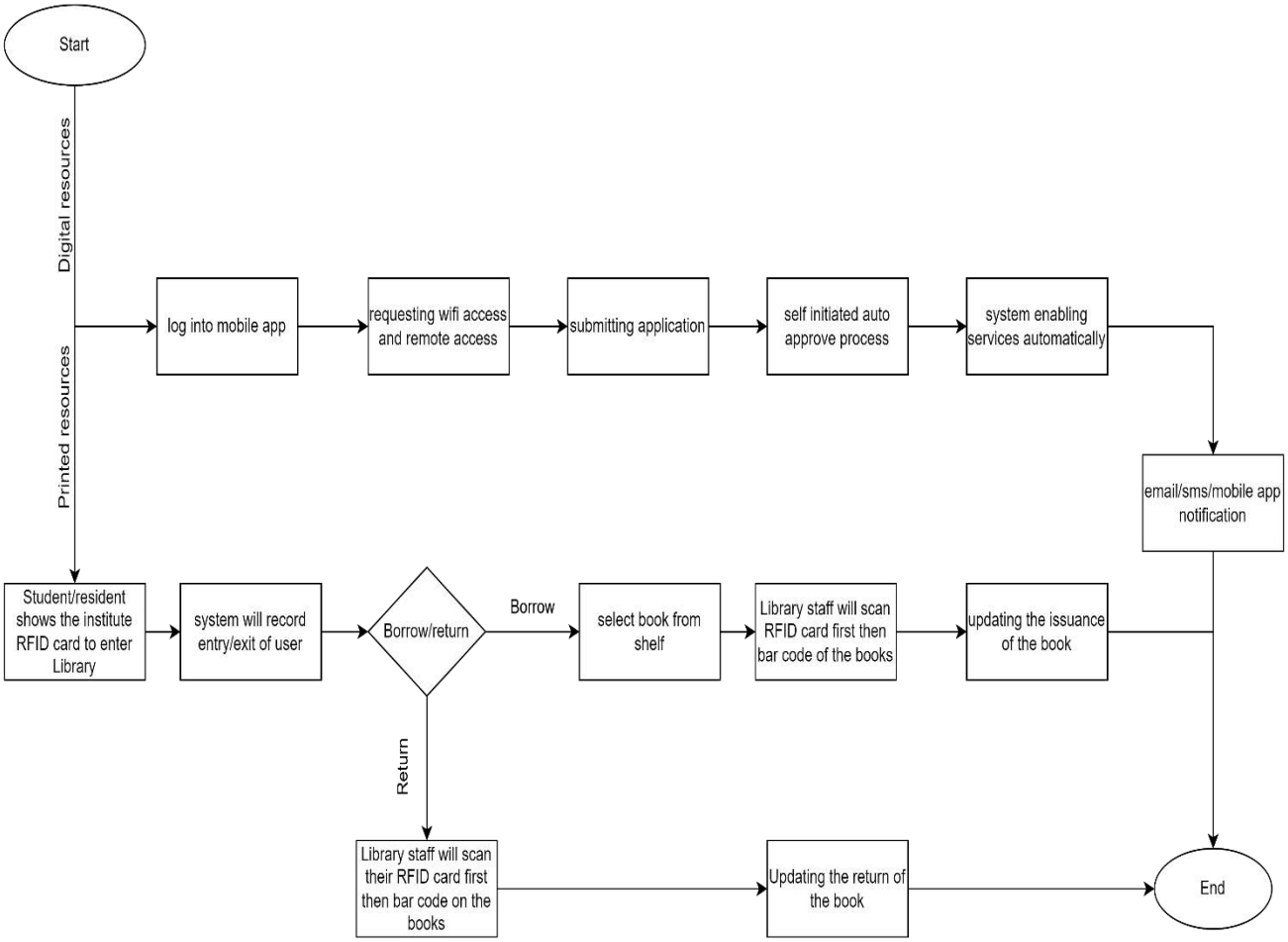
FR Code	**Description**
ACD/131	The system should be a user-friendly and convenient platform for students to access numerous services, information, and resources related to their academics
ACD/132	The system should have speech to text search feature at places where search functionality is provided
ACD/133	The students should be able to access their academic records, including transcripts, grades, GPA (Grade Point Average) calculations, and degree progress
ACD/134	The system should have facility of attendance report
ACD/135	The system should have Dashboard with AI based Analytic Engine to provide data for various modules
ACD/136	The system should have information about scholarships, fees, and other dues
ACD/137	The system should integrate with the library system to provide access to the library catalogue, reserve books, view due dates, and access digital resources such as e-books, journals, and databases
ACD/138	The system should provide details about important academic dates, such as registration periods, exam schedules, and holidays
ACD/139	The system should have campus navigation functionality to locate specific buildings or department and discover important points of interest

Library Management Information System

Medical College Library is providing knowledge-based value-added services on Health and Clinical care to different stakeholders (Faculties, students/residents, and Researchers) of all the teaching departments and centre for excellence. The library is open round the clock to access vast resources both in print and online mode. The library also has a rich collection of Hindi books in health care sector for readers, employees of the institution in Rajasthan. The library is well equipped with modern facilities to support biomedical education and research. The library has predominantly e-resources, which are provided seamlessly through remote access platform with anytime anywhere access for doctors and faculty members for their scholarly research. All documentation/ bibliographic services, as well as certain library operations have been computerized, using integrated library management software. The circulation section of the library is computerized through RFID smart card system and online issue return of books with automatic reminder systems is integrated with the user's email. The library provides Current Awareness Service and Reference and Referral Services. It also provides services such as Web-based Open Access Public Catalogue (Web OPAC), Reprography and printout of academic literature. Library imparts orientation and information literacy programs to students, research scholars and doctors regularly.

Process Map

Following is the generalized process for Library Information Management System.



Process Description:

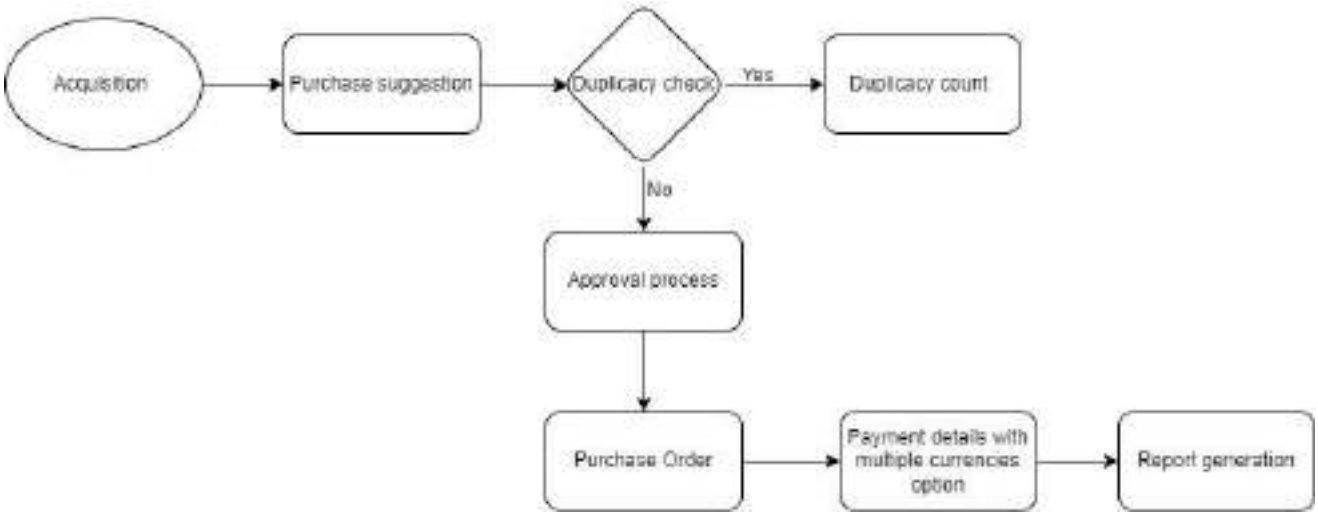
Step-1	Students/Residents can use the same RFID card issued by the institution to access the library facility
Step-2	Each time students/residents visiting Library, the RFID card needs to be scanned during entry and exit
Step-3	Once the user selected books from Library, the books can be borrowed through Library section

Step-4	the user needs to scan the Physical RFID card first, followed by the bar code printed on the Book. Then the library staff will mark the book as issued to the RFID card holder. The same process will be applicable to book return process also
Step-5	The returned books will be shifted to shelf after the physical verification. In case of any damage, the details of the user who have returned the books details can be fetched from system and amount can be entered directly on the system
Step-6	Details of the fine will be notified through SMS/Email
Step-7	Students/residents/ faculties and other staff can avail the library services through mobile application
Step-8	Search books, check availability facilities can be availed from mobile application

Acquisition Module:

Acquisition Module refers to the component that handles the procurement and acquisition of library materials to expand and update the library's collection. It streamlines the process of acquiring new resources, managing orders, tracking budgets, and ensuring the timely receipt of materials.

Process Flow



Process Description

Step-1	User submits purchase suggestion through library's online catalogue with relevant details
Step-2	The order is compared with key attributes to check duplicity
Step-3	The order is sent for approval through request initiation, budget allocation and approval from department.
Step-4	The purchase order is placed with various new resources and option to track the order will also be enabled.
Step-5	This shows us payment details of purchase order that will support multiple currencies.
Step-6	The report is generated of purchase history, supplier performance and budget utilization.

Minimum Functional Requirement

FR Code	Description
	a) Purchase suggestion from the user -
LMIS/1	Users should submit purchase suggestions through the library's online catalogue or a dedicated suggestion portal - may provide details about the suggested item, such as the title, author, ISBN/ISSN, publication information, and any additional relevant information available
	b) Duplication Check -
LMIS/2	Comparison of key attributes: Identification of a set of key attributes that define an item in library. For example: based on book title, author and publication year, could be compared, or get duplicity count
	c) Approval Process from Library order -
LMIS/3	Request creation for added resources --> budget allocation from financial dept. --> approval from department head and library in charge/committee ---> each approver in the workflow should be notified of the pending request and can review the details, including the item's relevance to the library's collection and available funds. Approvers can approve the request, reject it, or send it back for revision with comments
	d) Purchase order -
LMIS/4	The system should have ability to manage supplier details, including contact information, contracts and pricing quotations/agreement
LMIS/5	In charge of library should be able to create purchase orders for various new resources

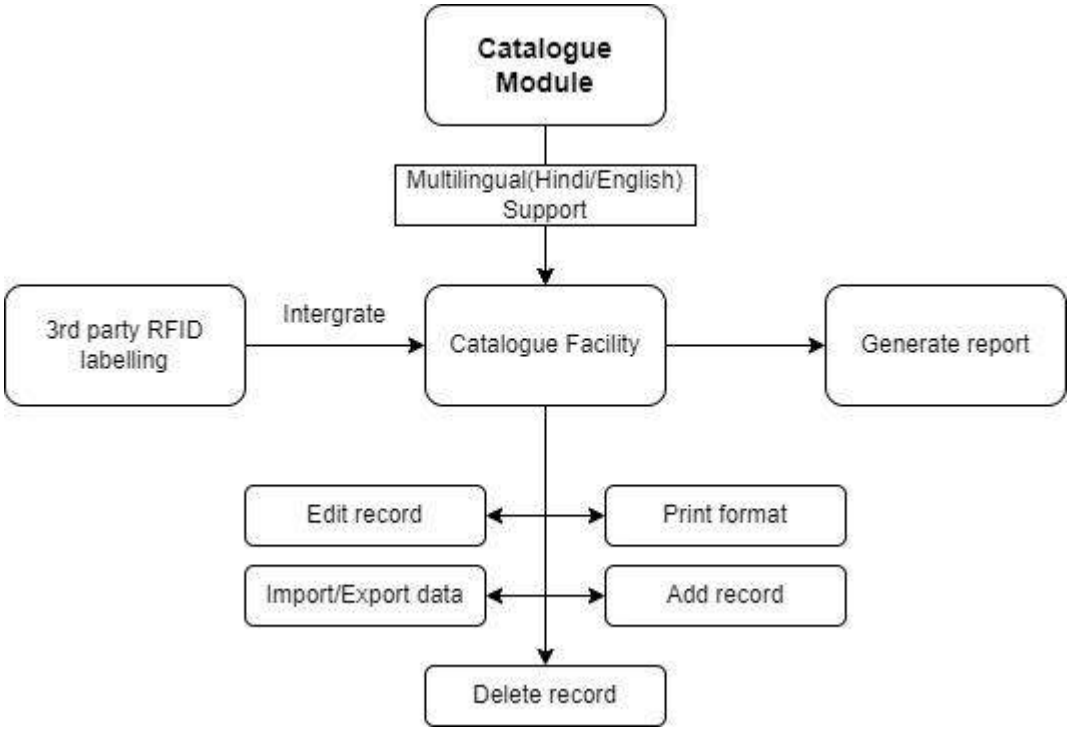
FR Code	Description
LMIS/6	The system should have integration with comprehensive resource catalogue
LMIS/7	The system should have system of budgeting capabilities, allowing administrators to set budget limits for distinct categories or departments. It should provide real-time updates on budget utilization during purchase order creation
LMIS/8	There should be able to track the status of ordered resources, including estimated delivery dates, shipment tracking numbers, and notifications for delays or backorders
	e) Acquisition work process -
LMIS/9	there should have provision for users request handling, collection of resources that a library possesses. This could include physical items such as books, DVDs, or CDs, as well as digital resources like e-books, e-journals, or online databases
LMIS/10	The system should be comparison of line-items budget amount
LMIS/11	The system should have provision of supplier's performance
LMIS/12	should have quotes comparison, seek approvals and donation management
LMIS/13	The system should be provision for integration with other applications to share data & automate requisition from departments
LMIS/14	The system should facilitate the creation and management of purchase orders
LMIS/15	The system should have GST (Goods and Service Tax) management
LMIS/16	The system should have lost books recovery system
LMIS/17	The system should have provision for blacklisting of suppliers
LMIS/18	there should be rating systems for suppliers
	f) Payment details of purchase order -
LMIS/19	The system should have capability to manage and reconcile supplier invoices with purchase orders, ensuring accurate payment processing
LMIS/20	Seamless integration with the library's accounting system to streamline financial processes and ensure accurate recording of purchase transactions
	g) Multiple currencies and conversation rates -
LMIS/21	support multiple currencies and maintain a currency database.
LMIS/22	allow administrators to add, update, or deactivate currencies as needed
LMIS/23	include essential currency details such as currency code, symbol, and name
LMIS/24	retrieve and store up-to-date currency conversion rates from reliable sources

FR Code	Description
LMIS/25	automatically update conversion rates at regular intervals or upon request
LMIS/26	provide an option for users to select their preferred currency.
LMIS/27	allow users to set their currency preference in their account settings.
LMIS/28	display prices and financial information in the selected currency throughout the system
LMIS/29	store prices and financial data in the system's database using a base currency.
LMIS/30	calculate and display prices in the user's selected currency using the corresponding conversion rates
LMIS/31	handle financial transactions (e.g., book purchases, fines) in multiple currencies.
LMIS/32	convert transaction amounts to the base currency for internal record-keeping and accounting purposes.
LMIS/33	generate invoices or receipts displaying transaction details in the user's selected currency
	h) Report Generation -
LMIS/34	There should be report generation on purchase history, supplier performance and budget utilization
LMIS/35	The system should have secure document storage - securely store purchase orders, invoices, and related documents electronically for easy access and retrieval

Catalogue Module

The Catalogue Module is used to organize and describe library resources in a standardized manner. It involves creating bibliographic records for each item in the library's collection, including books, journals, audio visual materials, and other types of resources.

Process flow



Process Description

Step-1	The catalogue module has catalogue facilities with multilingual (Hindi/English) support
Step-2	Catalogue facility has options to edit, add and delete catalogue record from it
Step-3	Provision for users to create templates for catalogue print formats
Step-4	Option to extract data in specific format and import data in convenient way
Step-5	Third party software integrated for RFID labelling
Step-6	This will generate reports with general statistics and insights about the library's collection

Minimum Functional Requirement:

FR Code	Description
	a) Catalogue Facility -
LMIS/36	The system should have detailed information entry about each resource in the library's collection
LMIS/37	classification and Categorization: should supports the assignment of classification codes or call numbers to resources based on recognized classification systems like Dewey Decimal Classification (DDC) or Library of

FR Code	Description
	Congress Classification (LCC). It allows librarians to organize resources into categories, genres, or subjects, facilitating browsing and retrieval
LMIS/38	The system should have search interface that enables users to search and discover resources in the library's collection
LMIS/39	The system should provide options to enhance the records by linking or embedding additional content. This can include tables of contents, book covers, summaries, reviews, or multimedia files associated with the resources
LMIS/40	to avoid redundancy and improve cataloguing efficiency, there should be features for duplicate detection
	b) Catalogue Print Format -
LMIS/41	there should be provision for users to create templates for catalogue print formats
LMIS/42	should have provision of customization options to modify the appearance and arrangement of information in the printed catalogue. Users could choose fonts, font sizes, colours, and spacing for different sections of the print format
LMIS/43	The system should be provision for users to select and include specific metadata fields from the library's catalogue records in the print format. This includes bibliographic details like title, author, publication information, subject headings, call numbers, and any other relevant metadata
LMIS/44	The system should be a preview feature that allows users to see how the print format will appear before generating the final output. Users can adjust and fine-tune the print format, such as modifying font styles or adjusting column widths, based on the preview
LMIS/45	The system should support different output formats for the printed catalogue records. Users can generate print formats in PDF, Word, Excel, or other common file formats
	c) Adding/editing/deleting/catalogue record -
	Adding a Catalogue Record:
LMIS/46	The system should have access of cataloguing module of the LMIS
LMIS/47	there should be selection option to create a new catalogue record
LMIS/48	The system should enter the relevant metadata for the resource, such as title, author, publication information, subject headings, and other descriptive details
LMIS/49	assign appropriate classification codes or call numbers to the resource
LMIS/50	add any additional information or notes, such as summaries, table of contents, or keywords

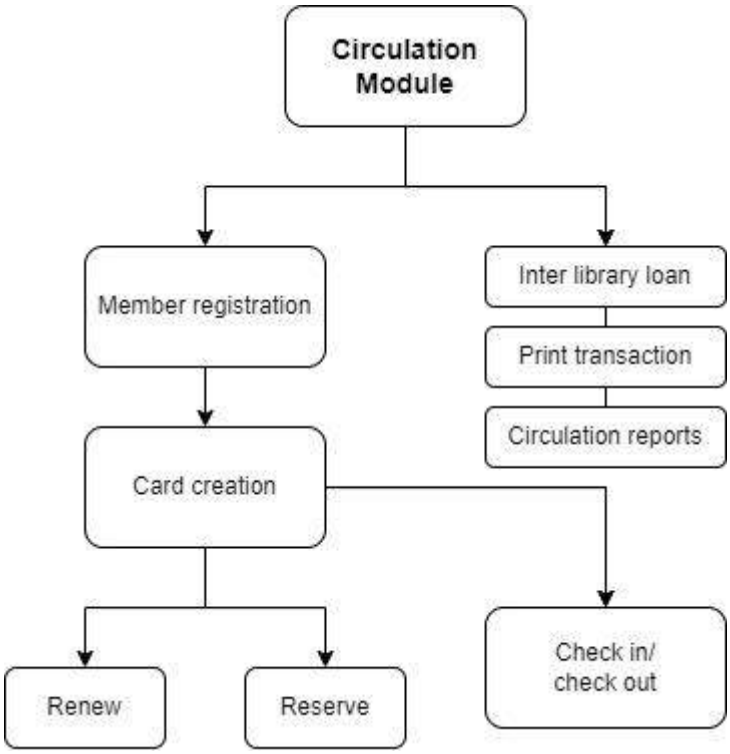
FR Code	Description
LMIS/51	save the catalogue record in the system, which will assign a unique identifier or barcode to the item
	Editing a Catalogue Record:
LMIS/52	The system should locate the catalogue record in the LMIS using search functionality
LMIS/53	The system should select the record and choose the edit option
LMIS/54	The system should make the necessary changes to the metadata, classification codes, or other details
LMIS/55	The system should update any additional information or notes related to the resource
LMIS/56	The system should save the changes to the catalogue record, ensuring that the updates are reflected in the system
	Deleting a Catalogue Record:
LMIS/57	The system should select the record and choose the delete option
LMIS/58	The system should confirm the deletion, as this action will permanently remove the record from the system
LMIS/59	The system should ensure that any associated copies or item records are also removed or updated accordingly
	d) Multilingual Support -
LMIS/60	The system should have a user interface that supports multiple languages (English/Hindi), allowing library staff to interact with the system in their preferred language (English/Hindi)
LMIS/61	The system should support entry and display of bibliographic information in multiple languages (English/Hindi)
LMIS/62	The system should allow users to search the library's holdings using keywords, titles, authors, or other criteria in multiple languages
LMIS/63	The system should provide options for users to set their language preferences within their accounts
LMIS/64	The system should support the display of resource descriptions, summaries, or abstracts in multiple languages
LMIS/65	The system should support the generation of reports, notifications, and other communications in multiple languages
LMIS/66	The system should integrate with external language tools, such as translation services or language databases, to facilitate translation or language-related tasks within the system
	e) Format for different item type -

FR Code	Description
LMIS/67	The system should have provision to enter information such as the book's title, author(s), publication information (publisher, place, year), edition, ISBN/ISSN, subject headings, and physical description (number of pages, dimensions, etc.)
LMIS/68	for digital resources/electronic resources, there should be provision to include fields for title, creator(s), publication information, physical description (duration, format, etc.), subject headings, URL or DOI, access restrictions or licensing information and other relevant information specific to item type
	f) User Services (CAS/Bibliographic Service) -
LMIS/69	The system should have tools to manage user accounts, allowing library in charge to create and update user records, track borrowing privileges, and manage user authentication
LMIS/70	The system should have features for registering new users, managing fines, fees, and maintaining users contact information
LMIS/71	Users should be able to place holds or requests for resources that are currently checked out or located at other library branches
	g) Export/Import Data -
LMIS/72	The system should have provision for extract data in a specific format. The exported data can be saved as a file (e.g., CSV, Excel, XML)
LMIS/73	The system should have precision of importing data in a convenient way to add or update multiple records in the catalogue quickly
	h) RFID Label Printing -
LMIS/74	there should be integration with a third-party RFID label printing software or develop own functionality within the module
LMIS/75	The system should choose appropriate RFID tag (active/passive) with each feature and capabilities
LMIS/76	The system should be an RFID printer which capable of printing RFID labels
LMIS/77	The system should be configuration of printing process in the module itself
LMIS/78	The system should perform tests to ensure that the RFID label printing process works correctly
LMIS/79	The system should provision of provide training to the staff members responsible for cataloguing and printing RFID labels
	i) Report Generation -
LMIS/80	should have reporting functionalities that generate statistics, reports, and insights about the library's collection. Librarians can analyse circulation data, track usage patterns, identify popular resources, monitor acquisitions, and generate reports for collection evaluation or management purposes

Circulation Module

The Circulation Module handles the borrowing, returning, and management of library materials by library patrons. It is a core component of an integrated library system (ILS) or library automation software. The circulation module facilitates the smooth flow of library materials, ensuring efficient circulation processes and providing accurate tracking of items as they are checked out, returned, or renewed.

Process flow



3. Process Description –

Step -1	The initial process starts with member registration
Step -2	With this, member card is created and also option to search for existing members
Step -3	There will be option to check in and check out of resources taken from library
Step -4	This will have option to “Renew” of issued resource before due date or “Reserve” if it is already with other users

Minimum Functional Requirement

FR Code	Description
	a) Membership Registration -
LMIS/81	The system should have provision of creation of 'member categories'/'sub-categories' and 'member registration'
LMIS/82	The system should be provision of edit/deletion of member categories/sub-categories and member registration
	b) Member Card Creation -
LMIS/83	The system should have search facility for existing members
LMIS/84	The system should have facility of generation/print of membership card
	c) Check in/Check out -
LMIS/85	The system should have search function within the circulation module to locate the resource that a member wants to borrow
LMIS/86	after search and selection, there should be an option to check it out or borrow it
LMIS/87	there should be member selection option and confirmation of check-out action
LMIS/88	there should be system of update the resource status as checked-out and associate it with the member's account
LMIS/89	there should be facility of scan barcode or enter resource details into check-in interface
LMIS/90	verify resource information and confirm that it is being returned as matches the record
LMIS/91	if resource and member details are correct then proceed for check-in
LMIS/92	update resource status
	d) Renewal/Reservation -
LMIS/93	there should be separate tab for 'Return' and 'Renew'
LMIS/94	should have provision of typing Accession Number or scan barcode labels pasted on issued resource
LMIS/95	resource details should be displayed if it is issued
LMIS/96	The system should generate Fine Receipt if fine is calculated, and fine rates should have defined in sub-category form
LMIS/97	there should be 'Renew' option if it is applied for issued resource before due date
LMIS/98	In case, due date is passed away then user must Return the resource and then fresh issue should be done

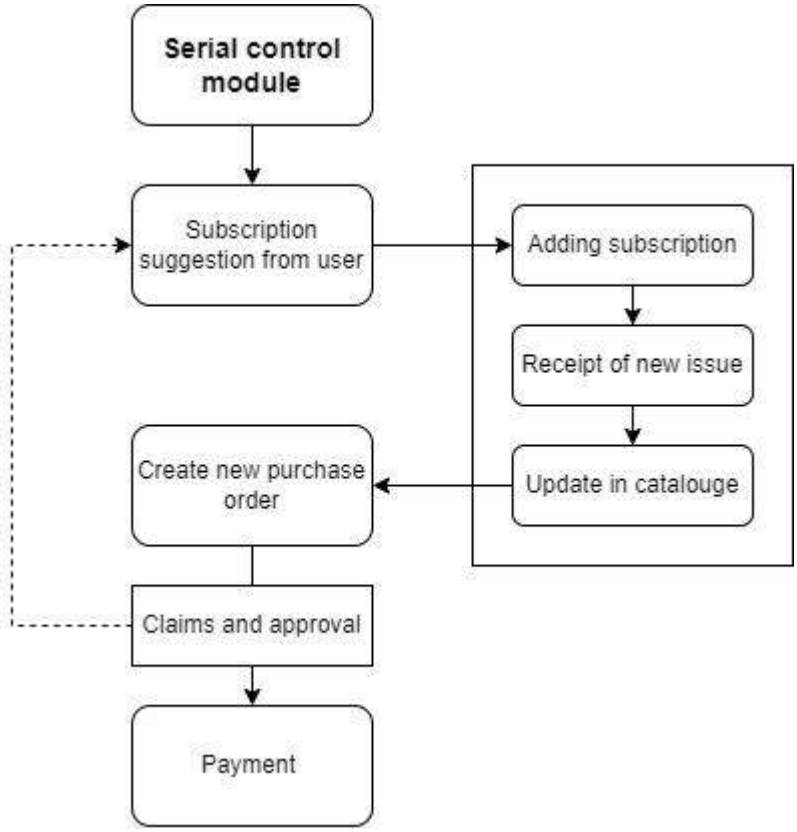
FR Code	Description
LMIS/99	**RESERVE** - there should be reservation option if the same resource is issued to any other member
LMIS/100	there should be provision of message display while any member returns the resource which is reserved by some other member
LMIS/101	there should also provision of UNRESERVE the resource if user doesn't want to get the resource
	e) Inter Library Loan -
LMIS/102	The system should have facility of borrowing and lending of resources between different libraries. It allows users to access resources that are not available in their own library's collection by borrowing them from other libraries
	f) Circulation Reports -
LMIS/103	The system should have provision of category wise report generation/print
	g) Print Transaction for borrower -
LMIS/104	there should be an option of Print Transaction for borrower in which resource and member details will be displayed

Serial Control Module

Serial Control Module is a component that handles the management and tracking of serial publications within a library's collection. Serials, also known as periodicals or journals, are publications that are issued in successive parts, such as magazines, newspapers, or scholarly journals.

The serial control module is responsible for managing the lifecycle of serials, including acquisition, subscription management, cataloging, circulation, and maintenance of accurate holdings information.

Process Flow



Process Description

Step-1	This has facility to suggest subscription from the user through email, an online form or direct communication
Step-2	Once received subscription, this will add new subscription
Step-3	New receipt is generated to inform user regarding this and is updated in the catalogue
Step-4	Creates purchase order for the new subscription
Step-5	The purchase order is through claims and approval is taken for payment

Minimum Functional Requirement

FR Code	Description
	a) Subscription suggestion from user -
LMIS/105	there should have facility to get subscription suggestion from the user. This can be done through various channels, such as email, an online suggestion form, or direct communication

FR Code	Description
LMIS/106	there should be creation of new entry for the user's suggestion by providing the necessary information. This may include the title of the publication, the frequency of publication, the publisher's details, and any additional relevant information
LMIS/107	If the suggestion is approved, proceed with subscribing to the publication and the user will be informed who made the suggestion
LMIS/108	If rejected, the user will be explained the reason behind the decision and offer alternative suggestions or options, if applicable
	b) Adding new subscription -
LMIS/109	there should have option to 'Add New Subscription' once suggested subscription received
	c) Receipt of new issue -
LMIS/110	there should be provision to inform the user who made the suggestion of new subscription
	d) Cataloguing -
LMIS/111	new subscription should be updated in the catalogue
	e) Creating purchasing order -
LMIS/112	The system should have facility to create purchase order for the new subscription
	f) Claims -
LMIS/113	there should be provision for initiation, tracking, supportive documents upload and approval of claims
	g) Administration of Binding -
LMIS/114	enable library staff or authorized users to submit binding requests for damaged or deteriorated library materials.
LMIS/115	capture essential details such as item information, condition, location, and required binding specifications
LMIS/116	store predefined binding specifications, including material types, colours, binding styles (e.g., hardcover, softcover), and other customization options.
LMIS/117	allow users to select preferred binding options when submitting binding requests.
LMIS/118	maintain a catalogue or database of binding suppliers or vendors, along with their capabilities and pricing

FR Code	Description
LMIS/119	calculate the estimated costs for binding services based on the selected specifications.
LMIS/120	provide an approval workflow for cost estimation, allowing designated personnel to review and authorize binding requests based on budgetary considerations
LMIS/121	generate purchase orders or work orders for approved binding requests.
LMIS/122	include necessary details such as vendor information, binding specifications, quantities, and estimated costs.
LMIS/123	automate the generation and distribution of purchase orders to selected vendors
	h) Payment -
LMIS/124	The system should have facility of different payment options of online and offline mode
	Web OPAC (Online Public Access Catalogue) MODULE
	a) Simple Search -
LMIS/125	The system should have simple search option on the basis of search query including book titles, authors, subjects, ISBN/ISSN numbers, or any other relevant information
	b) Advance Search -
LMIS/126	The system should have Field-Based Search, Range Search, advance filters that could include language, format (e.g., books, e-books, audio-visual materials), location, availability status, or any other relevant criteria and Users could choose the desired sorting order to better navigate through the search results
	c) Boolean Search -
LMIS/127	The system should have support of Boolean operators like AND, OR, and NOT. Users can combine search terms or criteria using these operators to create more complex queries. For example, a user can search for "science fiction" AND "author: Frank" to find science fiction books written by Frank
	d) Member OPAC -
LMIS/128	Users, Library staff, Library in charge, System Administrator should be members in OPAC system
LMIS/129	The system should have provision of a personalized and user-friendly experience for library members, enabling them to interact with the library's resources and services in a convenient and efficient manner
	ADMINISTRATIVE MODULE

FR Code	Description
	a) Authority Creation for acquisition module -
LMIS/130	The system should have facility to create and manage user accounts within the system. This includes registering new users, updating user information, and managing user privileges and access levels
LMIS/131	The system should also have facility to manage vendor information, track orders, generate purchase orders, and handle the overall procurement process
	b) Authority creation for cataloguing module -
LMIS/132	The system should have addition, edit, and update item records, assign metadata such as titles, authors, subjects, and keywords
	c) Authority creation for circulation module -
LMIS/132	The system should have facility to manage the borrowing and returning of library materials.
LMIS/133	It should also include functionalities such as issuing library cards, checking items in and out, renewing loan periods, managing holds and reservations, and handling overdue fines and notifications
	d) Authority creation for serial control -
LMIS/134	The system should have provision to add, create, delete, approve, reject and generate purchase order
	e) Check in/check out -
LMIS/135	The system should have provision of authorizing, checking and tracking resources in and out
	f) Renewal/Reservation -
LMIS/136	The system should have provision of checking, tracking of issued resources, notification settings, managing holds and reservations
	g) Offline circulation -
LMIS/137	The system should have provision of offline data collection, data validation, user management, data synchronization between offline and online component
	i) Inter Library Loan -
LMIS/138	should have facility to renew loan periods and notification settings
	Digital library for Content Management
	a) Contents -
LMIS/139	user should upload various types of digital content, including e-books, e-journals, e-theses, research papers, reports, and other electronic documents.

FR Code	Description
	The platform should support multiple file formats and allow users to upload content individually
LMIS/140	The system should provide tools for managing metadata associated with each item in the collection. Metadata includes information such as title, author, publication date, subject and keywords
LMIS/141	there should robustly search functionality is essential for users to locate specific content within the digital library. The platform should provide advanced search options, allowing users to search by keywords, authors, titles, subjects, or any other relevant criteria
LMIS/142	The system should have features to control access and permissions for different user groups or individuals. It should allow administrators to set access levels, define user roles, and implement authentication mechanisms to ensure secure access to sensitive or restricted content
LMIS/143	The system should have provision of intuitive and user-friendly interface that allows users to browse, view, and interact with the digital content easily
	Remote Access
LMIS/144	The system should incorporate secure authentication methods to ensure that only authorized users can connect to the system. This can involve username/password authentication, two-factor authentication, or integration with existing authentication systems like LDAP or Active Directory
LMIS/145	The system should allow users to manage their library accounts
LMIS/146	users should be able to place reservations or requests for resources
LMIS/147	The system should enable users to send inquiries, submit feedback, or ask for assistance remotely. Additionally, the system should provide automated notifications to keep users informed about due dates, holds, or other relevant updates
LMIS/148	support channels should be available to assist remote users with any issues or troubleshooting requirements
	Mobile Application: Non-Functional Requirements
LMIS/149	All functionality of Library Management Information System should be accessible from Mobile App.
LMIS/150	Mobile App should be WCAG compliant.
LMIS/151	Mobile should be OWASP Top 0 compliant. Any future vulnerabilities found in the mobile app (both iOS & Android) should be taken care
LMIS/152	User registered on the Web Application will be able to login on the Mobile App with same credentials
LMIS/153	Mobile App should seamlessly integrate with the Web-based Application with real-time basis

FR Code	Description
LMIS/154	There should be Network level security, traffic to be encrypted using secured connectivity
LMIS/155	Functional Requirement Documentation, Mobile Application Design
LMIS/156	Documentation, installation guide, Administration guide and user Operation documents to be provided
LMIS/157	OTP based authentication from Email & SMS should be introduced.
LMIS/158	Department will do security Testing of the Mobile App (iOS & Android) quarterly/monthly
LMIS/159	Maintenance of Both Mobile App (iOS & Android) is the responsibility successful bidder.
LMIS/160	Launching of Mobile application (iOS & Android) in Apple store/Play store release also to be taken care
LMIS/161	The system should be provision of maintenance of Mobile Application Including updates and maintenance from the date of successful deployment. The
LMIS/162	Update/ maintenance in the source code of the Mobile Application should also include quality assurance (as per Govt. of India guidelines) i.e., Mobile
LMIS/163	Apps should be hosted after extensive testing and Apps must be 00% bug free.
LMIS/164	There should be integration of department/facilities SMS & Email gateway with Mobile App
LMIS/165	Forgot Password functionality should be there in Mobile App (both iOS & Android)

Research Information Management System

The research section was established to coordinate and facilitate the activities of extramural research projects funded by various national and international agencies like Indian Council of Medical Research (ICMR), Department of Science and Technology (DST), Department of Biotechnology (DBT), Council of Scientific and Industrial Research (CSIR), Ministry of Health and Family Welfare (MoHFW), World Health Organization (WHO), National Institute of Health (NIH), CDC etc.

Functions

The Research Section is the nodal point for facilitating and supporting research at Institution. Functions of Research Section are:

• Facilitating efficient administration, accounts and stores management of research funds of intramural and extramural projects. The admin wing is primarily responsible for proposal management and management of project staff. The Store wing is responsible for procurement

of item(s) as required for execution of research projects. The Accounts wing is responsible for fund management activities such as maintenance of account, payment of salary, payment of bills, generation of Form 16 etc.

• Building research infrastructure - Centralized Core Research Facility (CCRF), Clinical Research Unit (CRU), Intellectual Property Right and Technology Transfer Division (IPR&TTD)

• Helping in research capacity building

• Training in Research methodology

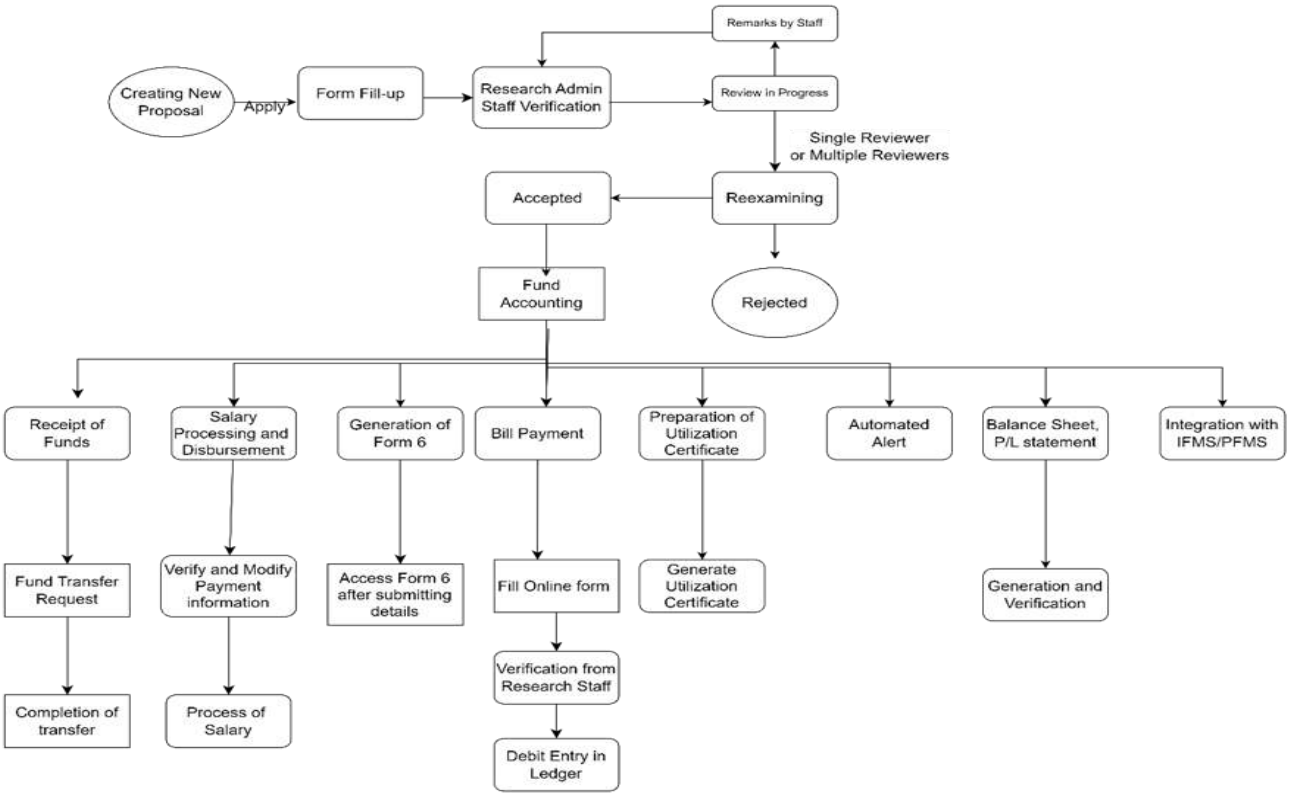
• Promoting wider research opportunities & research collaborations with national and international universities.

Proposal Management

Overview – The systematic process of developing, organizing, and submitting research proposals or grant applications in the field of medicine and healthcare. It involves the creation of a comprehensive document that outlines the research objectives, methods, anticipated outcomes, and resource requirements of a proposed study.

Process Map

Following is the generalized process for Proposal Management System.



Process Description

Step-1	As the person fill up the form for submission, along with proper documents system will generate Unique reference number used for tracking it at all the stages
Step-2	The portal sends notification to Research Admin staff for initiating the checking procedure, for correction, it is sent back with reviews. These reviews are given in by the staff and the Reviewers selected by staff.
Step-3	After legitimate verification, through review in progress procedure, the proposal is finally accepted or rejected.
Step-4	In case of acceptance of proposal, the fund accounting starts which involves Receipt of Funds being investigated. Here Request is sent to Funding agency with proper supporting documents, who after verification process the request and upload Fund transfer in portal.
Step-5	After completion of Fund request, the information related to payment is accessed by Stakeholders and modified. Further the “Process of Salary” starts with the debit entry posted in system. Further details are received from bank, while employees hover upon website to download their Salary Slip.
Step-6	Form 6 information is stored, and multiple forms are filled up for this, Further the Bill Payment is accessed, and documents are required for this, which then are verified by all the supervisors. Debit Entry is posted in ledger under project code. RTGS ref. no. is captured.
Step-7	Utilization certificate Module is accessed by entering Project code, as is used in all the above processes, and digitally signed by them
Step-8	Balance Sheet is configured to manage the balances and P/L statements, which is verified by officials and digitally signed by them

Minimum Functional Requirement

FR Code	Description
	a) Creation of New Proposal -
RIMS/1	The portal / system shall allow the PI to access the Proposal Submission function and fill-up the online form which includes details such as Project Name, Project Details, Type of Project, Name of PI, Name of Co-PI, Project Duration, Budget Details (Sub-head wise), Project Staff Details (such as Designation, Number of Staff for each Designation) etc.

FR Code	Description
RIMS/2	The portal / system shall allow the PI to upload the supporting document (such as copy of proposal) and submit the online form
RIMS/3	Upon submission of online form, validations will be performed by the system. (Error message will be displayed in case of validation error)
	b) Proposal Approval Workflow -
RIMS/4	Upon successful submission of online form, the system shall generate an unique reference number which will be used for tracking purpose. will change the status of the proposal to 'Submitted'. A unique Proposal ID shall be assigned by the system
RIMS/5	Upon successful submission of online form by PI, the portal /system shall send notification to the Research Admin Staff through Dashboard, email
RIMS/6	The portal / system shall allow the Research Admin Staff to examine / verify the online form along with supporting documents. The portal / system shall allow Research Admin Staff to write remarks in the comment section, to upload the supporting documents (as required)
RIMS/7	The portal / system shall allow the Research Admin Staff to send the form back to the PI in case any correction is required.
RIMS/8	The portal / system shall allow the PI to make the necessary changes in the online form (as provided by the Research Admin Staff) and re-submit the online form.
RIMS/9	The portal / system shall allow the Research Admin Staff to select Reviewer from the drop down and forward the proposal to the selected Reviewer. The portal / system shall allow the Research Admin Staff to select multiple Reviewers and forward the proposal to the Reviewers for review. Once the proposal is assigned to Reviewers, system will change the status of the proposal to 'Review in Progress'.
RIMS/10	The portal / system shall send notification (on assignment of proposal for review) to the Reviewers through Dashboard, email.
RIMS/11	The portal / system shall allow the Reviewers to click the notification (or click the link provided in the email) and examine the online proposal and the supporting documents.
RIMS/12	The portal / system shall allow the Reviewers to write the remarks in the comment section and send the proposal to the Research Admin Staff for review.
RIMS/13	The portal / system shall send notification (once the proposal is submitted by the Reviewer post completion of review) to the Research Admin Staff through Dashboard, email.
RIMS/14	The portal / system shall allow the Research Admin Staff to examine the review comments (upon clicking the notification in the dashboard or clicking the link in the email) provided by the Reviewers.

FR Code	Description
RIMS/15	The portal / system shall have the utility which will assist the Research Admin Staff to consolidate the review comments provided by the Reviewers. During consolidation, the system shall remove the name of the Reviewers. The portal / system shall allow the Research Admin Staff to edit / modify the review comments (if required) and send the revised documents to the Reviewers for approval.
RIMS/16	The portal / system shall allow the Research Admin Staff to modify the review comments as per suggestions provided by the Reviewers.
RIMS/17	The portal / system shall allow the Research Admin Staff to forward the final list of review comments to the PI through
RIMS/18	portal / system.
RIMS/19	The portal / system shall send notification (once the final list of review comments are submitted by the Research Admin Staff) to the PI through Dashboard, email.
RIMS/20	The portal / system shall allow the PI to see the review comments provided by the Reviewers. However, the PI shall not be able see the name of the Reviewers.
RIMS/21	The portal / system shall allow the PI to make changes in the online proposal as well as upload new supporting documents (as per the comments provided by the Reviewers). Once the necessary changes are done and supporting documents are uploaded, the PI shall be able to submit the revised online proposal along with supporting documents.
RIMS/22	The portal / system shall allow the Research Admin Staff to communicate the date of presentation to the PI through portal. The portal / system shall allow the Research Admin Staff to upload supporting documents (which will contain guidelines of presentation, other necessary details of presentation etc.) and send the same to the PI through portal.
RIMS/23	The portal / system shall allow the Research Admin Staff to upload the document which will contain the decision of the Project Review Committee (PRC) and send the same to the PI through portal.
RIMS/24	The portal / system shall allow the Research Admin Staff to change the status of proposal to 'Accepted', 'Rejected' as communicated by the Project Review Committee (PRC).
RIMS/25	The portal / system shall be integrated with dashboard. The dashboard will assist Research Admin Staff to check the status of the proposal (such as 'Submitted', 'Accepted', 'Rejected', 'Pending for Review' and 'Review in Progress'.
	Project Fund Management/Accounting -
	a) Receipt of Funds

FR Code	Description
RIMS/26	The Project Investigator (PI) shall need to access the 'Fund Transfer' module and send a request online to the Funding Agency for transfer of funds
RIMS/27	The request shall contain following indicative details such as: -
RIMS/28	Beneficiary Name
RIMS/29	Beneficiary Account Number
RIMS/30	Beneficiary IFSC Code
RIMS/31	Project Code
RIMS/32	The Funding Agency shall receive a notification in the dashboard
RIMS/33	The Funding Agency shall perform the fund transfer
RIMS/34	The Funding Agency shall need to enter the Fund Transfer details (Such as Project Code, Funding Agency Name, Funds Transferred, Beneficiary Details, Date of Transfer UTR Number etc.) in the online form.
RIMS/35	The Funding Agency shall need to upload the proof of Fund Transfer in the portal
RIMS/36	Post successful completion of fund transfer, the Funding Agency shall upload the proof of the fund transfer and shall submit the online form to the PI
RIMS/37	Fund Transfer information will be stored in electronic form in central repository
RIMS/38	Notification will be received by the stakeholders in the dashboard which will help stakeholders to take immediate action
	b) Salary Processing and Disbursement -
RIMS/39	The system shall allow the Dealing Assistant to access the Employee Ledger and view the information captured related to the payment (such as PAN No, IFSC Code, Passbook, Bank Account Number etc.) and the soft copy of supporting documents collected.
RIMS/40	The system shall allow the Dealing Assistant to modify the information as required (such as Last Date, Deduction, increase / decrease in Basic, HRA, TDS, EHS etc.) present in the Employee Ledger
RIMS/41	The system shall allow the Employee / Project Staff to declare the investments that he/ she is planning to make in a given financial year. The system shall calculate the Income Tax deductions based on the declaration made by the Employee / Project Staff.
RIMS/42	The system shall allow the Research Account Staff to update the actual investments upon receiving the proofs submitted by the Employee / Project

FR Code	Description
	Staff. The system will re-calculate and update the deduction field in the ledger.
RIMS/43	The system shall allow the Assistant Account Officer (AAO) and Account Officer (AO) to view the changes made by the Dealing Assistant.
RIMS/44	Upon confirmation of the changes by the Account Officer (AO), the changes shall get updated in Employee Ledger.
RIMS/45	The system shall allow the Dealing Assistant to generate Bank List. The Bank List shall contain the Employee ID, Bank Account Number, Gross Amount, Net Amount etc. The portal shall allow the Dealing Assistant to generate a soft copy of the Bank List. The portal shall allow the Assistant Account Officer (AAO) and Account Officer (AO) to view the Bank List in the system.
RIMS/46	The system shall allow the Dealing Assistant to generate the Salary Bill online. The portal shall allow the Dealing Assistant to generate a soft copy of the Salary Bill. The Salary Bill shall contain the Funding Agency / Scheme wise amount deducted as salary. There shall be segregation at the project level for each Funding Agency / Scheme wise.
RIMS/47	The system shall allow the Assistant Account Officer (AAO) and Account Officer (AO) to view the Salary Bill in the system.
RIMS/48	The system shall allow the Dealing Assistant to create an entry in the system for salary of each month. The Dealing Assistant shall have provision to upload the soft copy of the Salary Bill and forward the Salary Bill to the Assistant Account Officer (AAO), the Account Officer (AO) to forward the Salary Bill to AO for review.
RIMS/49	The system shall allow the Account Officer to digitally sign the Salary Bill.
RIMS/50	The system shall allow the Dealing Assistant to process the Salary by pressing the 'Process of Salary' button. The system shall post a debit entry (cumulative of the Gross Amount, Net Amount) in the Budget Ledger.
RIMS/51	The Assistant Account Officer and Account Officer shall be able to examine (through system) the debit entry posted in Budget Ledger.
RIMS/52	The portal shall allow the Dealing Assistant to capture the Beneficiary Name, Beneficiary IFSC Code, Funding Agency / Scheme Name, Project Code, Amount transferred,
RIMS/53	Date of Transfer, RTGS Reference No., Cheque Numbers, Acknowledgement Number received from Bank in the system. The portal shall allow the Dealing Assistant to upload the screenshots of the RTGS Transfer and Cheques. The same can be verified by the Assistant Account Officer and Account Officer.

FR Code	Description
RIMS/54	The portal shall allow the Dealing Assistant, Assistant Account Officer, Account Officer to view the total amount deducted as Salary project wise / cumulative / Funding Agency wise / project wise for a specific month.
RIMS/55	The portal shall allow the Project Staff / Employee to view and download the Salary Slip from the Research website upon providing the PAN number and last 4 digit of the bank account
	c) Generation of Form 6 -
RIMS/56	The system shall allow Chartered Accountant to generate Form The information stored as Gross Pay, Net Pay, TDS Amount (month wise) shall be used to prepare Form 6s shall be uploaded in TRACES.
RIMS/57	The system shall be able to compress multiple Form 6s into a single PDF.
RIMS/58	The Employee / Project Staffs shall be able to download the Form 6 from the Research website upon providing the PAN number and last 4 digit of the bank account
	d) Bill Payment -
RIMS/59	The portal shall allow the PI to access the Bill Payment module and fill up the online form / select for drop-down. The online form shall include information such as Project Code, Project Name, Type of Project (Intramural/ Extramural), Purpose of the Spending, Amount Incurred, Date of Expense, Beneficiary Name, Beneficiary Account IFSC code, Beneficiary Account Number
RIMS/60	The Portal Shall allow the PI to upload supporting documents.
RIMS/61	Upon submission of online form, validations will be performed by the system and error message will be displayed (in case of validation error). (For. e.g., whether sufficient balance does exist in the project account).
RIMS/62	Upon successful submission of online form, the system shall generate an unique reference number which will be used for tracking purpose.
RIMS/63	Upon successful submission of online form by PI, the portal /system shall send notification to the Research Account wing Staff (Dealing Assistant) through Dashboard, email.
RIMS/64	The portal shall allow the Research Account Staff (Dealing Assistant, Assistant Account Officer, Account Officer) to examine / verify the online form, to write remarks in the comment section and to upload supporting documents (as required). The portal shall allow the Research Account Staff to forward the online form (For e.g. Dealing Assistant - > Assistant Account Officer, Assistant Account Officer - > Account Officer, Account Officer - > Associate Dean - Research / Dean - Research) for verification / approval (as the case may be). The portal shall allow the Research Account Staff to send back the proposal in case any discrepancy is observed (For e.g.,

FR Code	Description
	Dealing Assistant - > PI, Assistant Account Officer - > Dealing Assistant) so that resubmission can be done after carrying out the necessary changes.
RIMS/65	The portal shall allow the Associate Dean - Research/ Dean -Research (based on the value of procurement) to approve the request.
RIMS/66	Once the request is approved by the Associate Dean - Research / Dean - Research, the system shall post a debit entry in the ledger under the project code. The system shall send notification to the Account Officer, Assistant Account Officer, Dealing Assistant and the PI through Dashboard, email.
RIMS/67	In case the request is rejected by the Associate Dean - Research / Dean - Research, the system shall send notification to the Account Officer, Assistant Account Officer, Dealing Assistant and the PI through Dashboard, eMail. The system shall allow the Associate Dean-Research and Dean - Research to write the reason for rejection.
RIMS/68	The system shall allow the Dealing Assistant to capture the RTGS Reference Number (Post successful transfer) in the request. The system shall allow the Dealing Assistant to upload the screenshot of RTGS transfer.
RIMS/69	The system shall allow the Dealing Assistant, Assistant Account Officer, Account Officer to view the ledger
	e) Preparation of Utilization Certificate
RIMS/70	The portal shall allow the Research Account Staff / PI to access the Utilization Certificate Module.
RIMS/71	The portal shall allow the Research Account Staff / PI to enter the Project Code / select from drop down. The portal shall allow the Research Account Staff / PI to select / enter the period for which the Utilization Certificate shall need to be generated.
RIMS/72	Upon pressing the 'Generate Utilization Certificate', the portal/system shall generate Utilization Certificate. The portal / system shall allow Research Account Staff to download / save the certificate.
RIMS/73	The portal / system shall allow the Account Officer to digitally sign the Utilization Certificate
	f) Automated Alert -
RIMS/74	Alert / Notification Feature shall be built in the digital ledger which will start intimating PI, Research Account Staffs (through dashboard, email) as soon as 70% of the allocated budget in any of the sub-head will be exhausted
	g) Balance Sheet, P/L Statement -
RIMS/75	The system shall allow the Dealing Assistant to generate the Balance Sheet, P/L Statement for a given financial year

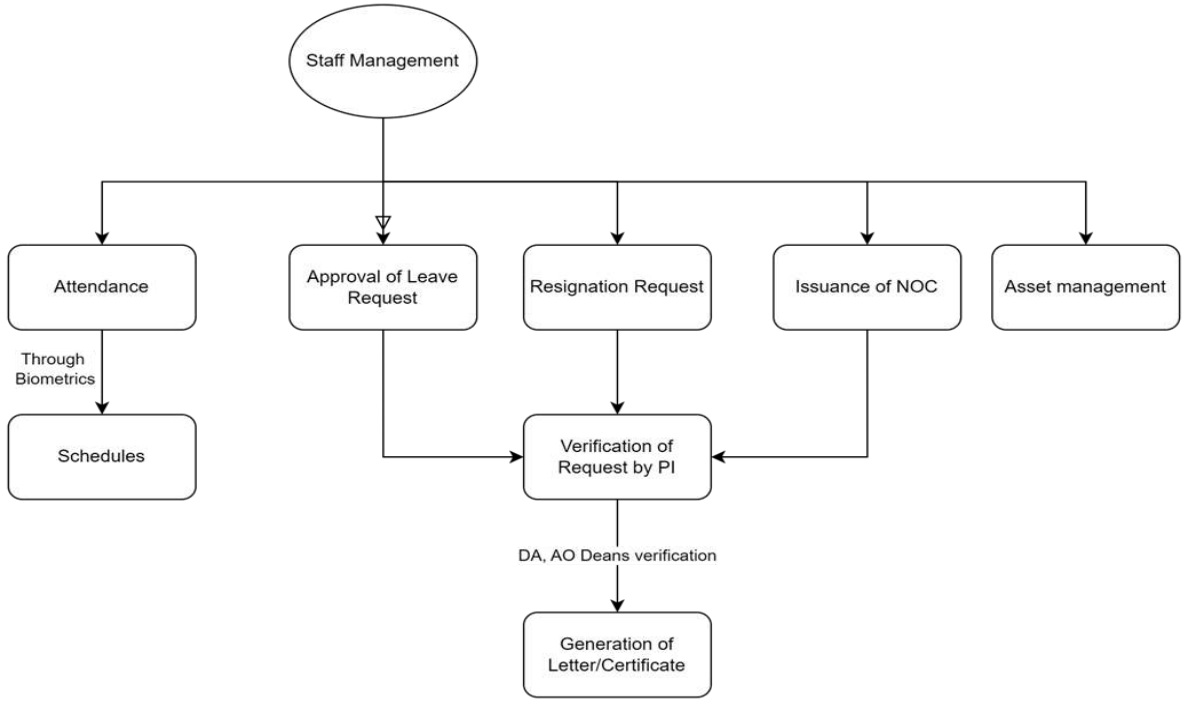
FR Code	Description
RIMS/76	shall allow the Assistant Account Officer, Account Officer to verify the Balance Sheet, P/L Statement generated (using system) for a given financial year
RIMS/77	shall allow the Assistant Account Officer, Account Officer, Associate Dean - Research, Dean -Research to digitally sign the Balance Sheet, P/L Statement (generated for a given financial year)
	h) Integration with IFMS/PFMS -
RIMS/78	System shall be integrated with PFMS to receive the Funds transferred by the Funding Agency into the digital ledger
RIMS/79	The system shall be integrated with PFMS to report the expenditure (Utilization of Funds sanctioned by the Funding Agency) incurred by the projects for a given financial year

Staff Management:

Overview - The process of effectively organizing, coordinating, and overseeing the personnel involved in conducting research studies within the medical field. It involves various aspects of human resource management to ensure that the research team is efficiently utilized, motivated, and supported throughout the research project.

Process Map

Following is the generalized process for Staff Management System.



Process Description

Step-1	Project Investigator would prepare the need of Human resource and then further system should be able to capture biometric based attendance.
Step-2	Fill up an online leave application form to PI who will review it and further forward it to other officials for reviewing. Then upon examining after approval the Leave acceptance letter is generated
Step-3	Project Investigator is required to prepare inventory Management, equipment Reservation and Allocation, Procurement and Vendor Management, Asset Disposal and Replacement, Training and User Support.
Step-4	Similar processes such as Leave applications are followed in case of resignation request and issuance of NOC where required certificates and documents are submitted.

Minimum Functional Requirement

FR Code	**Description**
RIMS/80	The Project Investigator shall prepare an estimate of human resource requirement (No of people for each role) to perform the task for conducting the complete research including survey, experiments, documentation, publishing etc
	a) Staff attendance

FR Code	**Description**
RIMS/81	The system should be able to capture staff attendance through biometric systems
RIMS/82	The system should allow users to prepare roster schedules for faculties in relation with extra periods, exam invigilation, absence of co-faculty member, etc
	b) Approval of Leave Request
RIMS/83	Project Staff shall log into the portal using the login credentials and opens the leave request form in the tab to submit the leave application
RIMS/84	The project Staff shall fill up the online form by providing the ID through which the name and details will be retrieved
RIMS/85	The form is submitted to the project investigator
RIMS/86	The Project Investigator shall verify the leave request form and upon successful verification will forward it to the research section
RIMS/87	The Dealing Assistant of the research section shall examine the leave request and check the leave record of project staff to find leave balance
RIMS/88	The DA shall insert comments in the comment section in the form and send the leave request form and comments to the Admin Officer
RIMS/89	The Admin Officer shall examine the comments and submit it to the Associate Dean and Dean-Research for approval
RIMS/90	The Associate Dean, Dean - Research shall provide approval
RIMS/91	The Admin Officer shall generate the Leave Acceptance Letter using system
	c) Acceptance of Resignation
RIMS/92	The Project Staff shall login to the portal to open the resignation form tab
RIMS/93	The Project Staff shall provide ID, through which the name and details of the staff will be retrieved and the reason for resignation should also be given
RIMS/94	The Project Staff shall submit the form to the Project Investigator
RIMS/95	The Project Investigator shall verify the resignation request and upon acceptance the resignation form is sent to the research section
RIMS/96	The resignation form will be examined and the project details, designation and reason for resigning will be checked
RIMS/97	The Dealing Assistant of research section shall examine the resignation form and provide the comments and send it to the Admin Officer
RIMS/98	The Admin Officer shall examine the comments and the resignation request form and submit it to the Associate Dean for approval
RIMS/99	The Associate Dean, shall provide approval

FR Code	**Description**
RIMS/100	The Admin Officer shall generate the Resignation Acceptance Letter using system
RIMS/101	The Resignation Acceptance Letter shall be generated online and will be stored in the central repository
	d) Issuance of NOC
RIMS/102	The Project Staff shall login to the portal to open the tab for issuance of the clearance letter from EHS, Security, Computer Facility and Research Section
RIMS/103	The Project Staff applies for issuance of NOC and Experience Certificate using the portal
RIMS/104	The Project staff shall fill the online form for issuance of NOC and Experience Certificate.
RIMS/105	The Project Staff shall upload the clearance certificates
RIMS/106	The form is submitted to the Project Investigator for validation and approval
RIMS/107	Upon approving the form, the Project Investigator shall send the form and supporting documents to the Dealing Assistant of Research section for issuance of the NOC and Experience Certificate
RIMS/108	The Admin Officer shall verify the request and supporting documents. On successful examination, the Admin Officer shall provide the approval to generate the NOC and Experience Certificate
RIMS/109	The Admin Officer shall generate the NOC and Experience Certificate using system
RIMS/110	The NOC and the Experience Certificate shall be generated online and will be stored in the central repository
	e) Asset Management -
RIMS/111	The Project Investigator shall prepare following:
	Inventory Management:
RIMS/112	there shall be a system to track and manage all research-related assets, including laboratory equipment, research materials, chemicals, consumables, and infrastructure. Maintain an updated inventory list with details such as item description, quantity, location and condition
	Equipment Reservation and Allocation:
RIMS/113	should have a centralized system to facilitate equipment reservations and track its allocation to researchers or research groups
	Asset Utilization and Performance Analytics:

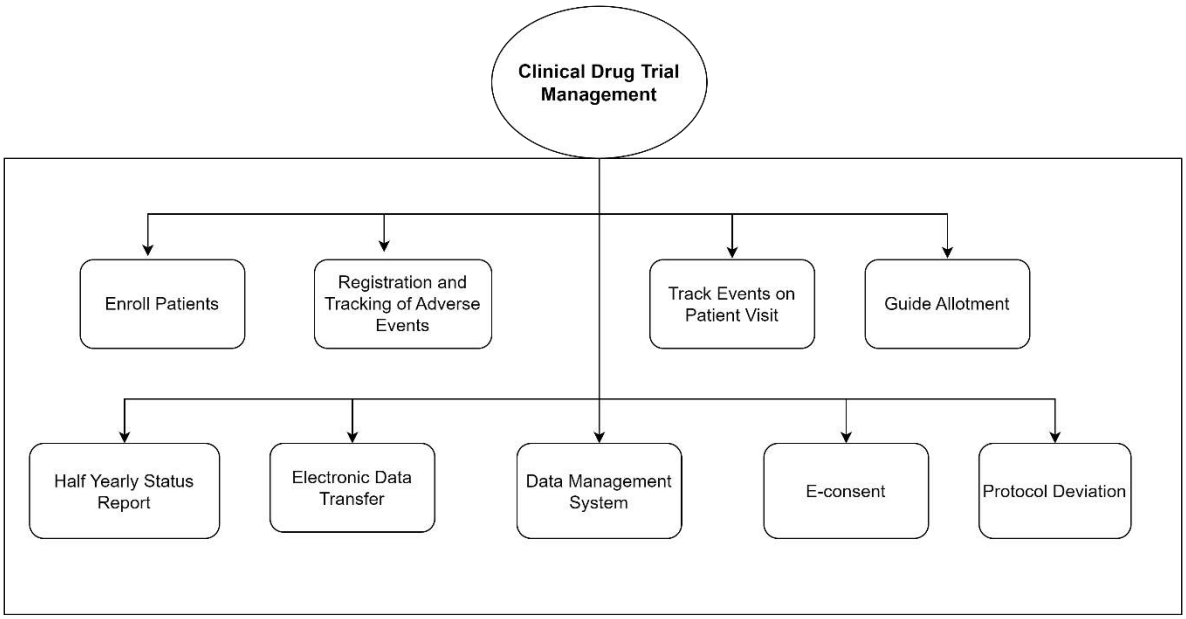
FR Code	**Description**
RIMS/114	there shall be collection and analysis of data on asset utilization rates, downtime, and performance metrics
	Procurement and Vendor Management:
RIMS/115	There should be a seamless procurement process by establishing clear guidelines for purchasing research assets and ensuring competitive pricing
	Asset Disposal and Replacement:
RIMS/116	Develop policies and procedures for the disposal of outdated or non-functional assets
	Training and User Support:
RIMS/117	there shall be provision of training programs and user manuals to ensure researchers are knowledgeable about proper equipment usage, maintenance protocols and safety guidelines
	f) Procurement -
RIMS/118	The portal should be able to check the availability of funds with the accounts before raising Purchase Order.
RIMS/119	The system should have an automated process of generating the utilization certificate once a purchase has been completed
RIMS/120	The system should be able to track the Purchase Request
RIMS/121	Asset register should be maintained online in the platform

Clinical Drug Trial Management

Overview – The systematic coordination and oversight of all aspects involved in conducting a clinical trial to evaluate the safety, efficacy, and/or effectiveness of a pharmaceutical drug or therapeutic intervention. It involves a comprehensive set of activities designed to ensure the smooth operation, adherence to protocols, and regulatory compliance throughout the trial process.

Process Map

Following is the generalized process for Clinical Drug Trial Management System.



Process Description

Step-1	Having provisions for view and manage clinical drug trail and ability to enroll patients in research project through assessments to determine patient eligibility for the research project.
Step-2	Patients can schedule and manage clinical trials and provisions being there for electronic data transfer for exporting trial data. Similarly, the registration and tracking of adverse events, provision for E-consent should be there and tracked upon by stakeholders
Step-3	Further CTRI website access registrations, and other approvals should be submitted for review that are available on the dashboard.
Step -4	Site monitoring report including basic information be updated regularly and then the data management system having proper work interface and features as listed in functions should be there.
Step-5	Half yearly reports being documented with clinical drug overview and basic summary be submitted.

Minimum Functional Requirement of Clinical Drug Trial

FR Code	Description
	a) Number of Ongoing Clinical Drug Trial of PI -
RIMS/156	The system should have provision to allow PI or designated personnel to register new clinical drug trials. This functionality should include fields to capture essential trial information, such as trial title, description, objectives, study design, patient eligibility criteria, and trial phase
RIMS/157	The system should provide a dashboard or interface that allows PI to view and manage ongoing trials
RIMS/158	The system should enable PI or their team to track the progress of patient enrolment for each trial
RIMS/159	The system should have provision to allow PI to define and monitor trial timelines and milestone
RIMS/160	The system should offer functionalities for generating reports on the status and progress of the ongoing clinical drug trials
	b) Ability to Enrol Patients in Research Project -
RIMS/161	The system should have provision for tools for patient enrolment/registration
RIMS/162	The system should have provision of pre-screening questionnaires or assessments to determine patient eligibility for the research project
RIMS/163	there shall be informed consent process
RIMS/164	The system should have provision to collect and store relevant patient data, such as demographics, medical history, and any other required information for the research project. The system should ensure data privacy and compliance with applicable regulations
	c) Track Visit/Events on Patient Visit -
RIMS/165	The system should have provision to schedule and manage patient visits or events within clinical trial
RIMS/166	The system should have provision to tracking of patient visits and events. It should allow research team to mark when visit has occurred, record date and time and indicate whether the visit was completed or missed
RIMS/167	The system should also have facility to send automated reminders to patients and research staff about upcoming visits or events
RIMS/168	The system should have provision to documenting visit details
RIMS/169	The system should have provision for research staff to enter visit-related data into the system. This functionality could include data entry forms or electronic case report forms (eCRFs) where data can be recorded, validated, and securely stored
	d) Electronic Data Transfer -

FR Code	Description
RIMS/170	there shall be provision for exporting and importing of trial data in various formats (e.g., CSV, XML, or CDISC standards)
RIMS/171	data transmission should be secured, includes encryption of data in transit using industry-standard encryption protocols (e.g., SSL/TLS) and implementation of secure file transfer mechanisms (e.g., SFTP or HTTPS) to protect data integrity and confidentiality
RIMS/172	When exchanging data between different stakeholders - data reconciliation functionalities should be included to ensure data consistency and identify any discrepancies
RIMS/173	The system should have provision of integration with external systems involved in clinical trial, such as electronic data capture (EDC) systems, laboratory information management systems (LIMS), or electronic health record (EHR) systems
RIMS/174	The system should comply with data privacy regulations and applicable data protection standards
RIMS/175	The system should be provisioned to archive and retain data transferred electronically
	e) Registration and Tracking of Adverse Events -
RIMS/176	There shall be provision of user-friendly interface for research personnel to register adverse events
RIMS/177	The system should support standardized classification and coding systems for adverse events, such as the Medical Dictionary for Regulatory Activities (MedDRA) or the Common Terminology Criteria for Adverse Events (CTCAE). This ensures consistent and uniform reporting of adverse events across the study
RIMS/178	The system should have built-in mechanisms to ensure timely reporting and notification of adverse events
RIMS/179	The system should support the grading or severity assessment of adverse events based on established grading scales (e.g., CTCAE). It should allow research personnel to assign appropriate severity grades to the adverse events reported, helping in the evaluation and analysis of safety data
RIMS/180	The system should support the tracking and management of adverse events throughout the research
RIMS/181	The system should have provision for data analysis and reporting of adverse events
	f) e-Consent -
RIMS/182	The system should have provision to create, present, and store electronic consent documents

FR Code	Description
RIMS/183	e-Consent system should support the inclusion of multimedia elements - such as videos, images, animations or audio recordings to enhance participant understanding of trial information
RIMS/184	The system should incorporate mechanisms for participant authentication ensuring that only eligible individuals can access and provide consent through the e-Consent platform. This may include login credentials, unique identifiers or other secure authentication methods
	g) CTRI Registration -
RIMS/185	The system should have provision to access the CTRI Website, create an Account, log in to the Registration Module, start new trial registration
RIMS/186	The system should have provision to upload trial documents, including the protocol, investigator's brochure, informed consent form, and any other required documents
	h) CDSCO, DCGI - Approval -
RIMS/187	as per requirement, should have provision of CDSCO & DCGI registration to get approval and required licence from CDSCO
	i) Insurance, if applicable -
RIMS/188	The system shall have defined insurance policy to trial patient and clinical trial sites against claims arising from injuries, adverse events, or negligence during the research process
	j) Site Monitoring Report -
RIMS/189	The system should include basic information about the site visit, such as the visit date, site name, location and the personnel involved in the visit
RIMS/190	The system should specify the purpose of site visit
RIMS/191	The system should assess the site's compliance with the study protocol, applicable regulations, and standard operating procedures (SOPs)
RIMS/192	The system should evaluate the quality and integrity of the data collected at the site
RIMS/193	The system should assess the site's compliance with regulatory requirements, such as record keeping, informed consent procedures, institutional review board (IRB) approvals, and documentation of study-related activities
RIMS/194	The system should include a section to document any action items or follow-up activities identified during visit
RIMS/195	The system should have provision of various formats of documents attachment
	k) Protocol Deviation -

FR Code	Description
RIMS/196	The system should evaluate site's handling, storage, dispensing, and accountability of the investigational product or study medication
RIMS/197	The system should have provision to note any deviations or issues related to product management or drug accountability
	l) CIOMS/SUSAR Reporting of Adverse Effects -
RIMS/198	The system should include mechanisms to identify adverse events that meet the criteria for CIOMS/SUSAR reporting. This may involve automated triggers or flags based on predefined criteria - such as seriousness, unexpectedness and causality assessment
RIMS/199	The system should support a workflow for CIOMS/SUSAR reporting, including the generation of appropriate forms or templates
RIMS/200	The system should have provision of data entry forms to collect detailed information about the adverse event
RIMS/201	The system should adhere to regulatory requirements and guidelines for CIOMS/SUSAR reporting
RIMS/202	The system should have provision of automatically transmit CIOMS/SUSAR cases to regulatory authorities or designated recipients
RIMS/203	The system should have provision for the tracking and follow-up of CIOMS/SUSAR cases
	m) Data Management System -
RIMS/204	Data Collection and Entry - should have an interface for researchers to enter, collect research data and there should also be provision of speech to text feature
RIMS/205	There should have provision of offline data entry also and it should be saved or upload online later
RIMS/206	Data Storage and Security - should be secured and reliable storage infrastructure to safeguard sensitive medical research data. Utilize encryption techniques, access controls, and data backup mechanisms to protect against unauthorized access, data loss, or breaches
RIMS/207	Data Integration and Interoperability - should enable seamless integration with other healthcare systems and research databases to facilitate data sharing and collaboration. Support industry-standard data formats and interoperability protocols to ensure compatibility with existing systems
RIMS/208	Data Standardization and Harmonization - Apply standardized data models, coding systems (such as SNOMED CT, LOINC, and ICD), and terminology standards to ensure consistency and interoperability across different research studies and healthcare settings
RIMS/209	Data Querying and Reporting - should have advanced search and querying capabilities to enable researchers to retrieve specific subsets of data based

FR Code	Description
	on various criteria. Implement reporting tools to generate summary reports, data visualizations, and analytics to derive meaningful insights from the research data
RIMS/210	Data Privacy and Ethics Compliance - should be ensured compliance with relevant data protection regulations, such as IT Act 2000, Personal Data Protection Bill and adhere to ethical guidelines for medical research, such as those set by the Indian Council of Medical Research (ICMR). Obtain appropriate informed consent from participants and enforce privacy controls to protect patient confidentiality
RIMS/211	Data Access and Permissions - should have role-based access control mechanisms to restrict data access based on user roles and responsibilities. Researchers, administrators, and ethics committee members should have appropriate access privileges to ensure data security and compliance
RIMS/212	Data Audit Trails and Versioning - there shall be maintained audit trail of data modifications and track changes made to the research data
RIMS/213	Data Sharing and Collaboration - should have provision for researchers to securely share research data with authorized collaborators within and outside the institution. Implement data sharing agreements and mechanisms to control data access, maintain data ownership, and protect intellectual property rights
RIMS/214	1Long-term Data Archiving - Establish a data archiving strategy to preserve research data for the long term. Ensure compliance with data retention policies and consider the use of secure, scalable, and cost-effective archival solutions
RIMS/215	1there should be integration of investigation records from Government and Private Diagnostic Centres for research activities
RIMS/216	The system should have provision of getting data of Disease specific Family history of every patient
RIMS/217	The system should have provision of proper Data Space Management to accommodate huge data specially for ICU patients
RIMS/218	The system should have provision of emergency visit records as part of EMR
	n) 6-Monthly Status Report -
RIMS/219	there shall be provision of Half - Yearly report with an overview of clinical drug trial including - study title, protocol number, study phase, participating sites, and the overall objective of the trial.
RIMS/220	It should summarize the recruitment and enrolment progress during the reporting period, should outline the progress of clinical trial during the reporting period

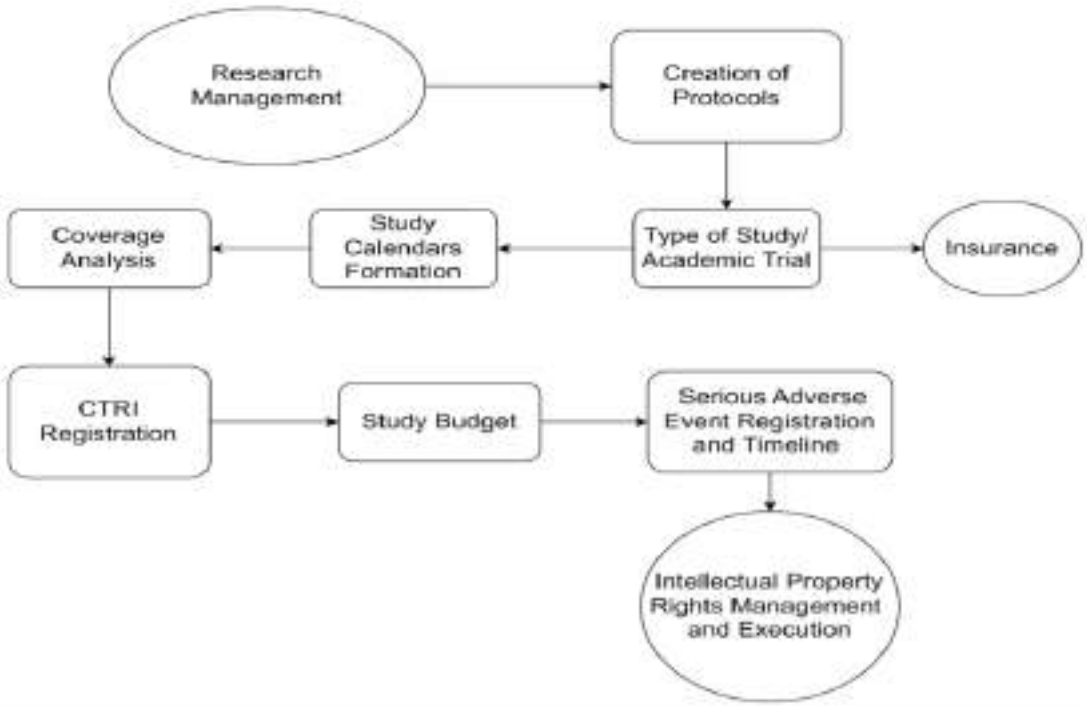
FR Code	Description
RIMS/221	The system should provide an update on adverse events and safety monitoring activities during the reporting period
RIMS/222	The system should document any protocol deviations or non-compliance incidents that occurred during the reporting period
RIMS/223	The system should include preliminary data analysis and interim results if applicable
RIMS/224	The system should highlight any challenges or issues faced during the reporting period and describe the strategies implemented to address them and should also outline the future and outlook for the clinical drug trial
	o) Guide Allotment -
RIMS/225	there shall be provision for students to view the list of potential research guides and their profiles. Students should be able to submit their preferences for research guides
RIMS/226	Once students have selected their preferred research guides, the system should facilitate the approval process by sending notifications to faculty members. Faculty members can then review student preferences and accept or decline the requests
RIMS/227	In case a student's preferred research guide is not available or declines the request, provide a waitlist functionality where students can express their interest in being assigned to other available guides. The system should automatically update the student's guide assignment if a suitable alternative becomes available
RIMS/228	there shall be features to enable students and faculty members to interact regarding the guide allotment process. Notifications can be sent to inform students about the progress of their guide assignment and any changes in their guide allocation status
RIMS/229	there shall be reporting, and analytics features that provide administrators with insights into guide allotment trends, student preferences, and guide availability

Research Management

Overview - The systematic and coordinated approach to planning, organizing, and overseeing all aspects of research activities within the medical field. It involves the efficient and effective utilization of resources, coordination of research teams, adherence to regulatory & ethical guidelines and the strategic direction of research projects to achieve desired outcomes.

Process Map

Following is the generalized process for Research Management System.



Process Description

Step-1	Protocols should be created outlining the study objectives, and other details highlighting the project.
Step-2	Inclusion of Study list, Status history, Milestone Management, Contract Management, Budget Management, Document Management.
Step-3	Insurance applicable to protect researchers and institutions against claims arose during any incidents/accidents during the research process
Step-4	Detailed study calendar should be created based on protocol guideline and communicating it with all the stakeholders
Step-5	Creating relevant coverage analysis, mentioning the criteria for inclusion or exclusion of studies in coverage, and preparing comprehensive reports summarizing the coverage analysis results and other matrices to show the detailed output results of the study.
Step-6	During the research process, important measures to be followed are to track the study status, doing CTRI registration and CDSCO, DCGI approval, creation of study budget and including the details of intramural and extramural funding.

Minimum Functional Requirement

FR Code	Description
	a) Creation of Protocols -
RIMS/122	protocol should outline the study objectives, inclusion and exclusion criteria, study design, treatment interventions, data collection procedures, and safety monitoring plans
	b) Type of Study, Self-initiated, Academic Trial -
RIMS/123	Study List - List of study registered
RIMS/124	Status History - Ability to show a record of all events (additions, modifications, deletions) taking place in the study
RIMS/125	Milestone management - Ability to manage timeline of study (e.g., Regulatory Complete)
RIMS/126	Contract management - Ability to manage clinical trial contract information (contract timeline, stakeholders, negotiations etc.)
RIMS/127	Budget management - Management functions for budgeting and execution of research funds
RIMS/128	Document management - Ability to manage all documents generated during clinical trials (separated by department)
	c) Insurance, if applicable -
RIMS/129	The system shall have defined insurance policy to protect researchers, institutions, sponsor and clinical trial sites against claims arising from injuries, adverse events, or negligence during the research process
	d) Creation of Detailed Study Calendars based on Protocol Guideline -
RIMS/130	Thoroughly review the study protocol to understand the study design, objectives and procedures
RIMS/131	Identify the overall duration of the study as specified in the protocol
RIMS/132	The system should have details of visit dates, activities, time slots and any specific instructions. Communicate the study calendar to all relevant stakeholders, ensuring that everyone involved is aware of the study schedule and their responsibilities
	e) Creation of Coverage Analysis -
RIMS/133	Gather relevant research articles, studies, or datasets from various sources.
RIMS/134	Retrieve information such as study titles, authors, publication details, and abstracts.
RIMS/135	Import or input data into the coverage analysis system
RIMS/136	Define criteria for including or excluding studies in the coverage analysis.

FR Code	Description
RIMS/137	Specify parameters such as publication dates, study designs, target populations, interventions, outcomes, or specific research questions
RIMS/138	Conduct an initial screening of studies based on predetermined inclusion and exclusion criteria.
RIMS/139	Extract key information from selected studies, such as study characteristics, methodology, sample size, and outcomes
RIMS/140	Assess the quality and reliability of the included studies using appropriate evaluation tools or frameworks
RIMS/141	Prepare comprehensive reports summarizing the coverage analysis results, create visual representations, charts, or graphs, generate tables or matrices showing the distribution of studies across various parameters or categories
	f) Tracking of various Study Status -
RIMS/142	The system should have tracking of progress of study initiation activities, including protocol development, study team formation and regulatory approvals. Monitor the completion of these tasks to ensure the study can commence according to the planned timeline
	g) CTRI Registration -
RIMS/143	The system should have provision to access the CTRI Website, create an Account, log in to the Registration Module, start new trial registration
RIMS/144	The system should have provision to upload trial documents, including the protocol, investigator's brochure, informed consent form, and any other required documents
	h) CDSCO, DCGI, Approval if Applicable -
RIMS/145	As per requirement, should have provision of CDSCO & DCGI registration to get approval and required licence
	i) Creation of Study Budget-
RIMS/146	The system should identify all the costs associated with the research study, including both direct and indirect costs. Direct costs may include research staff salaries, laboratory supplies, data collection tools, participant compensation, and equipment. Indirect costs can include administrative overhead, facility charges, and other operational expenses
RIMS/147	cost estimation for each item identified in the study, based on market rates, previous research experiences, or quotes from vendors and service providers
RIMS/148	evaluation of specialized equipment, laboratory facilities, or other infrastructure required for the research study. Estimate the costs for procuring, maintaining, and repairing equipment or renting necessary facilities

FR Code	Description
RIMS/149	there shall be fund allocation for training programs or workshops to enhance the skills and knowledge of the research team and support personnel involved in the study
RIMS/150	The system should have a contingency fund to address unforeseen expenses or changes in project scope, such as protocol amendments or unexpected challenges during the research study
	j) Details of Intramural/Extramural Funding -
RIMS/151	The system should have provision to receive funds from various sources, such as departmental budgets, institutional grants, endowments or specific research programs established within the institution
	Extramural Funding -
RIMS/152	The system should have a platform or system to manage the entire grant application process, including submission, review, and selection of projects
RIMS/153	Evaluation of submitted proposals by experts in the relevant field. It should include features for assigning reviewers, collecting their feedback, and facilitating discussions or scoring of applications
RIMS/154	The system should have proper tracking the allocated funds, monitoring spending, and ensuring compliance with financial regulations and reporting requirements
RIMS/155	there should have provision of submission of Utilization Certificate, and it should be stored in central repository

Biospecimen Tracking

Minimum Functional Requirements

FR Code	Description
RIMS/230	The sample collection shall be done for the enrolled patients for research process
RIMS/231	The sample collection information shall be entered in the system with patients' relevant information
RIMS/232	The system should have provision for child samples collection
RIMS/233	The system should have ability to build "virtual" storages to track where specimens are stored
RIMS/234	The system should have ability to track multiple specimen statuses

FR Code	Description
RIMS/235	The system should have ability to capture additional data elements on a custom form
RIMS/236	The Project Investigator shall prepare a Data Management Plan (DMP) to be followed while conducting the research
RIMS/237	Necessary supporting staffs / teams required for execution of plans to be intimated about their involvement in the process
	Publication
RIMS/238	The Project Investigator shall apply for publishing of the research paper
RIMS/239	The system shall send the trigger to the authorities for approval
RIMS/240	The PI shall get the research paper published after approval
RIMS/241	The Project Investigator shall apply for filing of the patent
RIMS/242	The Project Investigator (PI) shall upload the supporting documents with the application
RIMS/243	The IPR & TTD shall check all the mandatory documents, examine if the application is for provisional Patent or Complete patent, conduct scrutiny and send it to the Chairman for approval After Chairman's approval, the IPR & TTD Cell shall send it to the attorney via mail
RIMS/244	The Attorney shall file the patent after checking that no similar patent has been filed/ granted. It shall share the Patent no. with the PI
RIMS/245	The Attorney shall send the invoice to the Research Section and the Accounts section of research shall make the payment for the patent
RIMS/246	The Patent shall then get examined, published and approved
RIMS/247	The Research shall approach completion and closure of the research document shall be carried out. The PI/ Research Section shall change the status of the project as closed by clicking on the drop down and selecting the 'close' option
RIMS/248	The system shall send it to the AAO/ AO for approval
RIMS/249	The system shall further trigger the application to Associate Dean (Research), Dean (Research) for Approval
RIMS/250	The Funding Agency shall be informed about the closure of the Research project and relevant documents/ certificates shall be uploaded on the portal. The Research project shall be closed
RIMS/251	After closing the research project, the PI shall select the documents/ reports/ data and send it to archive. The Research Documents, Research data,

FR Code	Description
	Analysis etc. shall be archived and added in the records for reference, reusing data and for any other Research purpose
	Research Facility Management
RIMS/252	The users (PI, Project Staff, Students) shall need to access the Research Facility Booking function in the portal
RIMS/253	Upon providing the Institution ID, the portal shall auto-populate the user profile information present in the Facility Booking online form
RIMS/254	The portal shall allow the User to select the Sub-Facility from the drop-down menu
RIMS/255	The portal shall allow the user to select the instrument that he / she wish to book and the date of the booking. The portal shall display the available slots for that day.
RIMS/256	The portal shall allow the user to select a particular day and portal shall be able to display the available slots for that day. The portal shall allow the user to write a shot description about the reason for booking. The portal shall also display the charges (in case of chargeable instruments) that the User shall need to pay upon confirmation of the booking request by the Facility.
RIMS/257	Once the user selects a particular slot for a specific date and confirms the selection, the request shall be submitted.
RIMS/258	Upon submission of online form, validations will be performed by the system and error message will be displayed (in case of validation error).
RIMS/259	Upon successful submission of online form, the system shall generate an unique reference number which will be used for tracking purpose. The status of the request shall be changed to 'Submitted'.
RIMS/260	Upon successful submission of online form by PI, the portal /system shall send notification to the In-Charge of the Sub-Facility through dashboard, email.
RIMS/261	The portal shall allow the In-Charge of the Sub-Facility to accept / reject the request. In case of rejection, the In Charge of the Sub-Facility shall need to write a reason for the rejection.
RIMS/262	Upon submission of the request (Acceptance / Rejection) by the In Charge of the Facility, the portal shall send a notification to the User, In Charge of the Facility through dashboard, email and SMS.
RIMS/263	In case the request is confirmed by the In Charge of the Facility, the User shall need to pay within 24 hours (configurable) of the acceptance of the request.
RIMS/264	The portal shall be integrated with Payment Gateway. It will allow the User to pay the required amount through Internet Banking, Debit Card, UPI, Wallet etc.

FR Code	Description
RIMS/265	The user (PI) shall have an option to send the request to the Research Account Section for payment.
RIMS/266	The portal shall allow the User (PI, Project Staff, Research Account Section, Student) to download the receipt of the payment.
RIMS/267	Post successful completion of payment (successful response code from Payment Gateway), the Sub-Facility will be booked for the specified period. The portal shall intimate User, In Charge of the Sub- Facility, In Charge of the Facility about the booking through dashboard, email.
RIMS/268	The User / Support Staff at the Sub-Facility shall need to fill up an online form upon arrival at the facility. The User / Support Staff shall need to enter the request ID. The portal shall auto-populate the request details. The User / Support Staff shall need to enter the Entry Time. At the time of Exit, the User / Support Staff shall need to enter the Exit Time.
RIMS/269	The portal shall allow the In Charge of the Sub-Facility to capture the details of the Assets (Asset ID, Asset Name, Date of Procurement, Date of Installation, Location, Value of the Asset, AMC Expiry Date, AMC Renewal Date, CMC Expiry Date, CMC Renewal Date, AMC Vendor Nam, Contact Details etc.). This will act as Asset Register. The portal shall allow the In Charge of the Sub-Facility to add, update the item(s) in the Asse Register.
RIMS/270	Notification / Alert feature shall be built into the Asset Register so that it intimates In Charge of the Sub-Facility 30 days (configurable) before the AMC, CMC expires. The portal shall allow the In Charge of the Sub-Facility to add, update the Asset(s) in the Asset Register.
RIMS/271	The portal shall allow the In Charge of the Facility to approve the addition, modification made in the Asset Register
RIMS/272	The portal shall allow the In Charge of the Sub-Facility to capture the details of the consumable items (Name of the Item, Date of Procurement, Quantity Procured, Amount Spent on Procurement, Quantity Remaining etc.). This will act as the Inventory Register. The portal shall allow the In Charge of the Sub-Facility to add, update the item(s) in the Inventory Register
RIMS/273	The portal shall allow the In Charge of the Facility to approve the changes made in the Inventory Register
RIMS/274	The data generated out of the instrument shall need to be stored in the centralized scalable storage space allotted for the Sub-Facility. The User shall be able to transfer the data to his / her personal storage space (at the end of the experiment) by logging into his / her account
RIMS/275	The portal shall allow the In Charge of the Sub-Facility to view all the requests submitted (along with the status) for booking of Sub-Facility.
RIMS/276	The portal shall allow the In Charge of the Facility to view all the requests submitted (along with the status) for booking of each Sub-Facility

FR Code	Description
	Committee Constitution and Structure
RIMS/277	Quorum Requirement Standard Operating Procedure (SOP)
	Minutes of Meeting Committee
RIMS/278	Share approved minutes with all committee members.
RIMS/279	Ensure timely distribution of the minutes, ideally within a few days after the meeting.
RIMS/280	should be distributed the minutes to other relevant stakeholders or concerned departments
	Screening Committee for Project
RIMS/281	Project proposals should be distributed to committee members for review
RIMS/282	The system should be responsible for evaluating and selecting projects based on predefined criteria
RIMS/283	Develop a scoring or rating system to evaluate project proposals consistently
RIMS/284	Set a deadline for project submissions
RIMS/285	Ensure all necessary information and documentation are provided by the proponents
RIMS/286	Communicate the evaluation results to all project
	Institutional Ethics Committee
RIMS/287	Registration with Regulatory Bodies of Government of India -
RIMS/288	The Ethics Committee shall review the proposal
RIMS/289	Ethics Committee shall review the proposal and if any discrepancies found, will notify the PI about the changes and to resubmit the proposal within stipulated time
RIMS/290	In case no discrepancy is found, the Ethical Clearance Certificate will be issued to the PI. In case any discrepancy is found, or further information is required, the proposal will be sent to the PI online for necessary correction and resubmission
RIMS/291	Ethical Clearance Certificate shall be generated online and will be stored in the central repository

FR Code	Description
	Institutional Committee for Stem Cell Research
RIMS/292	Portal shall be used to submit the protocols to stem cell committee.
RIMS/293	The entry of submitted protocols list should be maintained in the portal and should be automated, the list is updated automatically once a new protocol is submitted.
RIMS/294	The portal must be able to send notifications to the different stakeholders involved
RIMS/295	All the entries made by the students/MS must be stored in the portal.
	Institutional Genetics Committee
RIMS/296	The system should be established the Institutional Genetics Committee comprising experts in genetics, molecular biology, ethics, and relevant medical specialties.
RIMS/297	Define the roles and responsibilities of committee members, including the chairperson and members from various departments
RIMS/298	Maintain a database of committee members with their contact information, expertise, and affiliations.
RIMS/299	Facilitate the appointment or nomination process for committee members.
RIMS/300	Track the tenure or term of committee members and manage membership renewal or replacement
RIMS/301	Maintain a repository for important committee documents, including guidelines, policies, and templates related to genetic research.
RIMS/302	Document committee decisions, recommendations, and review outcomes for each project.
RIMS/303	Generate reports summarizing the committee's activities, project statuses, and ethical review outcomes
	Serious Adverse Event Registration and Timeline
RIMS/304	it should be conducted in physical forms or via email by sharing scanned copies
RIMS/305	The access to the project related documents is with Research Administrative section and the SAE committee needs to demand for the scanned documents in email
RIMS/306	The documents have to be stored in drop box, computer, email or physical files to maintain the data
RIMS/307	The documents of cases before current MS joined are in physical forms

FR Code	Description
RIMS/308	Manual Causality Assessment Form is to be created and details to be entered
RIMS/309	Issue with maintenance of data confidentiality and privacy
	Intellectual Property Rights Management
RIMS/310	The Project Investigator (PI) shall need to fill up the online application form while filing for a patent. The online application from shall include indicative details such as Proposal ID, Project Code, Type of Application (Provisional / Complete) etc. Upon filling up the Proposal ID, Project Code the other details such as (Project Name, Project Description, Budget Details, Manpower Details, Project Start Date, Project Status etc.) will be auto populated. There will be other fields in the application where PI shall need to fill up the description about the invention, claims mentioned in the patent, and the evidence supporting the claims mentioned in the patent etc.
RIMS/311	The portal shall allow the PI to upload the supporting documents (such as Declaration by Principal Investigator, Non-Disclosure Form (NDF), Collaborative Research Agreement (CRA) Within INDIA, Collaborative Research Agreement (CRA) International, Confidentiality Agreement (CA), Material Transfer Agreement (MTA), Academic Collaboration Request Form etc
RIMS/312	Upon submission of online form, validations will be performed by the system and error message will be displayed (in case of validation error).
RIMS/313	Upon successful submission of online form, the system shall generate an unique reference number which will be used for tracking purpose. The status of the Patent shall be changed to 'Submitted'.
RIMS/314	Upon successful submission of online form by PI, the portal /system shall send notification to the Member Secretary of IPR / TTD Cell through dashboard, email.
RIMS/315	The portal shall allow the Member Secretary of IPR / TTD Cell to examine the online form along with supporting documents, to write remarks in the comment section, to upload the supporting documents (as required).
RIMS/316	The portal shall allow the Member Secretary of IPR / TTD Cell to send the application back to the PI in case any correction or clarification is required, or any discrepancy is observed.
RIMS/317	The portal shall allow the PI to make the necessary changes in the online form (as suggested by the Member Secretary of the IPR / TTD Cell), upload additional documents (as suggested by the IPR / TTD Cell) and re-submit the online form.
RIMS/318	The portal shall allow the Member Secretary of IPR / TDD cell to re-examine the application. The portal shall allow the Member Secretary of the IPR /

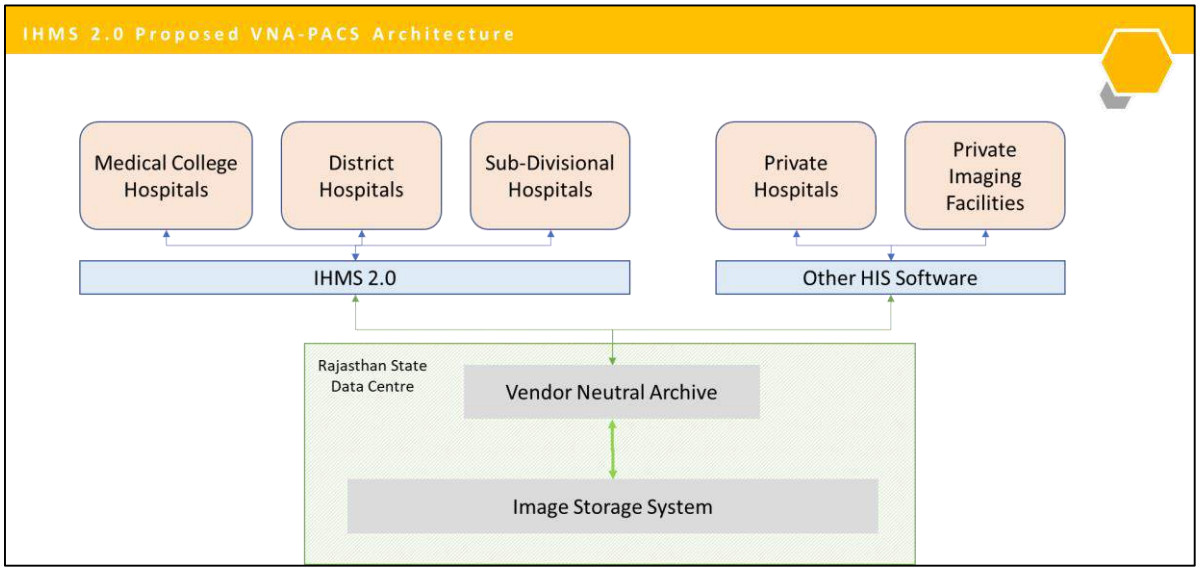
FR Code	Description
	TDD cell to forward (post successful completion of re-examination) the application to the Chairman of the IPR / TTD Cell for approval.
RIMS/319	The portal /system shall send notification to the Chairman of IPR / TTD Cell through dashboard, email.
RIMS/320	The portal shall allow the Chairman of IPR / TTD Cell to examine the application, supporting documents. In case any clarification or further information is required, the portal shall allow Chairman of IPR / TTD Cell to send back the application to the Member Secretary of IPR / TTD Cell through portal.
RIMS/321	The portal shall allow the Chairman of the IPR / TTD Cell to approve (on successful examination of the application) the application.
RIMS/322	The portal shall allow the Chairman of the IPR / TTD Cell to generate an approval letter using system. The portal shall allow the Chairman to digitally sign the letter using Class -III DSC Certificate.
RIMS/323	The approval letter shall be available in the portal.
RIMS/324	The PI, Member Secretary of IPR / TTD Cell is notified about the approval of the application through dashboard, email.
RIMS/325	The portal shall allow the Member Secretary of the IPR / TTD Cell to download the approval letter, application and supporting documents and send to the Attorney to file the patent through email.
RIMS/326	The portal shall allow the Member Secretary of the IPR / TTD Cell to upload the communication mail with Attorney in the portal. There will be some fields in the online application form to capture the details of the Attorney (such as Attorney Name, Attorney ID, Date when the mail has been sent to Attorney, Date when the response has been received, Amount charged by the Attorney etc.). The portal shall allow the Member Secretary to enter the information in the above-mentioned fields.
RIMS/327	On successful filing (In case of Provisional Application) / publishing (In case of Complete Application) of the patent, Patent number is communicated by the Attorney to the PI and Member Secretary of the IPR / TTD Cell through email. The Attorney sends the invoice (containing the amount charged for the service provided) to the Member Secretary of the IPR / TTD Cell.
RIMS/328	The portal shall allow the Member Secretary of the IPR / TTD Cell to capture the Patent Number, Amount Charged by the Attorney etc. The status of the Patent will be changed by the Member Secretary of the IPR / TTD Cell to 'Filed' (In case of Provisional Application) / 'Published' (In case of Complete Application) .
RIMS/329	In case provisional application is submitted by the PI at the very first place, the portal shall send reminder to the PI and IPR / TTD cell (through dashboard and email) for submission of the complete application. The

FR Code	Description
	system shall start sending the reminder 30 days (configurable) before the Due Date. Reminder shall be sent once in every 3 days (configurable).
RIMS/330	Points from IPRM.1 to IPRM.18 shall be repeated during submission of complete application and subsequent processing. There will be some exceptions (Such as there is no need to change Patent Number).
RIMS/331	The portal shall allow the Member Secretary to capture some additional information as and when received (such as the Date of Representation by the PI / Attorney to the Authority). Upon approval of Patent by the authority, the Member Secretary shall be able to change the status of the Patent from 'Published' to 'Granted'.
RIMS/332	The portal shall be able to maintain record of all the activities (Audit-Trial) that will happen through lifecycle of Patent

Picture Archiving and Communication System

A centralized VNA-PACS is envisaged to be deployed at the state data centre for the purpose of providing centralized storage of imaging and non-imaging studies generated at various healthcare facilities in the state.

The proposed architecture of VNA-PACS is given below:



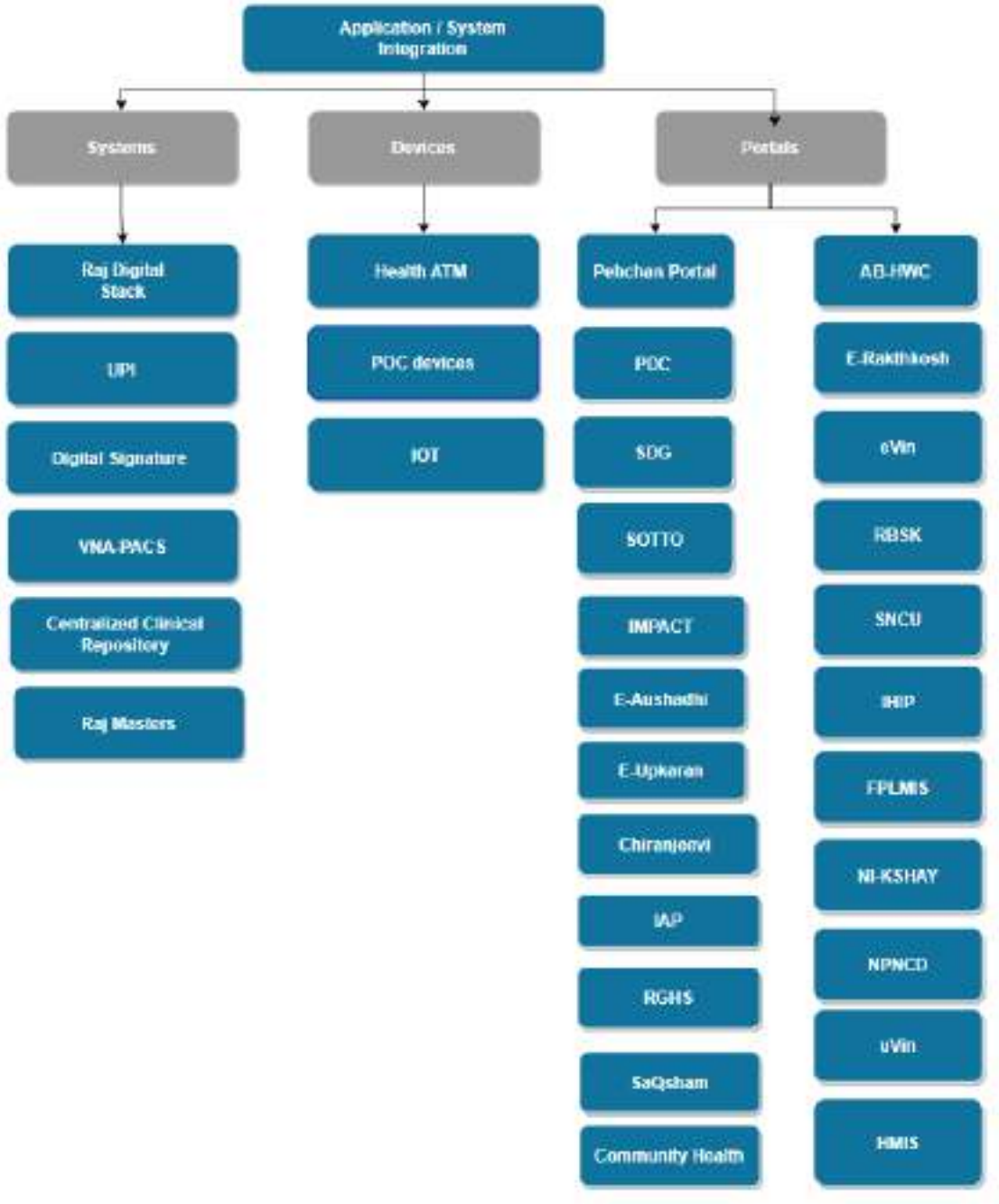
The minimum functional requirements of a VNA-PACS are given below:

FR Code	Description
RIS/1	The VNA-PACS solution must be fully web based
RIS/2	The VNA-PACS solution must have US FDA 510K certificate issued in last 5 years (Bidder must submit certificate of US FDA 510K).
RIS/3	The PACS-VNA solution must also have US FDA 510K certificate and must be mentioned specifically on the certificate
RIS/4	Separate US FDA 510K approved Zero footprint viewer is required
RIS/5	The VNA-PACS solution should not use any Free source DICOM tools. Vendor should submit a certificate declaring conformance for this.
RIS/6	The VNA-PACS shall be Fully Web Based with all users accessing all functions through the Internet Browser
RIS/7	With the intention of Client to eliminate paper, the bidder shall include a strategy for document scanning and management of the application that can be integrated into the VNA-PACS.
RIS/8	The VNA-PACS solution should support multithreading technology for DICOM communication.
RIS/9	There should be no restriction of License in VNA-PACS based on exams per annum
RIS/10	The VNA-PACS solution should support high volume reading (lots of cases, large cases, across modalities). An estimated volume generated is approximately 25-30 Lakhs per year.
RIS/11	Solution should support image viewing from Tabs like Samsung Galaxy & Apple IPad
RIS/12	The VNA-PACS solution should have a common GUI for all PACS workstations.
RIS/13	The VNA-PACS solution should support and connect unlimited modalities both present & future. No extra license cost will be applicable for any new modality connectivity.
RIS/14	The VNA-PACS solution should integrate bi-directionally with IHMS2.0 during UAT and should be fully functional prior to go-live.
RIS/15	The system shall support system-wide authentication of users through the use of Raj SSO for authenticating each user in the system.
RIS/16	The selected bidder shall provide mechanisms to assure the security of all system components to minimize loss of equipment or data due to theft or malicious tampering.
RIS/17	The system should provide same user interface to any user if logged from any computer.
RIS/18	In case of network disconnection, the system shall automatically resume the image display on reconnection.

FR Code	Description
RIS/19	System shall display the complete image available at that moment in case of network disruption or disconnection.
RIS/20	Any user preferences like keyboard shortcuts, worklist columns once setup by a user should be available if the user logs from any computer
RIS/21	The system shall implement the following minimum DICOM SOP Classes • DICOM Storage • DICOM Verification • DICOM Print • DICOM Q/R • DICOM Send
RIS/22	The VNA-PACS solution should be Vendor Neutral Archive (VNA) Level 5
RIS/23	The system shall not store any image in the storage system with non-reversible compression. (Lossy compression)
RIS/24	The system shall include a DICOM Modality Worklist Management SCP
RIS/25	The system shall provide DICOM Support for ultrasound & Cath-lab cine loops.
RIS/26	The system shall provide support for the management of more than 25 lakh imaging studies annually.

Integration with External Applications / Systems

IHMS 2.0 solution should provide integration with the following systems / devices / portals shown below:



The minimum integrations of IHMS 2.0 are listed below:

Raj Digital Stack - To keep uniform electronic health records for patients all over the state, an integration of electronic health records with Jan Aadhar is beneficial. It enables the citizens to authenticate their identity across various healthcare providers and share the relevant health records with them digitally. Integration with Jan Aadhar also allows for transactions after identification, which would make it convenient for the patients to pay for their medical bills. Once a patient gets registered, the presence of ABHA number for that individual can be verified by interacting with ABDM and auto generate an ABHA number for patients, if & when

needed. IHMS 2.0 should use JanAdhaar as the unique identifier to identify a patient in the system.

SSO Integration – SSO integration is essential for a single source of all the services. Single sign-on (SSO) is an identification system that allows users to access multiple applications and websites with one set of login credentials. The implementation of SSO within an enterprise helps ease password management and improve security as workers access applications that are on-premises as well as in the cloud. IHMS 2.0 will integrate with RajSSO to authenticate the end-users in the system.

Unified Payments Interface (UPI) - For health institutions with huge footfall, it is important to have increased speed of transaction with accuracy. Therefore, digital payment system needs to be introduced in iHMS 2.0 to smoothen the payment process. Apart from reduced time in transaction, a facility can also view real time cash flow. IHMS 2.0 will integrate with UPI provided by NPCI to provide digital payment services to all stakeholders in the system.

Digital Signature Integration – A digital signature is a digital code (generated and authenticated by public key encryption) which is attached to an electronically transmitted document to verify its contents and the sender's identity. Integrated digital signature would make the process of verification smoother. Documents generated in IHMS 2.0 shall be signed digitally before publishing the document in the system.

SMS/e-Mail Integration – Introducing SMS/e-mail in the system would ease the access of the essentials documents by the user and maintain privacy of the content. Communication with the end-users shall be in the form of SMS / e-Mail / WhatsApp communication. IHMS 2.0 shall integrate with SMS gateway in the RAJ Digital Stack for providing this functionality.

Health ATM - Health ATM is a one-stop digital touch-point integrated machine designed to diagnose all the chronic disease, delivering primary care and diagnostics. ATM for healthcare, is built-in with the latest diagnostic equipment for the diagnosis of basic vitals, cardiology, neurology, pulmonary testing, gynaecology, clinical diagnostic and life-saving equipment and emergency facilities. Like an Automated Teller Machine (ATM) in a bank, Health ATM is a touch-screen kiosk hardware, designed for managing health-related information which allows individuals to access their personal health information through any Internet connected web browser. Any medical record generated in the Health ATM should be linked to a patient medical record using Jan Aadhaar and shall use FHIR Health Record Profiles to transfer the medical records to CDR of IHMS2.0

POC devices - Point of care (POC) diagnostic devices are used to obtain diagnostic results while with the patient or close to the patient. Used in doctors' offices, hospitals, and in patients' homes, POCT diagnostic devices give quick feedback on many sorts of medical tests. POC diagnostic devices are used to test glucose and cholesterol levels, do electrolyte and enzyme analysis, test for drugs of abuse and for infectious diseases, and for pregnancy testing. Blood gases, cardiac markers, and faecal occult blood tests can also be done with POC diagnostic devices. There are several advantages to doing the tests at the point of care, including quick results and faster implementation of therapy, if needed. Any POC devices used in the healthcare facilities shall transmit the relevant medical data and records using FHIR profiles to CDR of IHMS2.0.

IoT Prescription Pad: IHMS 2.0 should provide integration with IoT Prescription Pad so that handwritten prescriptions can be captured digitally and linked with patient medical records.

Handwriting Recognition and Conversion System: IHMS 2.0 should integrate with a Handwriting Recognition and Conversion System that employs AI-based ML models to

convert doctor's handwritten prescription (consisting of Vitals, Clinical Orders, Medicines, Follow-up advice, Consultation Notes) to machine-readable text and link the same with the patient medical record.

Voice bot/chatbot - IHMS 2.0 should integrate with voice-based chat services deployed in Raj Digital Stack and provide voice-based chat services in its mobile apps.

PACS - PACS (picture archiving and communication system) is a medical imaging technology used primarily in healthcare organizations to securely store and digitally transmit electronic images and clinically-relevant reports. The use of PACS eliminates the need to manually file and store, retrieve and send sensitive information, films and reports. Instead, medical documentation and images can be securely housed in off-site servers and safely accessed essentially from anywhere in the world using PACS software, workstations and mobile devices. It is expected that all PACS system deployed in local state and private healthcare facilities will push a copy of the imaging study linked to a patient record to the centralized PACS repository. IHMS 2.0 will integrate with the centralized PACS repository to access the imaging studies of a patient.

Pehchan Portal - Pehchan portal is responsible for the registration of births and deaths and marriages in the state is being done through the identity portal. Major private hospitals are also reporting online on the identification portal of birth and death incidents through this designated portal. All the work related to registration in the state such as revision of registration and language change, registration of adopted child, registration of twins etc. are done through the portal itself. Application of birth, death and marriages can be done online on the portal or at e-Mitra kiosks which are then available for certification and collection. IHMS2.0 should provide integration with Pehchan portal for seamless transfer of records related to birth and death.

PDC (Physical Disability Certificate)- To keep track of individuals with disabilities to provide them with the necessary assistance when and where applicable. IHMS 2.0 shall help in authentication of such patients with diagnosis and push the data to the desired portal for verification and certification.

SDG (Silicosis Disbursement Grant) – This portal is responsible for the disbursement of Grant to patients with Silicosis through Janaadhar Platform. Through integration with IHMS 2.0, such patients will be identified and verified for obtaining benefits from the Government.

SOTTO (State Organ and Tissue Transplant Organization) - This online secure registry is for organ recipients waiting for organ transplantation from empanelled hospitals in the state of Rajasthan. This registry also has an interfacing with NOTTO and ROTTO to identify availability of organs and recipients in the regional, state and national level. Integration of IHMS 2.0 with this portal shall help in maintaining a smooth workflow of organ transplantation.

IMPACT- IMPACT is a portal to monitor the PCPNDT program in the state of Rajasthan. It is used to track the cases of pregnant women registered for sonography at any of the registered sonography centres of the state. Tracking of procedures advised by gynaecologists including indication of MTP through this portal. It monitors the implementation of PCPNDT Act. IHMS 2.0 will integrate with the IMPACT portal to transmit records pertaining to compliance of PCPNDT program.

E-Aushadhi – This portal is responsible of the management of stock of various drugs, sutures and surgical items required by different drug warehouses. IHMS 2.0 will integrate with e-Aushadhi to manage the movement of stock within the system. All stock indents raised from

the central store will be sent to e-Aushadhi for fulfilment and receipt of goods received will be updated in IHMS2.0.

E-Upkaran- This portal is responsible for the management and maintenance of equipment from one single platform. It is also responsible for the control and monitoring of complaints effectively. Online tracking of equipment & its usage is done here. Purchase, supply and inventory management of biomedical equipment is also done. IHMS 2.0 will integrate with e-Upkaran to manage the procurement of assets.

Chiranjeevi yojana - The Rajasthan Government has created the Rajasthan Mukhya Mantri Chiranjeevi Swasthya Bima Yojana in order to provide Rupees 500000 to each family of the state. The start of the registration for people under the scheme is announced by the Chief Minister of the Rajasthan state in the budget for the financial years 2021. and 2022. Rajasthan is the first-ever state to provide health insurance to all of its residents. Each family will get an annual health insurance coverage of Rupees 500000 under this scheme. Patients are already getting the benefit of free medical treatment in OPD services under the Chief Minister Free Medicine And Screen. Heavy expenses which are incurred on treatment will be covered under the development of the Chiranjeevi Yojana. IHMS 2.0 will integrate with Chiranjeevi Yojana application to manage the claims of patients registered under the Chiranjeevi Yojana scheme.

IAP - Provide comprehensive Emergency Response Services to the people of Rajasthan. Provide round the clock pre-hospital emergency transportation care (ambulance) services across the state. Availability of ambulances for critical patients; reliable assured and affordable transport for pregnant women and new-born/infants under 104,108, Mamata Express emergency calling facility.- The mobile app provided as part of IHMS2.0 should have the functionality to place a request for emergency ambulance services. The GPS location of the caller should be sent automatically to the IAP application.

RGHS- RGHS is a beneficial health insurance plan for beneficiary category including Ministers, MLAs, ex-MLAs, All India Services, Serving and Retired employees of State Government and of State Autonomous Bodies. All RGHS beneficiary will have access to the cashless medical facility based on the Central Government Health Scheme (CGHS) package rates as per the applicable medical rules for the respective RGHS category. IHMS 2.0 will provide integration with RGHS application to manage the claims of patients registered under the RGHS scheme.

SaQsham- SaQsham is an online portal wherein nation-wide health centers and public health facilities can come up for national level certification. This portal has been developed for National Quality Assurance Programme under National Health Mission (NHM) with an objective of assuring Quality Services at Public Health Facilities, and also to improve it further for enhanced users' experience at the facilities. This provides a step-by-step approach for conducting Quality assessment by providing a holistic view to QA assessors on methodology and scope of work. IHMS 2.0 will provide integration with SaQsham portal to exchange records related to quality assessments.

AB-HWC - Ayushman Bharat (AB) is an attempt to move from a selective approach to health care to deliver comprehensive range of services spanning preventive, promotive, curative, rehabilitative and palliative care. It has two components which are complementary to each other. Under its first component, 1,50,000 Health & Wellness Centres (HWCs) will be created to deliver Comprehensive Primary Health Care, that is universal and free to users, with a focus on wellness and the delivery of an expanded range of services closer to the community. The second component is the Pradhan Mantri Jan Arogya Yojana (PM-JAY) which provides health insurance cover of Rs. 5 lakhs per year to over 10 crore poor and vulnerable families for

seeking secondary and tertiary care.HWC are envisaged to deliver expanded range services that go beyond Maternal and child health care services to include care for non -communicable diseases, palliative and rehabilitative care, Oral, Eye and ENT care, mental health and first level care for emergencies and trauma, including free essential drugs and diagnostic services. IHMS 2.0 will provide integration with AB-HWC portal to exchange records as mandated by the AW-HWC portal.

E-Raktkosh – This is a portal responsible for Blood Stock availability (Safe and Adequate Blood Supplies), Reduced Turnaround Time, Preventing Wastage of Blood, Restrict Professional Donor, Networking of Blood Banks and maintains Donor Repository. IHMS 2.0 will provide integration facility with e-Raktkosh to exchange records pertaining to the current stock of blood products managed by the health facility.

eVin- eVin is a system that digitizes the entire vaccine stock management, their logistics and temperature tracking at all levels of vaccine storage – from national to the sub-district. This enables program managers to have real time view of the vaccine stock position and their storage temperature across all the cold chain points providing a detailed overview of the vaccine cold chain logistics system across the entire country. IHMS 2.0 will provide integration with eVin portal to exchange the relevant records as mandated by eVin portal.

RBSK – RBSK is a program dedicated to the screening of children from birth to 18 yrs of age for 4Ds (Defect at birth, Diseases, Deficiencies and Developmental delays). It deals with early detection, free treatment, and management of 40 health conditions (from screening to providing tertiary level care). Follow up care at district level is done. It facilitates screening in two phases:.0-6 yrs.- enrolled in Anganwadi Centres while 6-18 yrs- enrolled in Government Schools. Comprehensive care to all the children in the community is provided.

SNCU-SNCU is one of the interventions that is helping to ensure a safe passage through the first thousand days of his or her life for more children in India. SNCU is 12-20 bedded unit and requires 4 trained doctors and 10-12 nurses for round the clock services for babies needing special care in the first 28 days from birth. IHMS 2.0 will provide integration with SNCU portal to exchange records as mandated by the SNCU program.

IHIP- Decentralized State based surveillance system for epidemic prone diseases to detect the early warning signals, so that timely and effective public health actions can be initiated in response to health challenges in the country at the Districts, State and National level. Detect and respond to disease outbreaks quickly. IHMS 2.0 will provide integration with IHIP portal to exchange records as mandated by the IHIP system.

FPLMIS – It stands for family planning logistics management information system. It provides access to stock information from National level to ASHA level. Auto forecasting of contraceptives. SMS alerts for key indicators. Auto generated reports for program review is also done. IHMS 2.0 will provide integration with FPLIMS portal to exchange records as mandated by the FPLIMS system.

NI-KSHAY- Register cases under their care, order various types of tests from Labs across the country, record treatment details, monitor treatment adherence and to transfer cases between care providers. It also functions as the National TB Surveillance System and enables reporting of various surveillance data to the Government of India. IHMS 2.0 will provide integration with NI-KSHAY portal to exchange records as mandated by the NI-KSHAY system.

NPNCD - Health promotion including, IEC / BCC / SBCC. Screening and case detection including Population-based screening. Management of NCDs. Integration with other programmes. Monitoring & Evaluation. Capacity Building and Public Private Partnership.

IHMS 2.0 will provide integration with NPNCD portal to exchange records as mandated by the NPCD system.

uVin – It is a Single source of information for immunization services, updating vaccination status, delivery outcome, planning of RI sessions, and reports like antigen-wise coverage, etc. IHMS 2.0 will provide integration with uVin portal to exchange records as mandated by the uVin program.

Command control centre for Disaster management - By embedding Disaster Risk Reduction (DRR) elements, the CCCD program aims to boost the resilience and capacity of communities and make them disaster-smart and risk-informed. DRR aims to reduce and manage existing and prevent new risks, all contributing to the achievement of sustainable development. IHMS 2.0 will provide integration with CCCD portal to exchange records as mandated by the CCCD portal.

Health Management Information System (HMIS) - This portal will be a gateway to wealth of information regarding the health indicators of India. The information available on this portal is derived data from data uploaded by the States/ UTs. HMIS data specifically designed to support planning, management, and decision making based on Grading of facilities, various indicators at Block, District at State as well as National Level. IHMS 2.0 will provide integration with HMIS portal to exchange records as mandated by the HMIS program.

Community Health Application

The community health delivery services in the state of Rajasthan are being managed by the use of two (2) software applications namely PCTS and CHIP application. To achieve integration and a unified system, it is intended to merge the functionalities of the 2 applications into a single application and have a single application to govern the functions of the community health delivery services. IHMS 2.0 will provide two-way API-based integration with the identified community health application and provide seamless access of patient demographics, visit information and EHR records with the community health application.

IoT Gateway Devices – IoT Gateway servers will be deployed at healthcare facilities to collect telemetry data from medical / non-medical devices installed at point-of-care locations. IHMS 2.0 will be required to integrate with the IoT gateway servers and store the relevant information in its servers linked to the EHR of the patient.

Note: Web Services / APIs for integration of the above-mentioned software applications will be provided by RISL to the Selected Bidder and the Selected Bidder would be required to consume / absorb these services into the iHMS 2.0 Software Solution.

The list of applications / systems shown above does not represent the exhaustive list of systems and applications that have to be integrated with IHMS 2.0. Any new system / device / applications that are identified as not included in the above list during the SRS study by the selected Bidder shall require to be integrated with IHMS2.0.

Functional Requirements of Mobile Application
Patient, Health Facility User

The mobile application should be built on android, iOS, and windows platform. Mobile Application shall be role-based and shall have following major (minimum) functionalities. Any additional functionalities that are discovered during the SRS study by the selected Bidder shall become part of the base functionality of the mobile app.

S No	User Category	Minimum Features
1	Citizen / patient	▪ Scheduling a Doctor Appointment (In-person or Teleconsultation) ▪ Registration of Self and Family Members ▪ Search for List of Hospitals based on location, availability of beds, availability of specialties/doctor, availability of specialty and super specialty doctors (including OPD Roster inquiry), availability of facilities for laboratory and radiological tests, availability of ambulance, real time availability of different blood groups and components, etc. ▪ Access to visit information of the patient at various health facilities (government and private) ▪ Access to complete Electronic Health Record of the patient ▪ Facility to lodge grievance against any service of the healthcare facility ▪ Facility to pay for any payable services using UPI payment system ▪ Facility to register for organ donation or body donation upon death ▪ Any other features that are identified during SRS study by the selected Bidder
2	Health Facility User	▪ Operational Staff o View OP Appointments Scheduled of all doctors in the health facility o Schedule OP Appointments for doctors on behalf of patients o Analytics and Dashboards relevant to the unit / department o Receive alerts / notifications on pending tasks / activities o Any other features that are identified during SRS study by the selected Bidder ▪ Doctors o View daily OPD appointment schedule o View the EMR of each patient o Create new EMR records (assessment, orders, diagnosis, treatment, follow-up advice, Prescription, etc) for patient in OP and IP o Create CPOE entries for Lab Orders, Radiology Orders, Procedure Orders, Admission Requests, etc

S No	User Category	Minimum Features
		o View IP list of patients admitted in Wards, ICU o View OT surgery list, if applicable o Analytics and Dashboards relevant to the unit / department o Any other features that are identified during SRS study by the selected Bidder ▪ Nursing Staff o For OP Services ▪ View daily OPD appointment schedule of assigned clinical department ▪ Create new EMR records for vitals, nursing assessment, etc. ▪ View daily inventory of stock assigned to the nursing unit ▪ Create indents for stock replacement ▪ Analytics and Dashboards relevant to the unit ▪ Any other features identified during the SRS study by the selected bidder o For IP Services ▪ View List of admitted patients in the assigned ward/ICU ▪ Conduct Intake of patients for new admission to ward / ICU ▪ Create EMR records for vitals, daily progress notes, daily nursing assessments, medicine administration, etc ▪ Ability to transfer patients to another ward, OT, Procedures, etc ▪ Coordinate activities for discharge of patient from a ward/ICU ▪ Analytics and Dashboards relevant to the unit ▪ Any other features that are identified during the SRS study by the selected Bidder ▪ Technical Staff (Laboratory Staff, Radiology Staff, Pharmacy Staff) o Manage the workflows of the respective departments o View daily caseload o Perform activities on the daily caseload to process / approve the requests o View TAT reports to monitor the performance of the unit / department o Analytics and Dashboards relevant to the unit / department o Any other features that are identified during the SRS study by the selected Bidder ▪ Administrative Staff o Analytics and Dashboards relevant to the organization o View reports related to Quality Assurance Programs

S No	User Category	Minimum Features
		o Health Facility License Management o Reports related to managing the operational and clinical performance of the health facility o Any other features that are identified during the SRS study by the selected Bidder

Student, Faculty, Administrative User

The mobile application should be built on android, iOS, and windows platform. Mobile Application shall be role-based and shall have following minimum functionalities. Any additional functionalities that are discovered during the SRS study by the selected Bidder shall become part of the base functionality of the mobile app.

S No	User Category	Minimum Features
1	Student	▪ View Academic Calendar ▪ View Daily Classroom Schedule ▪ Access Learning Management system ▪ View Attendance details ▪ View Assignments assigned ▪ Ability to submit assignment reports ▪ View Gradebook ▪ View hostel room availability and create request for hostel accommodation ▪ Access library resources and subscribe to permitted online journals and digital subscriptions ▪ View outstanding fees, payment receipts, make fee / other service payments using UPI ▪ Access to grievance portal for raising any grievances ▪ Provision to create leave request ▪ Analytics and Dashboards for identified KPIs of the student ▪ Any other features that are identified during the SRS study by the selected Bidder
2	Faculty	▪ View Academic calendar ▪ Access Learning Management System and upload / link learning resources to assigned courses ▪ View Leave Management System and create leave request ▪ Create Assignments and link to assigned courses ▪ Create Grading tests and link to assigned courses ▪ Assess and grade assignment submissions of students ▪ Manage thesis projects of students enrolled as mentees for post-graduate courses ▪ Manage workflows of research projects managed by faculty ▪ Analytics and Dashboards for identified KPIs of the faculty

S No	User Category	Minimum Features
		▪ Any other features that are identified during the SRS study by the selected Bidder
3	College Administrative Staff	▪ Analytics and Dashboards for identified KPIs of the organization ▪ Any other features that are identified during the SRS study by the selected Bidder

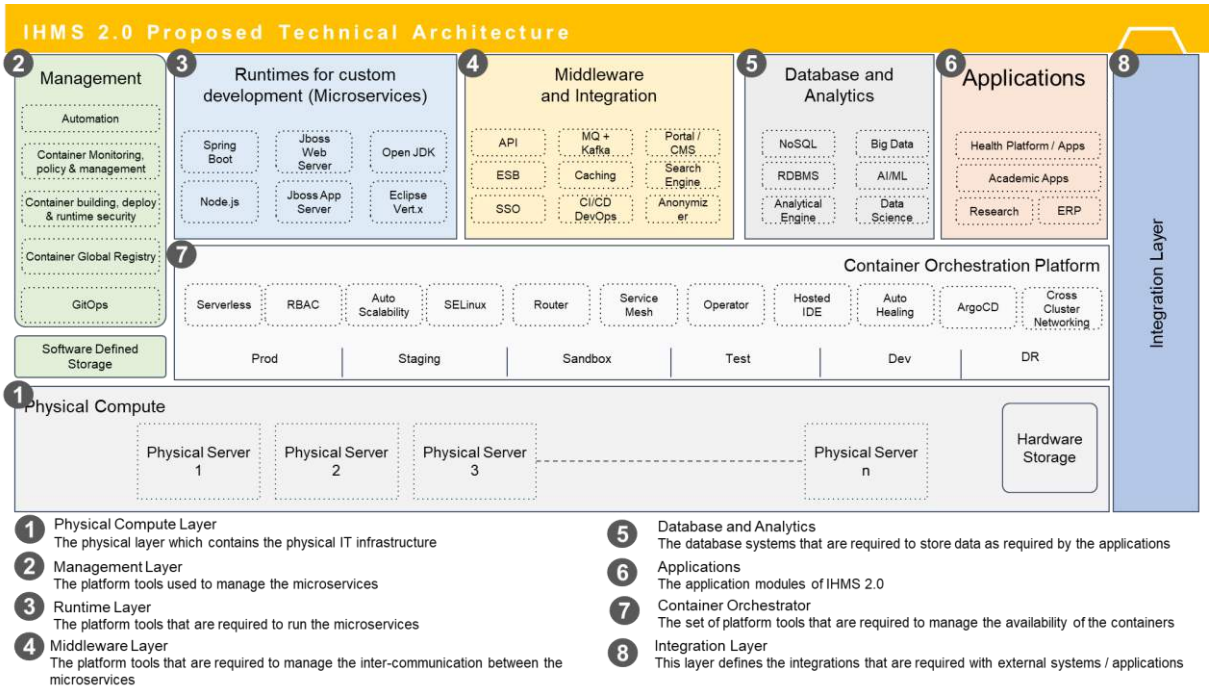
Non-Functional Requirement of Mobile Application for Patient, Health Facility User, Student, Faculty and Administrative Staff

An indicative requirement for the non-functional requirements of the mobile application for Patient, Health Facility User, Student, Faculty and Administrative Staff provided as part of IHMS2.0

- Design the User Interface and User Experience to ensure that the service is user friendly.
- Structure overall content to make it screen reader friendly.
- Design of consistent visual elements and Mobile Apps architecture that is scalable and expandable.
- Resolution independent Mobile Apps that will automatically expand / compress itself as per the screen resolution.
- Having some way for users to provide feedback on the mobile apps, a quick way to report bugs or errors.
- Integration with existing systems in governmental entities like SSO etc.
- The developed Mobile app should consider the performance measures in terms of memory, CPU consumption.
- The user experience must be highly intuitive with push notifications and smooth transitions between the Mobile App and 3rd party payment services.
- The solution architecture should be able to address the future scalability requirements, in terms of both application (to add new services) and infrastructure and backend (adding more users).
- The solution architecture should be highly available and in harmony with the existing backend systems.
- The solution should enforce network level security, traffic to be encrypted using secured connectivity.
- The mobile app should use token-based authentication that is integrated with the existing systems authentication services like Raj SSO.
- The App should provide an update feature in case of newly published version.

Proposed Technical Architecture of IHMS 2.0 Solution

The proposed technical architecture of IHMS 2.0 is given below:



Non-functional Requirement of the IHMS 2.0 Web Application

An indicative (this is only an indicative and not an exhaustive list) requirement for the different modules for IHMS 2.0 is given below. Software solution will consist of different modules and shall have a n-Tier architecture broadly comprising of following layers:

Presentation layer:

It will provide a graphical way for users to interact with the application. This will be the layer comprising all input form and reports. This layer will be accessible through different devices like Desktops, Laptops and Mobile Devices. The User Interface should be screen responsive based on the devices used to view the screens. User interfaces are implemented using different technologies to render and format data for users and to acquire and validate data coming in from them. This interface will be designed on user role- based authentication. User interface of all modules will support Unicode based Bi-lingual versions (English and Hindi).

Business layer

It will facilitate communication between user interfaces and database through predefined business rules of application modules. This layer will provide middle ware supported application and tools. Business layer will comprise of following components

Business Rules

It will define the business rules and support the business processes and workflow. This layer will automate the processes. Each module will have well-defined business logic and components for implementation of business rules and performance of business tasks.

Microservices

Microservices will provide a standard means of interoperating between different software applications / modules. Microservices share business logic, data and processes through an interface.

Database Layer

The database abstraction layer is an application programming interface which unifies communication between user interface(s) and business layer(s). It will act on the queries submitted though business rule / layer defined in the middleware and presentation layer. The application and the services will be accessing data stored at RSDC.

Additionally, the IHMS 2.0 solution shall have following features:

Content Management

The developed Web Portal of IHMS 2.0 shall be a dynamic portal providing dynamic features for uploading / managing the content using the stack mentioned in this RFP.

Document Management

The IHMS 2.0 Web Application shall provide comprehensive functionality for searching, tagging of documents using e-Vault. The solution shall have facility for uploading documents, photos, videos, etc.

Both Web Application and Web Portal will have a user access security layer.

Data Migration Plan and Strategy
The select bidder is expected to deliver the strategy for data migration which shall clearly lay out roadmap defining guidelines and principles for migration, detailed migration method, type of data to be migrated along with category, source for data migration and mode of data migration.

Guidelines for Data Migration

Below are guidelines and principles which shall be adhered to while undertaking process of data migration. These guidelines and principles are based on proven results, best practices, and past project experiences. Estimation in terms of scope, efforts and volume of data shall be undertaken to develop data migration plan

- Develop guideline and policy for migration of the manual record
    - Type of records required to be migrated
    - Identification of the critical information for migration
- The plan shall clearly detail out the migration plan for data stored in physical records, applications, or any other formats
- Tools for data migration like data integration for continuous data exchange or ETL (Extract, Transform, Load) for single migration shall be used
- System wise data migration plan shall be prepared
- Formats for collection of legacy data shall be defined
- Foreseeable risk and challenges with respect to data migration shall be predetermined, evaluated and possible mitigation solution shall be defined
- Confidential data (if any) shall be documented or migrated under the supervision of the concerned authority
- Due precaution shall be taken to return data (in case of physical records) to the relevant institute in the same condition/state. Penalty shall be charged for any damage
- A proper repository of data to be migrated shall be maintained
- A backup file of data to be migrated shall be maintained in 2-3 copies on different systems.
- A mapping exercise to identify gaps between the existing data fields against data fields in the new systems shall be undertaken and appropriate measure will be proposed to

label or notify it. For example, data fields missing in the new systems shall be labelled as 0 or not available or highlight in in different colour/font.

- Need based manual data entry through DEOs shall be undertaken like for Service Books are available in Physical copy and may need to be digitized for migrating to new application
- Data cleaning exercise to fix any incorrect value or further improvise the information shall be undertaken
- Continuous and regular checks shall be done before during and after data migration to maintain the quality of data in terms of Completeness (all required data fields are filled), Timelines (how up to date data), Reliability (same data value from two /reference sources) and Accuracy (correct data is captured)
- Trial data migration shall be performed before the final migration. Any risk, challenges or unforeseen scenarios shall be documented
- Reports and other documents showing the progress, output of the migration shall be well documented and shared with relevant stakeholders
- Data shall be migrated into the new systems completely before the 'Go Live' or as directed by the competent authority.

Data Type for Migration

As on date, data for migration into the new IHMS 2.0 exists in below formats:

- Electronic Records: Majority of the hospital-related records are directly collected in the system and stored onto the existing applications deployed in GoR. This is referred to as the Primary Data Records for migration purposes.
- Physical Records: Records maintained by medical college for student administration and research projects are stored in physical formats like forms, registers, files, certificates, etc. This shall also include any medical records stored in physical formats. This is referred to as Secondary Data Records for migration purposes.

Depending on the above data types, different categories of data is available that needs to be migrated. RISL shall provide the details of the quantities of records present in existing applications / physical records that would require to be migrated to the new IHMS 2.0.

The following table gives an indicative list of records that would be required to be migrated from the existing application(s) / physical records to IHMS 2.0

#	Functional Area	Category of data	Details
1	Health Services	Patient Demographic details	Demographic Details of patients such as Personal identification details, etc to be migrated from existing system.
		Clinical Record	Lab /Investigation Reports, OPD and IPD case sheets, Discharge Summary, Diagnostics Reports, etc.
2	Employee Information	Employee Record	Details documented in the Employee Service Book, Salary, Appraisal, Transfers / Leaves, Training details, etc.

#	Functional Area	Category of data	Details
		Administrative Record	Details such as office orders, bills, POs, circulars, accreditation certificates, etc.
3	Academics	Students Data	Details of Students, Course enrolled for, Academic Details etc
		Professor/Lecturer notes	Reading material for courses, Lecture Notes, Reference Reading links
4	Research	Research Proposal (Ongoing)	Details of ongoing research proposals
		Database of Research (Completed)	Records of completed research proposals
		Manuscript of Thesis	Manuscript of thesis submitted
		Employee Record	Details documented in Employee records of Research assistants and other staff
		Administrative Record	Details of administrative decisions

The role of the Selected Bidder would be to migrate the data from these existing applications (like IHMS 1.0, et. al) and physical records into IHMS 2.0. Once the data has been migrated and IHMS2.0 has been implemented, iHMS 2.0 would be the application that is used by all participating hospitals and those legacy applications might thereafter be declared redundant.

Standards and Frameworks to be adopted by IHMS 2.0 Solution

Health Standards

To ensure seamless and boundaryless interoperability of health applications within the state of Rajasthan and India, it is proposed to adopt the standards and guidelines recommended by Ayushman Bharat Digital Mission (ABDM), 2019 and Electronic Health Record (EHR) Standards of India 2016, issued by Ministry of Health & Family Welfare, GoI and other standards adopted by the healthcare industry for standardization of data elements.

The standards and guidelines relevant to IHMS 2.0 solution for various aspects are outlined below and covers aspects of identification, clinical terminologies, disease coding, investigations, interoperability, data privacy and security, patient safety, quality of services, access management, etc. Adoption of these standards shall standardize process of data collection, storage, access, presentation, and exchange at all levels of service delivery in a meaningful way.

Based on current best industry standards, following standards and guidelines are recommended to be adopted in IHMS 2.0 solution.

Recommended Scope of Standards	Purpose	Standards / Guidelines	Application within IHMS 2.0
Identification & Demographics	Person Identification and Land Region Codification	The Metadata and Data Standards (MDDS)	It will enable capturing of demographic information of patients, health institutes, etc through a unique identifier in a defined format which will be shared electronically between IHMS2.0 Solution and other external health system in a standardized manner.
Syntactic Interoperability (Messaging / Document standards)	Structured Clinical Information Exchange	FHIR Release 4	It will enable information centric workflows. This will be used to exchange health care information electronically between IHMS2.0 Solution services and other external health system to support clinical decision.
	Imaging	DICOM PS3.0-2015c	It will enable image centric workflows in file structure and communication protocol. It will be used to retrieve store, print, and transmit medical images between IHMS 2.0 Solution and other external health system
Semantic Interoperability (Code sets/Vocabularies)	Disease Coding System	WHO ICD 10/11	It will allow IHMS 2.0 practitioners to electronically classify diseases, other health problems and vitals related to morbidity in consistent manner across health facilities of the state using IHMS 2.0 Solution
	Lab Coding System	LOINC	This will allow for a standardized way to identify & exchange laboratory observations in consistent manner across health facilities of the state using IHMS 2.0 Solution
	Still Images / Documents Audio / Video	Still Image: JPEG Document/ Scan: PDF A-2	It will enable health facilities of the state using IHMS 2.0 solution to store, access, and

Recommended Scope of Standards	Purpose	Standards / Guidelines	Application within IHMS 2.0
		Audio: MP3 / OGG Video: MP4 / MOV (Embedded as binary content in relevant FHIR resource)	store health information in various formats/types.
	Prescription	Pharmacy Practice Regulations, 2015 Notification No. 14-148/ 2012- PCI as specified by Pharmacy Council of India	Healthcare professionals of the state of Rajasthan across various health facilities using IHMS 2.0 Solution can digitally sign and issue a prescription to patient post consultation
E-Prescription	Consent Management	ISO/TS 17975:2015 Health Informatics (Principles and data requirements for consent in the collection, Use or Disclosure of personal health information)	It will allow an informed data sharing process between patient & healthcare professionals of the state about how personal health information is processed across health facilities using IHMS 2.0 Solution
Consent	Consent Framework	Electronic Consent Framework (Technology Specifications v1.1) with its subsequent revision(s) published by MeitY.	It will allow exchange of health information based on defined consent artefacts like owner of data, type of data fields, purpose of data access, digital signature, etc. across health facilities using IHMS 2.0 Solution
	Security	Digital Certificate, TLS / SSL, SHA-256, AES-256	It shall enable safe transmission of sensitive patient record over internet in encrypted format between IHMS 2.0 Solution and other external health system
Privacy & Security	Access Control	ISO 22600: 2014 Health informatics Privilege Management and Access Control (Part 1 through 3)	It will enable communication and use of health information between IHMS 2.0 Solution and other external health system based on privileges and access controls

Recommended Scope of Standards	Purpose	Standards / Guidelines	Application within IHMS 2.0
	Track amendments	ISO 27789:2013 Health informatics - Audit trails for Electronic Health Records	Through this, document history or trail for every health record will be maintained in terms of creation, access, amendments, etc. thus improving transparency across health facilities using IHMS 2.0 Solution
Audit Log	Safety of Electrical - Medical Equipment	IS/ISO/IEEE 11073 Health Informatics - Standards and related ISO standards for medical devices	It will ensure only medical equipment which like X rays, scans, etc. which have safety certification against physical, chemical and radiation hazard are used for patient care across health facilities using IHMS 2.0 Solution
Patient Safety & Data Quality	Standardization of Treatment /Care & Reporting	Standard Treatment Guidelines – STG, guidelines for COVID 19, etc.	It will improve treatment outcome at across centres and departments using IHMS 2.0 Solution by enabling health practitioners to follow and practise standardized treatment processes.
	Standardization of Treatment /Care & Reporting	Telemedicine Guidelines – released by NCISM & NCH	It will allow healthcare practitioners to deliver standardized health services via telemedicine by defining norms & protocols for consultation, diagnosis, informed consent, medical records, health advice, etc. across health facilities within the state using IHMS 2.0 Solution.

Application Specific Standards

- The Selected Bidder shall ensure that IHMS 2.0 conforms to open standards and shall adopt a modular approach. The solution should have strong robust integration between the core business solutions and the overall engine should have interoperability features with different systems and platforms and avoid any technology or technology provider lock-in.
- Specific OEM products may only be used when necessary to achieve scale, performance, and reliability. Every such OEM component / service / product /

framework / pre-existing product or work must be wrapped in a vendor neutral API so that at any time the OEM product can be replaced without affecting rest of the system

- The solution should conform to industry standards wherever applicable and should be applied to all aspects of the proposed solution and not limited to design, development, security, interoperability, mobility, testing, installation, and rollout.
- An indicative list of standards has been proposed below. However, the list is for reference purpose and is not to be treated as exhaustive.

Component / Application / System	**Prescribed Standard / framework (where applicable)**
Enterprise Architecture	Raj Digital Stack
Architecture of Education Lifecycle Management Module	NDEAR (National Digital Education Architecture)
Application security design and development	Open Web Application Security Project (OWASP) Top 10 Principles
Biometric framework BioAPI 2.0	ISO/IEC 19784-1:2005
Document Encryption	PKCS
Digital Preservation	ISO 14721: 2012
Digital Signature	RSA/ NIST Standards
Font standards for UNICODE data storage	ISO/IEC 14496-OFF (Open Font Format)
IFEG Technical Standards	WSDL 2.0
Information Access/Transfer Protocols	SOAP, REST, HTTP/HTTPS
Information Security	ISO 27001:2013
Interoperability	Web Services, Open standards
IT Infrastructure Management	ITIL / EITM
Mobility Standards	ISO 12812
Operations	ISO 9001
Operational Integrity & Security Management	ISO 27001, ISO 22301 (Latest)
Portal Development	W3C, GIGW
Project Documentation	IEEE/ISO/CMMi
Scanned documents TIFF	Resolution of 600x600 pixels
Service Management	ISO 20000:2018

Component / Application / System	Prescribed Standard / framework (where applicable)
Support for PKI based Authentication and Authorization	In accordance with IT Act 2000, as amended in 2008, using Digital Certificates issued by Certifying Authorities
Web Content Accessibility	WCAG 2.0
Workflow Design	WFMC/ BPM Standard

ABDM-Compliant Standards

The IHMS 2.0 solution shall adhere to the standards as specified by ABDM.

Below the are the minimum viable product guidelines for ABDM compliant HMIS/LIMS

Core ABDM Requirements	Requirements
Creation of ABHA (Health IDs)	Mandatory
Verification of ABHA (Health IDs)	Mandatory
Profile Sharing using QR Code	Mandatory
Health Records Sharing using QR Code	Mandatory
Is ABHA creation native to HMIS/LMIS System	Mandatory
Linking of Patient specific health record against a specific ABHA id.	Mandatory
Exchange of Health Records with other HMIS/LMIS / ABDM Compliant Solutions	Mandatory
View of Health Records generated in HMIS/LMIS or shared by other HMIS/LMIS	Mandatory
Cloud Based Storage (+ Disaster Recovery Plan)	Mandatory
Mobile App for access by patients	Mandatory
Mobile App for access by Doctors/Health professionals	Mandatory
Mobile App for access by Receptionist and other staff	Mandatory
Compliant with Set of Consent Manager and ABDM APIs	Mandatory
Upcoming Feature * Health Claim Exchange	To be mandated in the future

Core ABDM Requirements	Requirements
Upcoming Feature * Unified Health Interface – Teleconsultation	To be mandated in the future

Note: All features marked as “Suggested” is to be considered as “Mandatory” for IHMS 2.0

Core Functionalities / Functional Modules	Requirements
OPD Registration	Mandatory
Laboratory Reports	Mandatory
Billing	Mandatory
Discharge Summary	Mandatory
OP Consultation	Mandatory
IPD	Mandatory
OT	Mandatory
Pharmacy	Mandatory
Inventory	Mandatory
Dashboard for public health purposes	Mandatory
Speech to Text and Text to Speech Novel methods of data entry (smart pen, paper, voice commands, etc.)	Suggested
Interface with Medical device using standards	Mandatory
Artificial Intelligence (use of AI/ML for data entry, collection for research purposes)	Suggested
Multilingual	Suggested

Note: All features marked as “Suggested” is to be considered as “Mandatory” for IHMS 2.0

Compliance Standards	Requirements
Standards for Coding: SNOMED CT (HMIS)	To be mandated in future
WHO (ICD) (HMIS) -Optional (Map from SNOMED may be used for reporting)	To be mandated in future

Compliance Standards	Requirements
LOINC (LMIS)	To be mandated in future
Standards for Clinical Information Exchange: ABDM supported FHIR (R4) Standard and Profiles - 'Unstructured' format -	Mandatory
Standards for Clinical Information Exchange: ABDM supported FHIR (R4) Standard and Profiles - 'Structured' format	Mandatory
Capturing of Data Still Image (JPEG) PDF A2 Format	Mandatory
Capturing of Data (Audio/ Videos) Audio (MP3/ OGG Format) Video (MP4/MOV Format)	Mandatory
Interface with DICOM Compliant RIS (Radiology Information System) DICOM compliant files/reports DICOM Compliant PACS Interface, if separate RIS	Mandatory
Interface with LOINC Compliant LIS (Laboratory Information System) if separate LIS ▸ HL7 v2.8.2 based order management and reporting. ▸ LOINC codes for tests and observations	Suggested
Privacy and Security Standards: ▸ Alignment with Health Data Management Policy ▸ Access control ▸ Transport Encryption ▸ Data Encryption (at rest) ▸ Audit trail	Mandatory
Compliance with ISO 18308:2011 Standards (Requirements of electronic Health Record Architecture)	Suggested
Compliance with ISO/HL7 10781:2015 Standard (Health Informatics — HL7 Electronic Health Records-System Functional Model, Release 2 (EHR FM))	Mandatory

Note: All features marked as "**Suggested**" and "**To be mandated in future**" is to be considered as "**Mandatory**" for IHMS 2.0.

Data Analytics and Dashboards

Real Time Management Information System (MIS) and Dashboard:

Each user of the IHMS 2.0 solution should have a customized dashboard view with the following features-

- Activities pending
- Activities assigned
- Analytics Reports
- Any other features identified during the SRS study by the selected bidder

An indicative list of the KPIs is listed below. This list shall be reviewed during the SRS study and enhanced according to the requirements of the end-users.

- Overall performance of hospital
- Outpatient Statistics – number, age and gender distribution, geographical area of residence, speciality
- Inpatient Statistics – number, age and gender distribution, geographical area of residence, speciality
- Facility to generate reports for Ward-wise day and night status of patients
- Bed Occupancy Rate – overall and by speciality
- Average Length of Stay – overall and by speciality
- Turnover Interval – overall and by speciality
- Surgery statistics
- Major, minor, and total operations – overall and by speciality
- Number of Medico-Legal Cases
- Referrals – overall and by specialty
- Mortality Rate of Patients – overall and by specialty / unit / ward
- Maternal Mortality Rate
- Infant Mortality Rate
- Cause of death – overall and by specialty
- Net Death Rate of Hospital – overall and by specialty
- Performance of RMRS
- Revenue generation through User Charges
- Expenditure incurred by RMRS
- Expenditure incurred on patients exempt from User Charges
- Facility to generate real-time MIS report on different functional areas of iHMS
- Any other descriptive and predictive KPIs that are identified during the SRS study by the selected Bidder

Software Application for the data visualization

The IHMS 2.0 application shall integrate with SAS Analytics Application deployed at RSDL. IHMS 2.0 shall export identified and required data in real-time using ETL (Extract, Transform and Load) to the SAS Analytics application. The various data models and visualization shall be created in the SAS Analytics Application with role-based access.

IHMS 2.0 shall display the data visualizations within IHMS 2.0 by integrating the visualization APIs of SAS Analytics Application. RISL shall provide the necessary APIs to provide integration with SAS Application.

System Management and User Management

The IHMS 2.0 Software solution should be accessible to

- Office user at head office with a user role
- Any other designated and authorized by DHFW / ME Dept

User Management

The system should allow (admin user) creation and management of office user with relevant details by using the SSO id of the user from RajSSO.

The system should provide facility to block or unblock any office user within IHMS 2.0

The system should allow admin user to create/modify user and roles and privileges for a selected user.

Enrolment of Health Facility Institution in IHMS 2.0

The Health Facility Registry Master is a comprehensive repository of registered and verified healthcare facilities to deliver modern healthcare services in the state of Rajasthan. It includes government and private healthcare facilities. including hospitals, clinics, diagnostic laboratories and imaging centres, pharmacies, etc. The system allows a health facility to be registered on the system which can then be listed and function within the application.

IHMS2.0 should integrate with RajMaster using APIs to fetch the details of an enrolled health facility for the purpose of reference in the IHMS 2.0 ecosystem. It should also facilitate for reverse population of Health Facility Registry from IHMS2.0 for any updates to the base information. To ensure optimal performance in retrieval speeds for the end-user, it is recommended that IHMS 2.0 may cache a local copy of the master data and be in sync with the master data maintained in RajMaster.

Enrolment of a Health Professional in a health facility

The Health Professional Registry Master is a comprehensive repository of registered and verified practitioners to deliver modern healthcare services in the state of Rajasthan. It includes health professionals employed by government and private health facilities.

IHMS 2.0 should integrate with RajMaster using APIs to fetch the details of an enrolled health professional for the purpose of reference in the IHMS 2.0 ecosystem. It should also facilitate for reverse population of Health Professional Registry from IHMS2.0 for any updates to the base information. To ensure optimal performance in retrieval speeds for the end-user, it is recommended that IHMS 2.0 may cache a local copy of the master data and be in sync with the master data maintained in RajMaster.

Designation Master

The system should have facility to create new designation

User Role

The system should provide facility to create user role as per the follows

- Office user at head office with a user role
    - Principal Secretary, DHFW
    - Joint / Special Secretary, DHFW
    - Managing Director, Rajasthan Medical Services Corporation

    - Mission Director, National Health Mission
    - Additional Mission Director, National Health Mission
    - Director (Public Health) / Director (RCH) / Director (AIDS)
    - Additional Director (Hospital Administration)
    - State Programme Manager, National Health Mission
    - Demography and Evaluation Officer and Statistical Officers, Directorate of Medical, Health and Family Welfare Services
- Office staff at Office of Joint Director (Medical & Medical) (Zone)
    - Joint Director (M&H)
    - Deputy Director (M&H)
- Office staff at Office of Chief Medical & Health Officer
    - Chief Medical & Health Officer
    - Deputy Chief Medical & Health Officer (Health)
    - Deputy Chief Medical & Health Officer (Family Welfare)
- Office staff at government hospital
    - Principal & Controller, Medical College with which the hospital is attached, where applicable
    - Medical Superintendent / Principal Medical Officer
    - Nodal Officer
    - Operators at Enquiry Counters
    - Operators at Registration Counters
    - Operators in Emergency OPD
    - Doctors (in OPD / Emergency / Wards / Operation Theatres)
    - Operators / Nursing Staff in Inpatient Wards
    - Operators in Blood Bank
    - Operators at Pharmacy Counter
    - Operators at Investigations Registration Counter
    - Operators in Departments conducting Laboratory Investigations
    - Operators in Radiology Department (for X-Ray, Ultrasound, MRI, CT scan, etc)
    - Operators and doctors in Echocardiography / ECG Labs
    - Operators in Wellness and Screening Clinics
    - Operators and doctors in Telemedicine Unit – at Specialist End and at Patient End
    - Operators in different sections of the hospital
    - Operators at Billing Counter
    - Nursing Superintendent
    - Dealing Assistant, Rajasthan Medicare Relief Society
    - Operators in Mortuary / Medicolegal Section
    - Operators in other sections of the hospitals (list to be collected as part of SRS from Department of Medical, Health and Family Welfare)
- Applicant
- Facility Users of private healthcare facilities
- Any other as specified by DHFW
- Common citizen who will be able to view his / her e-Health Card based on his / her Jan Aadhaar / Aadhaar Card after due verification

Assign Role to user

The system should allow system to assign user role to each user as per required privileges

Additional Requirements

System Wide Functionalities

- Web Application and Web Portal shall be modular in design and shall be designed using modular and reusable programming techniques for ease of maintenance.
- Web Application and Web Portal shall have the capability to format output to support HTML, XML, text for data exchange/integration with various entities involved in the process.
- Web Application and Web Portal shall be designed to permit easy insertion of new modules and new enhancements.
- Web Application and Web Portal shall have the capability to complete all requests (e.g., store, retrieve, update, etc.) without any data loss
- Web Application and Web Portal shall maintain an audit log in of each transaction
- Web Application and Web Portal shall have the capability to define and modify Client's access privileges.
- Web Application and Web Portal shall use open systems, standard-based architecture to meet functional requirements and to inter-operate with existing information systems.
- Data inputs to the Web Application and Web Portal shall be validated prior to being processed
- Input data shall be validated for out-of-range values, missing or incomplete data, and unauthorized or inconsistent control data.
- Web Application shall prevent unauthorized users from accessing the system.
- Registered users in Web Portal and Web Application shall be allowed to log-on only to those functions which they are authorized to access and use.
- The logon process shall deny access based on the authentication message received from Raj SSO application.
- The password management system shall include non-display of the password when being entered
- As the users are authenticated by RajSSO application, the system shall not store the password of the user in the system but will store the user-id for audit trail purposes.
- Web Application and Web Portal shall have the capability to search and analyze payment transactions for enforcement purposes
- The Software solution shall be capable of generating event notifications and interfacing with E-mail system and must support e-mail triggers as part of the solution's workflow.
- The product/project/application should not be specific hardware dependent.
- Audit trail should be maintained, all deleted & edited records should be traceable and copy of all editions/ deletions should be available. The audit trail should be preserved in securely and No user other than authorized should be allowed to modify audit record.
- Software solution shall maintain the life cycle of all the contents. The functionality should provide at least two features for lifecycle automation: (a) The ability to conduct scheduled releases of content and (b) The ability to set expiration date for a content element. Both automated processes ensure that content is published and expired on time, without manual intervention. CMS shall also provide facility for archival of historical records.

Proposed Deployment Architecture

- The IHMS 2.0 Software solution shall be deployed at RSDC. Selected Bidder shall deploy iHMS on middleware provided by RSDC to meet the functional requirements of IHMS 2.0.
- Selected Bidder may be asked to deploy the Web Application, Mobile Application and Web Portal on RSDC cloud if the same is operational.

- The traffic from all hospitals using Integrated HMS and other points like e-Mitra kiosks, etc would arrive at the central site i.e. RSDC, Jaipur. Sufficient internet bandwidth will be provided by RISL at RSDC, Jaipur for the Web/ Application Server access by the department officials and citizens.
- DHFW shall be connecting RSDC, its Head office and its hospitals through sufficient WAN connectivity (preferably VPN). All the routing/ switching hardware and LAN at offices shall be done by DHFW.

Proposed Security Architecture

- Envisaged security architecture for the IHMS 2.0 Software solution is provided below:
    - User Level Security: Restricted areas of the application should only be accessible through pre-defined user access rights.
    - Developed Software solution should be deployed only on HTTPS (5 128-bit SSL certificate to be deployed by the Selected Bidder on the Servers for the entire project duration)
    - Application-Level Security: Application shall have Role based access, encryption of user credentials and storing of user credentials for users in separate repositories.
    - Application-level security controls should be provisioned in the application for following
        - Prevent SQL Injection Vulnerabilities for attack on database
        - Prevent XSS Vulnerabilities to extract username password
        - Secure Authentication and Session Management control functionality shall be provided
        - Prevent Security MIS-configuration Vulnerabilities
        - Prevent Failure to Restrict URL Access Vulnerabilities (By providing authentication and authorization for each sensitive page, use role-based authentication and authorization and make authentication and authorization policies configurable
        - Prevent Insufficient Transport Layer Protection Vulnerabilities
        - Prevent invalidated Redirects and Forwards Vulnerabilities
    - Apart from the above:
        - To design web portal & application software, SI shall make use of eSAFE: e-Governance Security Assurance Framework Guidelines for Implementation of Security Controls issued by the Department of Electronics and Information Technology (DeitY), Ministry of Communications & IT (MCIT), Government of India".

Approach and Methodology to be followed

The Selected Bidder is expected to use industry standard design documents/ templates, coding practices for development/ customization of Software solution. The technology / platform / stack for development of Software solution is mentioned in this RFP. The Selected Bidder is strictly to use this stack for the development/ customization.

Data Sizing, Named Users & Concurrency of Data

Data related to an estimated 30 Crore to 50 Crore episodes will be entered into the system annually – through different hospitals and through outreach services. The estimated number of concurrent users will be about 5,000. However, this is only an indicative number, and the Selected Bidder will be required to assess the number of estimated beneficiaries along with number of concurrent users whose health-related data will be entered in the integrated HMS.

Each hospital / health institution (public and private hospitals / health institutions) associated with IHMS 2.0 shall have a login in the Web Portal which shall be used to access the portal. Web portal shall also however be referred by the citizens / unnamed users for getting relevant information.

Around 18,500 (± 500) government health facilities (as indicated below) shall be using the internal Web Application for performing various functionalities in the Software solution.

S No	Type of Health Facility	Number of Units
1	Medical Colleges & Hospitals	49
2	District Hospital	46
3	Sub-Divisional Hospital	68
4	Satellite Hospital	13
5	Community Health Centre	768
6	Primary Health Centre	2650
7	City Dispensary	91
8	Subcentre	14843

About 1,000 officers will also access the application for performing various functionalities in the software solution from block level up to State level.

Provision for use of software by 500 to 1,500 private hospitals / other private health facilities or institutions would also have to be made.

The Selected Bidder is expected to carry out an independent exercise to see that the conceptual design proposed to be provided by the Selected Bidder is capable to meet RISL requirements including the performance requirements and service level standards. Any major IT item required for meeting the requirements of the bid should be pointed out by the Selected Bidders during the pre-bid conference. After pre-bid conference, no such observations on RFP shall be accepted.

Functional requirement specifications provided above for various modules are only indicative parameters and more parameters might be included depending upon the assessment done by Selected Bidder during consultations with users and policy makers of DHMF / ME Dept. Web Application, Mobile Application and Web Portal developed by the Selected Bidder shall meet relevant policies of DoIT&C and policies specified by DeiTy, Government of India for Web Application development.

The solution architecture, deployment architecture and security architecture provided in the RFP is indicative and purely for understanding of the Selected Bidder; however, Selected Bidder will have to strictly use the software development stack inclusive of Software solution, middleware, database, etc mentioned in this RFP.

Application and Web Portal shall as bilingual (English and Hindi). The users should see the labels and captions on selected language and additionally be able to feed-in their data in English language. Also, the SI must translate, at its own, the equivalent Hindi Captions for the English version (without altering the meaning) of the Web Portal and the Software solution and the same must be submitted to RISL for approval before implementation/ uploading or vice versa.

Web Application Performance Metrics

The IHMS 2.0 solution is expected to meet the following application performance metrics.

Item	Performance Standard / Response Times
Screen Navigation: field-to-field	< 5 milliseconds
Screen Navigation: screen-to-screen	< 3 seconds
Screen Refresh	< 2 seconds
Screen list box, combo box	< 2 seconds
Screen grid – 25 rows, 10 columns	< 3 seconds
Report preview – (all reports) – initial page view (if asynchronous)	< 60 seconds in most instances. It is understood that complicated / large volume reports may require a longer period
Simple search – single table, 5 fields, 3 conditions – without screen rendering	< 3 seconds for 100,000 rows
Complex search – multiple joined table (5), 10 fields, 3 conditions – without screen rendering	< 5 seconds for 100,000 rows
Server-side validations / computations	< 2 milliseconds
Client-side validations / computations	< 1 millisecond
Loading pages	< 3 seconds
Saving a record	< 5 seconds
Batch processing per 100 records	< 120 seconds
Login, authentication, and verification	< 5 seconds
Daily backups – maximum duration	4 hours (on-line preferred)
Total Restore – maximum duration	8 hours

Mobile Application Performance Metrics

Item	Performance Standard / Response Times on web portal
App Launch	≤ 2 seconds
Screen Transition Speed	≤ 0.1 to 0.3 seconds
Network Request Time	≤ 100 milli seconds (depends upon complexity of data)

Item	Performance Standard / Response Times on web portal
Loading Time	≤ 2 seconds
App Responsiveness	≤ 0.1 to 0.2 seconds
Battery life	Limit unnecessary background processes or excessive CPU and network usage, Limit unnecessary background processes or excessive CPU and network usage.
Support different screen size	window size classes are determined by the window size available to your application regardless of the type of device the app is running on

8.2. Covering Letter of the Bid

(To be submitted on the Company Letter head of the Tenderer, sealed and signed)

To,

Managing Director,

RajCOMP Info Services Limited (RISL),

First Floor, Yojana Bhawan, Tilak Marg,

C-Scheme, Jaipur (Rajasthan)

[Reference No. …… Dated: ……]

Dear Sir,

Ref: Request for Proposal (RFP) Notification dated..... No.....

1. I/We, the undersigned bidder, having read & examined in detail, the Bid Document, the receipt of which is hereby duly acknowledged, I/ we, the undersigned, offer to supply/ work as mentioned in the Scope of the work, Technical specifications, Service Level Standards & in conformity with the said bidding document for the same.

2. I/ We hereby declare that our bid is made in good faith, without collusion or fraud and the information contained in the bid is true and correct to the best of our knowledge and belief.

3. I/ we hereby submit our token of acceptance to all the tender terms & conditions without any deviations. Hence, we are hereby submitting our Bid and offer to provide services to Purchaser for carrying out the project in accordance with your RFP.

4. Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your notification of award shall constitute a binding Contract between us.

5. I/We agree to abide by this RFP for a period of days as specified in the NIT from the closing date fixed for submission of bid as stipulated in the RFP document.

6. I/ We undertake, for timely establishment of a local office in Jaipur (if the award is made to us) and within 30 days from the date of issue of Work Order.

Or

(strike out whichever is not applicable)

We have an existing office at Jaipur at the following address: .....

7. I/We understand that the Purchaser is not bound to accept any bid received in response to this RFP.

8. In case we are engaged by the Purchaser, we shall provide any assistance/cooperation

required by Purchaser, appointed auditing agencies (if any), state government officials and Other Stakeholders of the project for performing their duties with respect to this project. We understand that our non-cooperation for the same shall be grounds for termination of service.

Signature……

In the capacity of……

Duly authorised to sign Proposal for And on behalf of……..

Seal of the Organization: -

Date…..……..

Place…….

8.3. Pre-bid queries format

[Reference No. ……Date: ……]

Name of the Company/Firm: _____

_____

Name of the Person(s) Representing the Company/Firm:

Name of Person	Designation	Email-ID(s)	Tel. Nos. & Fax Nos.

Company/Firm Contacts:

Contact Person(s)	Address for Correspondence	Email-ID(s)	Tel. Nos. & Fax Nos.

Query/Clarification Sought:

Sl No	RFP Page No	RFP clause No.	Clause details	Query/Suggestion/Clarification

Note: - Queries must be strictly submitted only in the prescribed format (.XLS/ .XLSX/ .ODF/.doc/.docx). Queries not submitted in the prescribed format will not be considered/ responded at all by the tendering authority

8.4. Tender Form

[Reference No. ……Dated: ……..]

Addressed to

Name of the Tendering Authority	Managing Director, RajCOMP Info Services Limited (RISL)
Address	First Floor, Yojana Bhawan, Tilak Marg, C-Scheme, Jaipur (Rajasthan)
Telephone	0141-2229394, 5103902
Tele Fax	0141-2228701
Email	.....@rajasthan.gov.in (clearly mention the NIT no. in the subject of the mail)

Details of Firm

Name of Firm				
Name of Contact Person with designation				
Registered Office Address				
Address of the Firm				
Year of Establishment				
Type of Firm, Put Tick () mark	Public Limited	Private Limited	Partnership	Proprietary
Telephone Number(s)				
Email Address/ Web Site	Email:		Web-Site:	
Fax No.				
Mobile Number	Mobile:			
Certification/ Accreditation/ Affiliation. If any				

- The requisite tender fee amounting to Rs. _____/- (Rupees <in words>) has been deposited vide receipt no. _____ dated _____.
- The requisite RISL processing fee amounting to Rs. _____/- (Rupees <in words>) has been deposited vide receipt no. _____ dated _____.
- The requisite EMD amounting to Rs. _____/- (Rupees <in words>) has been deposited vide Banker's Cheque/ DD No. /BG No. _____ dated _____.
- We agree to abide by all the terms and conditions mentioned in this form issued by the Tendering Authority and also the further conditions of the said notice given in the attached sheets (all the pages of which have been signed by us in token of acceptance of the terms mentioned therein along with stamp of the firm).

Date:

Name & Seal of the firm: _____

Authorized Signatory: _____

8.5. Bidder's Authorization Certificate

To,

Managing Director,

RajCOMP Info Services Limited (RISL),

First Floor, Yojana Bhawan, Tilak Marg,

C-Scheme, Jaipur (Rajasthan)

[Reference No. ……....Dated: ……..]

I/ We <Name/ Designation> hereby declare/ certify that <Name/ Designation> is hereby authorized to sign relevant documents on behalf of the company/ firm in dealing with Tender/ NIB reference No. _____ dated _____. He/ She is also authorized

to attend meetings & submit technical & commercial information/ clarifications as may be required by you in the course of processing the Bid. For the purpose of validation, his/ her verified signatures are as under.

Thanking you,

Name of the Bidder: - Verified Signature:

Authorised Signatory: -

Seal of the Organization: -

Date:

Place:

Please attach the board resolution / valid power of attorney in favour of person signing this authorizing letter.

8.6. Self-Declaration – No Blacklisting

To,

Managing Director,

RajCOMP Info Services Limited (RISL),

First Floor, Yojana Bhawan, Tilak Marg,

C-Scheme, Jaipur (Rajasthan)

In response to the NIB Ref. No. _____ dated _____ for {Project Title}, as an Owner/ Partner/ Director/ Auth. Sign. Of _____, I/ We hereby declare that presently our Company/ firm _____, at the time of bidding: -

a. possess the necessary professional, technical, financial and managerial resources and competence required by the Bidding Document issued by the Procuring Entity;

b. have fulfilled my/ our obligation to pay such of the taxes payable to the Union and the State Government or any local authority as specified in the Bidding Document;

c. is having unblemished record and is not declared ineligible for corrupt & fraudulent practices either indefinitely or for a particular period of time by any State/ Central government/ PSU/ UT;.

d. does not have any previous transgressions with any entity in India or any other country during the last three years;

e. does not have any debarment by any other procuring entity;

f. is not insolvent in receivership, bankrupt or being wound up, not have its affairs administered by a court or a judicial officer, not have its business activities suspended and is not the subject of legal proceedings for any of the foregoing reasons;

g. does not have, and our directors and officers not have been convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications to enter into a procurement contract within a period of three years preceding the commencement of the procurement process, or not have been otherwise disqualified pursuant to debarment proceedings;

h. does not have a conflict of interest as mentioned in the bidding document which materially affects the fair competition;.

i. will comply with the code of integrity as specified in the bidding document.

If this declaration is found to be incorrect, then without prejudice to any other action that may be taken as per the provisions of the applicable Act and Rules thereto prescribed by GoR, my/ our security may be forfeited in full and our bid, to the extent accepted, may be rejected.

Thanking you,

Name of the Bidder: -

Authorised Signatory: -

Seal of the Organization: -

Date:

Place:

8.7. Certificate of Conformity / No Deviation

To,

Managing Director,

RajCOMP Info Services Limited (RISL),

First Floor, Yojana Bhawan, Tilak Marg,

C-Scheme, Jaipur (Rajasthan)

[Reference No. …….. Dated: …….]

CERTIFICATE

This is to certify that, the specifications of Software which I/ We have mentioned in the Technical bid, and which I/ We shall supply if I/ We am/ are awarded with the work, are in conformity with the minimum specifications of the bidding document and that there are no deviations of any kind from the requirement specifications.

Also, I/ we have thoroughly read the tender/ bidding document and by signing this certificate, we hereby submit our token of acceptance to all the tender terms & conditions of the bidding document

without any deviations.

I/ We also certify that the price I/ we have quoted is inclusive of all the cost factors involved in the end-to-end implementation and execution of the project, to meet the desired Standards set out in the Tender/ bidding Document.

Thanking you,

Name of the Bidder: -

Authorised Signatory: -

Seal of the Organization: -

Date:

Place:

8.8. Financial Bid Format

(To be filled by the bidder in BoQ (.XLS file) on eProc website with a cover letter on his Letter head)

To,

The Managing Director,
RajCOMP Info Services Limited (RISL),
First Floor, Yojana Bhawan, Tilak Marg,
C-Scheme, Jaipur-302005 (Raj.)

[Reference No. …….. Dated: ……]

Sir,

We, the undersigned bidder, having read & examined in detail, the Bidding Document, the receipt of which is hereby duly acknowledged, I/ we, the undersigned, offer to supply/ work as "System Integrator/ Implementing Agency/ Selected Bidder" as per the defined Scope of the work, Technical specifications, Service Level Standards & in conformity with the said bidding document for the same. We hereby offer our best price as per the details below and would be valid as per the details mentioned in the NIT.

I/ We undertake that the prices are in conformity with the specifications/ requirements prescribed. The price quoted is inclusive of all cost likely to be incurred for executing this work. The prices are inclusive of all type of govt. taxes/ duties as asked in the financial bid.

I/ We undertake, if our bid is accepted, to deliver the services in accordance with the requirements of RISL mentioned in the bidding document.

I/ We hereby declare that, in case, the contract is awarded to us, we will submit the performance security for the due performance of contract and in the form prescribed by RISL.

I/ We agree to abide by this bid for a period of days specified in NIT, after the last date fixed for bid submission and it shall remain binding upon us and may be accepted at any time before the expiry of that period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your notification of award shall constitute a binding Contract between us.

I/ We hereby declare that our bid is made in good faith, without collusion or fraud and the information contained in the bid is true and correct to the best of our knowledge and belief. We understand that you are not bound to accept the lowest or any bid you may receive.

We agree to all the terms & conditions as mentioned in the bidding document and submit

that we have not submitted any deviations in this regard.

Date:

Authorized Signatory:
Seal of the Organization:
Name:

Designation:

FINANCIAL BID FORMAT (TO BE ENTERED IN EPROC PORTAL ONLY)

Summary Costs of IHMS 2.0 Solution

Item No	Item Description	Total costs (INR)
1	Cost of providing IHMS 2.0 solution as per scope of work	
2	Cost of providing Support and Maintenance service for IHMS 2.0 solution as per scope of work	
3	Cost of associated works as part of the IHMS 2.0 solution as per scope of work	
Total cost of IHMS 2.0 Solution (in figures)		
Total cost of IHMS 2.0 Solution (in words)		

Detailed Costs of IHMS 2.0 Solution

Item No	Item description	Qty	Unit	Per Unit Rate in INR (inc. all incidental charges and all taxes but excl. service Tax)	Total in INR (incl. all incidental charges and all taxes but excl. Service Tax
1	2	3	4	5	6=5*3
1.	**Cost of providing IHMS 2.0 solution**				
1.1	Design, Development & deployment of all components of IHMS 2.0 as per Scope of Work & FRS incl. (any third-party product including Health Exchange Platform, Telemedicine, PACS, Data Migration, Application / System Integration, cost of manpower resources, etc.)	1	As required		
Sub-total of Cost of providing IHMS 2.0 solution					

Item No	Item description	Qty	Unit	Per Unit Rate in INR (inc. all incidental charges and all taxes but excl. service Tax)	Total in INR (incl. all incidental charges and all taxes but excl. Service Tax
2.	**Cost of providing Support and Maintenance for IHMS 2.0**				
2.1	Support and maintenance cost of IHMS2.0 Software Solution for 1st year	1	Per Year		
2.2	Support and maintenance cost of IHMS2.0 Software Solution for 2nd year	1	Per Year		
2.3	Support and maintenance cost of IHMS2.0 Software Solution for 3rd year	1	Per Year		
Sub-total of Cost of providing Support and Maintenance for IHMS 2.0					
3.	**Other Associated Costs**				
3.1	Cost of providing training on IHMS2.0 software solution as per Scope of work	1400	Per trainer per day		
3.2	Cost of interfacing of Diagnostic Laboratory equipment (for the 1st instance of a particular make / model)	500	Per equipment		
3.3	Cost of interfacing of Diagnostic Laboratory equipment (from the 2nd instance onwards for the same model/make)	2000	Per equipment		
3.4	Cost of interfacing of Imaging modality (for the 1st instance of an imaging modality)	500	Per equipment		

Item No	Item description	Qty	Unit	Per Unit Rate in INR (inc. all incidental charges and all taxes but excl. service Tax)	Total in INR (incl. all incidental charges and all taxes but excl. Service Tax
3.5	Cost of interfacing of Imaging modality (from the 2nd instance onwards for the same imaging modality)	1000	Per equipment		
3.6	Cost of integration of IoT gateway devices	100	Per equipment		
Sub-total of Other Associated Costs					
4.	**Items requiring per unit rate**				
4.1	Solution Architect	1	Per man-month		
4.2	Business Analyst	1	Per man-month		
4.3	Database Administrator	1	Per man-month		
4.4	Senior Developer	1	Per man-month		
4.5	Developer	1	Per man-month		
4.6	UI/UX Designer	1	Per man-month		
4.7	QA and Testing Engineer	1	Per man-month		

Note

1. Taxes shall be paid as applicable

2. Wherever per unit cost has been asked, payment shall be made on actual work done.

3. Cost of any additional hardware/ tool required to prove the functionality as per FRS & Scope of Work is to be included in item no. 1 and no separate/ additional cost will be claimed by the bidder.

4. The cost of interfacing a laboratory diagnostic equipment shall be based on an average rate to cover any make/model of laboratory equipment and type of communication (Direct connection / ASTM / HL7). However, when there are more than 1 (one) quantity of the same model/make of laboratory equipment installed in a different health facility that requires to be interfaced, the cost of interfacing should be provided as a reduced percentage of the original cost. The cost of interfacing shall cover the cost of first-time interfacing cost and support cost for 3 years.

5. The cost of interfacing an IoT device / gateway shall be based on an average rate to cover any type of IoT device. The cost of interfacing of an IoT device / gateway shall cover the costs of first-time interfacing and support cost for 3 years.

6. The quantities mentioned in section 3 (Item 3.1 to 3.6) of the above table are indicative quantities and hence the quantities could vary based on the requirements of the purchaser. The payment for the items mentioned in section 3 shall be made on a pro-rata basis.

8.9. Bank Guarantee Formats

BANK GUARANTEE FORMAT – BID SECURITY

(To be stamped in accordance with Stamp Act and to be issued by a Nationalized / Scheduled bank having its branch at Jaipur and payable at par at Jaipur, Rajasthan)

To,

The Managing Director,

RajCOMP Info Services Limited (RISL),

First Floor, Yojana Bhawan, C-Block, Tilak Marg, C-Scheme, Jaipur-302005 (Raj).

Sir,

1. In accordance with your Notice Inviting Bid for <please specify the project title> vide NIB reference no. <please specify> M/s. …….. (Name & full address of the firm) (Hereinafter called the "Bidder") hereby submits the Bank Guarantee to participate in the said procurement/ bidding process as mentioned in the bidding document.

It is a condition in the bidding documents that the Bidder has to deposit Bid Security amounting to <Rs. _____ (Rupees <in words>)> in respect to the NIB Ref. No. _____ dated _____ issued by RISL, First Floor, Yojana Bhawan, C-Block, Tilak Marg, C-Scheme, Jaipur, Rajasthan (hereinafter referred to as "RISL") by a Bank Guarantee from a Nationalised Bank/ Scheduled Commercial Bank having its branch at Jaipur irrevocable and operative till the bid validity date (i.e. <please specify> days from the date of submission of bid). It may be extended if required in concurrence with the bid validity.

And whereas the Bidder desires to furnish a Bank Guarantee for a sum of <Rs. _____ (Rupees <in words>)> to the RISL as earnest money deposit.

2. Now, therefore, we the …… (Bank), a body corporate constituted under the Banking Companies (Acquisition and Transfer of Undertaking) Act. 1969 (delete, if not applicable) and branch Office at…….. (Hereinafter referred to as the Guarantor) do hereby undertake and agree to pay forthwith on demand in writing by the RISL of the said guaranteed amount without any demur, reservation or recourse.

3. We, the aforesaid bank, further agree that the RISL shall be the sole judge of and as to whether the Bidder has committed any breach or breaches of any of the terms, costs, charges and expenses caused to or suffered by or that may be caused to or suffered by the RISL on account thereof to the extent of the Earnest Money required to be deposited by the Bidder in respect of the said bidding document and the decision of the RISL that the Bidder has committed such breach or breaches and as to the amount or amounts of loss, damage, costs, charges and expenses caused to or suffered by or that may be caused to or suffered by the RISL shall be final and binding on us.

4. We, the said Bank further agree that the Guarantee herein contained shall remain in full force and effect until it is released by the RISL and it is further declared that it shall not be

necessary for the RISL to proceed against the Bidder before proceeding against the Bank and the Guarantee herein contained shall be invoked against the Bank, notwithstanding any security which the RISL may have obtained or shall be obtained from the Bidder at any time when proceedings are taken against the Bank for whatever amount that may be outstanding or unrealized under the Guarantee.

5. Any notice by way of demand or otherwise hereunder may be sent by special courier, telex, fax, registered post or other electronic media to our address, as aforesaid and if sent by post, it shall be deemed to have been given to us after the expiry of 48 hours when the same has been posted.

6. If it is necessary to extend this guarantee on account of any reason whatsoever, we undertake to extend the period of this guarantee on the request of our constituent under intimation to you.

7. The right of the RISL to recover the said amount of <Rs. _____ (Rupees <in words>)> from us in manner aforesaid will not be precluded/ affected, even if, disputes have been raised by the said M/s. ……..……(Bidder) and/ or dispute or disputes are pending before any court, authority, officer, tribunal, arbitrator(s) etc..

8. Not withstanding anything stated above, our liability under this guarantee shall be restricted to <Rs. _____ (Rupees <in words>)> and our guarantee shall remain in force till bid validity period i.e. <please specify> days from the last date of bid submission and unless a demand or claim under the guarantee is made on us in writing within three months after the Bid validity date, all your rights under the guarantee shall be forfeited and we shall be relieved and discharged from all liability thereunder.

9. This guarantee shall be governed by and construed in accordance with the Indian Laws and we hereby submit to the exclusive jurisdiction of courts of Justice in India for the purpose of any suit or action or other proceedings arising out of this guarantee or the subject matter hereof brought by you may not be enforced in or by such count.

10. We hereby confirm that we have the power/s to issue this Guarantee in your favor under the Memorandum and Articles of Association/ Constitution of our bank and the undersigned is/are the recipient of authority by express delegation of power/s and has/have full power/s to execute this guarantee under the Power of Attorney issued by the bank in your favour.

Date …… (Signature) ……..

Place …… (Printed Name) ……..

(Designation) ……

(Bank's common seal) ……

In presence of:

WITNESS (with full name, designation, address & official seal, if any) (1) ……

……

(2) ……

……

Bank Details

Name & address of Bank:

Name of contact person of Bank:

Contact telephone number:

GUIDELINES FOR SUBMISSION OF BANK GUARANTEE

The Bank Guarantee shall fulfil the following conditions in the absence of which they cannot be considered valid: -

1. Bank Guarantee shall be executed on non- judicial stamp paper of applicable value purchased in the name of the bank.

2. Two persons should sign as witnesses mentioning their full name, designation, address and office seal (if any).

3. The Executor (Bank Authorities) may mention the power of attorney No. and date of execution in his/ her favour authorizing him/ her to sign the document. The Power of Attorney to be witnessed by two persons mentioning their full name and address.

4. The Bank Guarantee should be executed by a Nationalized Bank/ Scheduled Commercial Bank only.

5. The contents of Bank Guarantee shall be strictly as per format prescribed by RISL

6. Each page of Bank Guarantee shall bear signature and seal of the Bank and B.G. number.

7. All corrections, deletions etc. in the Bank Guarantee should be authenticated by signature of Bank Officials signing the Bank Guarantee.

BANK GUARANTEE FORMAT – PERFORMANCE SECURITY (PBG)

(To be stamped in accordance with Stamp Act and on a Stamp Paper purchased from Rajasthan State only and to be issued by a Nationalized/ Scheduled bank having its branch at Jaipur and payable at par at Jaipur, Rajasthan)

To,

The Managing Director,

RajCOMP Info Services Limited (RISL),

First Floor, Yojana Bhawan, C-Block, Tilak Marg, C-Scheme, Jaipur-302005 (Raj).

1. In consideration of the RajCOMP Info Services Limited (hereinafter called "RISL") having agreed to exempt M/s .....(hereinafter called "the said Contractor(s)" from the demand, under the terms and conditions of an Agreement No.....dated .....made between the RISL through …… and .....(Contractor) for the work .....(hereinafter called "the said Agreement") of Security Deposit for the due fulfilment by the said Contractor (s) of the terms and conditions contained in the said Agreement, on production of a Bank Guarantee for Rs.....(rupees .....only), we .....(indicate the name of the Bank),

(hereinafter referred to as "the Bank") at the request of..... Contractor(s) do hereby undertake to pay to the RISL an amount not exceeding Rs.....(Rupees.....only) on demand.

2. We..... (Indicate the name of Bank), do hereby undertake to pay Rs..... (Rupees.....only), the amounts due and payable under this guarantee without any demur or delay, merely on a demand from the RISL. Any such demand made on the bank by the RISL shall be conclusive as regards the amount due and payable by the Bank under this guarantee. The Bank Guarantee shall be completely at the disposal of the RISL and We..... (Indicate the name of Bank), bound ourselves

with all directions given by RISL regarding this Bank Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs..... (Rupees.....only).

3. We.....(indicate the name of Bank), undertake to pay to the RISL any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any Court or Tribunal or Arbitrator etc. relating thereto, our liability under these presents being absolute, unequivocal and unconditional.

4. We.....(indicate the name of Bank) further agree that the performance guarantee herein contained shall remain in full force and effective up to <DATE> and that it shall continue to be enforceable for above specified period till all the dues of RISL under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till the RISL certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee.

5. We .....(indicate the name of Bank) further agree with the RISL that the RISL shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the RISL against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act or omission on the part of the RISL or any indulgence by the RISL to the said Contractor(s) or by any such matter or thing whatsoever which would but for this provision, have effect of so relieving us.

6. The liability of us ..... (indicate the name of Bank), under this guarantee will not be discharged due to the change in the constitution of the Bank or the contractor(s).

7. We ..... (indicate the name of Bank), lastly undertake not to revoke this guarantee except with the previous consent of the RISL in writing.

8. This performance Guarantee shall remain valid and in full effect, until it is decided to be discharged by the RISL. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs..... (Rupees.....only).

9. It shall not be necessary for the RISL to proceed against the contractor before proceeding against the Bank and the guarantee herein contained shall be enforceable against the Bank notwithstanding any security which the RISL may have obtained or obtain from the contractor.

10. We ..... (indicate the name of Bank) verify that we have a branch at Jaipur. We undertake that this Bank Guarantee shall be payable at any of its branch at Jaipur. If the last day of expiry of Bank Guarantee happens to be a holiday of the Bank, the Bank Guarantee shall expire on the close of the next working day.

11. We hereby confirm that we have the power(s) to issue this guarantee in your favor under the memorandum and articles of Association/constitution of our bank and the undersigned is/are the recipient of authority by express delegation of power(s) and has/have full power(s) to execute this guarantee for the power of attorney issued by the bank.

Dated.....day of.....For and on behalf of the <Bank> (indicate the Bank)

Signature

(Name & Designation)

Bank's Seal

The above performance Guarantee is accepted by the RISL

For and on behalf of the RISL

Signature

(Name & Designation)

8.10. Draft Agreement Format

This Contract is made and entered into on this _____day of _____, 2023 by and between RajCOMP Info Services Limited (RISL), having its head office at First Floor, Yojana Bhawan, Tilak Marg, C-Scheme, Jaipur-302005, Rajasthan (herein after referred to as Purchaser/ RISL) which term or expression, unless excluded by or repugnant to the subject or context, shall include his successors in office and assignees on ONE PART

And

M/s_____, a company registered under the Indian Companies Act, 1956/2013 with its registered office at _____ (herein after referred as the "Successful Bidder/ Supplier") which term or expression, unless excluded by or repugnant to the subject or context, shall include his successors in office and assignees on the OTHER PART.

Whereas,

Purchaser is desirous of appointing an agency for <project title> as per the Scope of Work and Terms and Conditions as set forth in the RFP document dated _____ of <NIB No _____>.

And whereas

M/s_____ represents that it has the necessary experience for carrying out the overall work as referred to herein and has submitted a bid and subsequent clarifications for providing the required services against said NIB and RFP document issued in this regard, in accordance with the terms and conditions set forth herein and any other reasonable requirements of the Purchaser from time to time.

And whereas

Purchaser has accepted the bid of supplier and has placed the Work Order vide Letter No. _____dated_____, on which supplier has given their acceptance vide their Letter No._____dated _____.

And whereas

The supplier has deposited a sum of Rs. _____/- (Rupees _____) in the form of _____ ref no. _____ dated _____ of _____ Bank and valid up to _____ as security deposit for the due performance of the contract.

Now it is hereby agreed to by and between both the parties as under: -

1. The NIB Ref. No. _____ dated _____ and RFP document dated _____ issued by RISL along with its enclosures/ annexures, wherever applicable, are deemed to be taken as part of this contract and are binding on both the parties executing this contract.

2. In consideration of the payment to be made by RISL to supplier at the rates set forth in the work order no. _____ dated _____ the Supplier will duly supply the said articles set forth in the Work Order thereof and provide related services in the manner set forth in the RFP, along with its enclosures/ annexures and Technical Bid along with subsequent clarifications submitted by supplier.

3. RISL do hereby agree that if supplier shall duly supply the said articles and provide related services in the manner aforesaid observe and keep the said terms and conditions of the RFP and Contract, the RISL will pay or cause to be paid to supplier, at the time and the manner set forth in the said conditions of the RFP, the amount payable for each and every project milestone & deliverable. The mode of Payment will be as specified in the RFP document.

4. The timelines for the prescribed Scope of Work, requirement of services and deployment of technical resources shall be effected from the date of work order i.e. _____ and completed by supplier within the period as specified in the RFP document.

5. In case of extension in the delivery of services and/ or installation period/ completion period of services with liquidated damages, the recovery shall be made on the basis of following percentages of value of stores/ works/ services which supplier has failed to supply/ install/ complete: -

a) Delay up to one fourth period of the prescribed delivery period, successful installation & completion of work	2.5%
b) Delay exceeding one fourth but not exceeding half of the prescribed delivery period, successful installation & completion of work.	5.0%
c) Delay exceeding half but not exceeding three fourth of the prescribed delivery period, successful installation & completion of work.	7.5%
d) Delay exceeding three fourth of the prescribed delivery period, successful installation & completion of work.	10.0%

Note:

i. Fraction of a day in reckoning period of delay in supplies/ maintenance services shall be eliminated if it is less than half a day.

ii. The maximum amount of agreed liquidated damages shall be 10%.

iii. If supplier requires an extension of time in completion of contractual supply on account of occurrence of any hindrances, he shall apply in writing to the authority which had placed the work order, for the same immediately on occurrence of the hindrance but not after the stipulated date of completion of supply.

i. Delivery period may be extended with or without liquidated damages if the delay in the supply of services in on account of hindrances beyond the control of supplier.

6. All disputes arising out of this agreement and all questions relating to the interpretation of this agreement shall be decided as per the procedure mentioned in the RFP document.

In witness whereof the parties have caused this contract to be executed by their Authorized Signatories on this _____day of _____, 2023.

Signed By:	Signed By:
( ) Designation:, Company:	
In the presence of:	In the presence of:
( ) Designation: Company:	( ) Designation:
( ) Designation: Company:	( ) Designation:

8.11. Format for Submission of Project References

[Reference No. …… Dated: ……]

Project Name:	Value of Contract/Work Order (In INR):
Country: Location within country:	Project Duration:
Name of Customer:	Total No. of staff-months of the assignment:
Contact person with address, phone, fax and e-mail:	Approx. value of the services provided by your company under the contract (in INR):
Start date (month/year): Completion date (month/year):	
Name of associated Bidders, if any:	
Narrative description of Project:	
Scope of work (including the details of modules implemented if applicable)	

Please attach a copy of the work order/completion certificate/purchase order/ letter from the customer for each project reference

Date:

Authorized Signatory:

Seal of the Organization:

Name:

Designation:

8.12. Expected Qualification of Resources

[Reference No. …….. Dated: …….]

Roles and Responsibilities of IHMS2.0 IT Team			
Team Role	**Team Lead**	**Number of Resources**	**1 (One)**
Responsibilities Lead, coordinate and supervise/monitor the entire IT team and assist DoIT&C in the implementation of the proposed IHMS 2.0. Act as the Point of contact Person (PoC) onsite on behalf of the Selected Bidder. Be responsible for project management of team and their respective tasks and overall deliverables. **Technical Skills**: 1. Understand digital health solutions, health IT standards, ABDM and deep healthcare process understanding and ability to assess the root cause and find solutions for the project as and when they arise. 2. Understands program / project management with ability to lead a team, outline detailed project planning and monitoring system to deliver the project outcomes on timely manner. 3.Well conversant with PM tools and BPR documentations for a software implementation project. **Organization Skills**: 1. Able to use organization skills to manage multiple facets of a large-scale project and track progress for several programs at once. 2. Able to manage and communicate with multiple stakeholders (internal and external). 3. Responsible for stakeholder consultations, requirements gathering and assist in solution design. **Core Program Management Skills**: 1. Ability to drive complex strategic initiatives with high visibility, critical timelines, and multiple teams. 2. Ability to foresee risks and adopt relevant risk mitigation strategies. 4. Ability to build relationships with all the stakeholders (internal and external). 5. Develop, drive, and implement Program / Project Management practices and able achieve desired outcome in stipulated time. 6. Develop and implement processes and practices to meet the stated objectives of IHMS2.0. 7. Lead end to end lifecycle of the project and cross functional programs from inception to completion of rollouts. **Agile Skills**: 1. Should be able to drive standard agile practices. 2. Able to coach the team members on ways of working – Scrum, Scaled Agile or any adopted ways of working methodology best suitable for healthcare facilities in Rajasthan. **Added Experience** Experience in healthcare operations like medical, nursing, hospital, and other relevant areas with understanding of processes and operation practices. Assist in finalising business requirements for various functional modules and change requirements. Experience in implementation of digital health solutions (like HMIS, PACS, EMR, etc.), other e-Health solutions, ERP applications and other applicable solutions.			
Team Role	**Deputy Team Lead**	**Number of Resources**	**2 (Two)**
Responsibilities			

Roles and Responsibilities of IHMS2.0 IT Team
Co-Lead with the Team Lead, to coordinate and supervise/monitor the entire IT team and assist DoIT&C in the implementation of proposed IHMS 2.0. Act as a Point of contact Person (PoC) in absence of Team Lead for their respective category of delivery. Be responsible for project management of team and their respective tasks and overall deliverables as assigned by the Team Lead and/ or the DoIT&C. **Specific requirement for Deputy Team Lead (Medical Expert):** To conceptualize the functional design of the integrated IHMS 2.0 solution and be able to recommend requirements of a healthcare facility and enhancements for IHMS 2.0 in line with State Health IT Standards, ABDM, NABH Digital Health Standards and other relevant standards/ practices. Should have clinical experience and understanding of medical and hospital processes and operation's needs. Assist in finalising business requirements for various functional modules and change requirements. **Specific requirement for Deputy Team Lead (Enterprise IT):** To conceptualize the technical design of the integrated IHMS 2.0 solution and be responsible for the overall technical requirements, performance requirements and integration requirements while designing the proposed IHMS 2.0 solution. Should have Business Process Reengineering expertise in Enterprise IT solutions. **Technical Skills:** 1. Understand and track technical issues and find solutions for program as and when they arise. 2. Understands architectural paradigms, design patterns and be conversant with IT Solutions/ Software Tools / PM tools. **Organization Skills**: 1. Able to use organization skills to manage multiple facets of a large-scale project and track progress for several programs at once. 2. Able to manage and communicate with multiple stakeholders (internal and external) **Core Program Management Skills**: 1. Ability to drive complex strategic initiatives with high visibility, critical timelines and multiple teams 2. Ability to foresee risks and adopt relevant risk mitigation strategies 3. Ability to drive complex strategic initiatives with high visibility, critical timelines and multiple teams. 4. Ability to build relationships with all the stakeholders (internal/external both) 5. Develop, drive, and implement Program / Project Management practices and able achieve desired outcome in stipulated time. 6. Develop and implement processes and practices to meet business needs. 7. Lead end to end lifecycle of the project and cross functional programs from inception to completion of rollouts. **Agile Skills**: 1. Should be able to drive standard agile practices. 2. Able to coach the team members on ways of working – Scrum, Scaled Agile or any adopted ways of working methodology best suitable for healthcare facilities in Rajasthan.

Team Role	**Solution Architect**	**Number of Resources**	**1 (One)**
Responsibilities Well versed with digital health IT framework for digital solution design and development. Experience in designing and solutioning of large enterprise level web-based application.			

Roles and Responsibilities of IHMS2.0 IT Team			
Well-versed in latest information technologies and emerging trends/ technology like block chain, IOT, AI & ML, etc. Well-versed in microservices platform with in-depth knowledge of deployment / monitoring of microservices and troubleshooting performance issues. Responsible for stakeholder consultations, assist in requirements gathering and solution design.			
Team Role	**Services / Data Architect**	**Number of Resources**	**1 (One)**
Responsibilities Experience in Service-oriented architecture (SOA) and microservices is desired for this role. Deep experience in data governance (Data Quality, Meta data Management, Data Security) is a must. Exposure to Health IT & Health Data Standard, VNA-PACS is desired. Exposure to data migration activity in a large organization is a must. He or she shall be responsible for managing, conceptualization and design of various application building blocks and their integrations. Responsible for stakeholder consultations, assist in requirements gathering and solution design.			
Team Role	**Business Analyst**	**Number of Resources**	**2 (Two)**
Experience in healthcare operations like medical, nursing, hospital, and other relevant areas with understanding of processes and operation practices. Assist in finalising business requirements for various functional modules and change requirements. Demonstrated experience in implementation of digital health solutions (like HMIS, PACS, EMR, etc.), other e-Health solutions, ERP applications and other applicable solutions. Responsible for stakeholder consultations, requirements gathering and assist in solution design.			
Team Role	**Senior Developer**	**Number of Resources**	**3 (Three)**
Has extensive experience in enterprise software development who is responsible for performing coding assignments, reviewing code work for accuracy and functionality, creating, and implementing design plans, analysing code segments regularly, delegating tasks to team members, and keeping up to date with industry trends and technology developments. Will require to work with Business Analysts, Team Lead, and clients to review business requirements, prepare technical design documents, and create non-functional and functional prototypes as needed.			
Team Role	**Developer**	**Number of Resources**	**6 (Six)**
Responsible for supporting the IHMS 2.0 development team in all aspects of the development, testing, and implementation of the solution. Their duties and responsibilities include writing and debugging code, troubleshooting software issues, working closely with developers to improve product functionality, developing innovative solutions, attending developer meetings, participating in code reviews and quality assurance activities.			
Team Role	**UI/UX Designer**	**Number of Resources**	**1 (One)**

Roles and Responsibilities of IHMS2.0 IT Team			
Responsible for the overall user experience of IHMS 2.0, including its usability, accessibility, and desirability. Require understanding of user requirements, design graphic elements, and build navigation components. Should be able to create a seamless and enjoyable experience for the user. Will require to work with stakeholders to understand their needs and requirements, conduct user research to gather insights, create wireframes and prototypes to test design concepts, and collaborate with developers to ensure that the final product meets the desired user experience.			
Team Role	**Change Management / Capacity Building Expert**	**Number of Resources**	**1 (One)**
Responsible for designing and implementing programs that enhance the skills, knowledge, and understanding of IHMS 2.0 of end-users. Assist in capacity building and change management activities. Should be well versed in planning and conducting training programmes including content creation. Writing background materials and preparation of reports, manuals, and presentation. Will require to interact with stakeholders to understand their needs and requirements, conduct assessments to identify areas for improvement, develop capacity building plans, design, and deliver training programs, and provide ongoing support to ensure that the desired outcomes are achieved.			
Team Role	**Quality Analyst**	**Number of Resources**	**2 (Two)**
Responsible for ensuring that IHMS2.0 solution meet the desired quality standards. Responsible for designing and implementing test plans, executing tests, and reporting on the results. Should be capable of identifying and reporting any defects or issues with IHMS 2.0 before it is released to the users. Will require to work with stakeholders to understand their needs and requirements, develop test plans and test cases, execute tests, report on the results, and collaborate with developers to ensure that any issues are resolved before the release of IHMS 2.0 solution.			
Team Role	**Database Administrator**	**Number of Resources**	**1 (One)**
Responsible for the design, implementation, maintenance, and repair of IHMS 2.0 database. Ensure that the database is secure, reliable, and available to authorized users. Duties include designing and implementing database structures, monitoring and optimizing database performance, managing database security, and performing backups and recovery. Will require to interact with stakeholders to understand their needs and requirements, design and implement database structures that meet those needs, monitor and optimize database performance, manage database security, and provide ongoing support to ensure that the database is available and reliable.			
Team Role	**Technical Support Engineer**	**Number of Resources**	**4 (Four)**
Responsible for providing technical assistance to end-users, resolving technical issues, and ensuring customer satisfaction. Assist in diagnosing and troubleshooting technical problems, provide timely and accurate solutions, and maintain a high level of user service. Will require to work with stakeholders to understand their needs and requirements, provide technical support to end-users, diagnose, and troubleshoot technical issues, provide timely and accurate solutions, and ensure user satisfaction.			

Expected Qualification and Experience of Resources:

S No	Role	Location	Expected Qualification and Experience
1	Team Lead	Onsite	• B.E/ B. Tech with at least 15+ years of post-qualification relevant work experience in design and devlelopment of customized IT applications • 10+ years' experience working through the design, development, release (SDLC) cycle delivering software application projects • 5 + years of experience in managing a team size of more than 15 developers in the capacity of Team Leader / Project Manager • At Least 4 years of experience in a CMMI Level 5 Firm • Must have good understanding of Government Processes and IT automation initiatives in e-Governance Domain
2	Deputy Team Lead (Medical Expert)	Onsite	• MBBS / Postgraduate Degree / Diploma in Hospital Management with at least 10+ years of post-qualification relevant work experience in clinical experience and understanding healthcare operations like medical, nursing, hospitals, etc. • Must have good understanding of Digital Health Initiatives and IT automation in public healthcare facilities.
3	Deputy Team Lead (Enterprise IT)	Onsite	• B.E/ B. Tech with at least 10+ years of post-qualification relevant work experience in design and development of customized enterprise IT applications • 4+ years' experience working through the design, development, release (SDLC) cycle delivering software application projects • 2+ years of experience in managing a team size of more than 15 developers • At Least 2 years of experience in a CMMI Level 5 Firm • Must have good understanding of enterprise IT systems, External System Integrations and Automations, Application Performance Management.
4	Solution Architect	Onsite	• B.Tech / B.E. in Computers, IT or Electronics & Communication / MCA / M.Tech in Computers • 8+ years of post-qualification and relevant experience in desiging enterprise IT solutions • Should be experienced in designing enterprise IT applications • Should be experienced in designing Mobile / Web applications
5	Services / Data Architect	Onsite	• B.Tech / B.E. in Computers, IT or Electronics & Communication / MCA / M.Tech in Computers

S No	Role	Location	Expected Qualification and Experience
			• 8+ years of post-qualification and relevant experience in desiging enterprise IT solutions • Training Certificate in relevant field of Data Architecture / Database Administration • Training Certificate in relevant field of microservices architecture • Expert in using SQL, Python, Visualization tools such as SAS, QS, Tableau, Google Analytics.
6	Business Analyst	Onsite	• B. E/ B. Tech/ M.Sc. (CS/ IT)/ MCA/ M.Tech. /MBA with at least 4+ years of post-qualification relevant work experience as Business Analyst • At Least 1 year of experience in a CMMI Level 5 Firm • Should have preferably done one project in State Industrial Development Corporation Domain
7	Senior Developer	Onsite	• B. E/ B. Tech/ MCA/ M.Sc. (CS/ IT)/ MCA/ MTech. • Fluency in English/ Hindi • 4+ years of post-qualification and relevant work experience as Software Development • At Least 1 year of experience in a CMMI Level 5 Firm
8	Developer	Onsite	• B.E/ B. Tech/ MCA/ M.Sc. (CS/ IT)/ MCA/ MTech. • Fluency in English/ Hindi • 3+ years of post-qualification and relevant work experience as Software Development • At Least 1 year of experience in a CMMI Level 5 Firm
9	Database Administrator	Onsite	• B.E. / B. Tech (in IT / Computer Science / Computer Eng.) / MCA from recognized Institutes • 5+ years' experience post-qualification in software development • At Least 2 years of experience as database administrator in a CMMI Level 5 firm
10	UI / UX Designer	Onsite	• University degree in graphic design, digital design, or similar disciplines. • Certification course in UI/UX design methodology • Fluency in English/ Hindi • 3+ years of post-qualification and relevant work experience as UI / UX Designer • Should be familiar with Adobe Designer Products, Wireframe designing and Application Prototyping Tools
11	Change Management /	Onsite	• Post-graduate / Masters qualification in instructional design, education, or related field

S No	Role	Location	Expected Qualification and Experience
	Capacity Building Expert		• 10+ years of working and consulting with customers and delivering instructional design in a corporate / governmental departments with varied industry verticals
12	QA and Testing Engineer	Onsite	• B. E/ B. Tech/ MCA/ M.Sc. (CS/ IT)/ MCA/ MTech. • Fluency in English/ Hindi • 2+ years of post-qualification and relevant work experience in Software Development / Testing
13	Technical Support Engineer	Onsite	• B. E/ B. Tech/ MCA/ M.Sc. (CS/ IT)/ MCA/ MTech. • Fluency in English/ Hindi • 2+ years of post-qualification and relevant work experience in Application Support / Deployment
14	Helpdesk Executive	Onsite	• Graduate in any discipline from a Govt. recognized university • Fluency in English/ Hindi • 1+ years of relevant work experience in desired field

8.13. Format for CVs of Key Profiles

[Reference No. ……. Dated: …….]

Name of the person			
Current Designation / Job Title			
Current job responsibilities			
Proposed Role in the Project			
Proposed Responsibilities in the Project			
Academic Qualifications			
Degree	Academic institution graduated from	Year of graduation	Specialization (if any)
Professional Certifications (if any)			
Total number of years of experience			
Number of years with the current company			
Summary of the Professional / Domain Experience			
Number of complete life cycle implementations carried out			
The names of customers (Please provide the relevant names)			
Professional Experience details			
Name of Organization			
Designation			
Duration (From / To)			
Responsibilities			
Proficient in Languages			

Date:

Authorized Signatory:

Seal of the Organization:

Name:

Designation:

8.14. Role of RSDC (Rajasthan State Data Centre)

[Reference No. ……. Dated: ……]

- RSDC is the focal point of IHMS 2.0 ICT infrastructure. The core infrastructure of Software solution (Web Application, Mobile Application and Web Portal) is expected to be hosted at the RSDC. The data collected from all empaneled hospitals (public and private) covered under IHMS 2.0 will be centrally stored at the RSDC.
- RSDC shall provide all relevant services and infrastructure required for efficient delivery of G2G and G2C services through iHMS.
- RSDC will be responsible to manage all servers and infrastructure to be used for deployment of Software solution.
- RSDC will provide infrastructure such as firewall, Intrusion Detection/ Prevention, service, directory service, management and data storage services, which could be a shared infrastructure to all the applications /departments in the RSDC.
- RSDC shall provide required ports for application load balancers to configure Software solution in high availability active-active mode.
- The RSDC will provide existing EMS server and tools for the SLA management, in respect to monitor application downtime and application performance.
- RSDC will provide SAN Storage, high speed (Fiber Channel)
- RSDC will provide all SAN related infrastructure (e.g., SAN switch) for sharing to the Selected Bidder.
- RSDC will provide SAN and Tape library support for data storage.
- Some of the key functionalities of RSDC are Central Data Repository of the State, Secure Data Storage, Disaster Recovery, Remote Management and Service Integration.
- RSDC Team will take the required backups of application and database as per its policies
- RSDC will provide required number of Internal and external IP at data centre for the IHMS 2.0 Web Application, Mobile Application and Web Portal.

8.15. Technical Proposal

This section should present bidders' proposed solution meeting technical and functional requirements outlined in this RFP document. Bidders are required to present sound, complete, and competent technical and functional architecture solution and are expected to address the various technical / functional parameters mentioned in this RFP document in their proposed solution. The section should also include the Bill of Materials (BOM) for all the software components, products and tools that are proposed for the application development, testing, deployment and maintenance. The solution description should minimally include the following:

a) Bidder's understanding of the requirements as stated in the RFP. Compliance to all the functional requirements as specified in the RFP.

b) Detailed Solution design: Should be presented in the following format

• Development approach, methodology and plan

• Testing approach, methodology and plan

• Project Governance and reporting structure

• Training and Change management approach, methodology and plan including Training schedule, content and handouts, trainer's profile, batch size and infrastructure plan

• Integration with SMS, Payment, Email and other software

• Details of Deliverables along with timelines

• Detailed Work plan and Staffing Plan

a. The Bidder shall provide a detailed project plan with timelines, resource allocation, milestones etc. in Microsoft Project/Excel format for carrying out the scope of work activities.

b. The project plan should clearly indicate the deliverables at each milestone in the project and staffing deployment of all resources.

c. Work plan:

No	**Activity/Deliverable**													
		1	2	3	4	5	6	7	8	9	10	11	12	N
1														
2														
n														

Staffing Plan:

No.	Name of staff	Staff input in weeks (in the form of a bar chart)													Total Staff man-months proposed	Key Responsibilities/Tasks/Deliverables
1		1	2	3	4	5	6	7	8	9	10	11	12	n	Total	
2																
n																
													Total			

- Team Composition and Task Assignments

The Bidder should provide the summary table of details of the manpower that will be

deployed on this project in following format along with detailed CVs of key personnel in format provided in annexure 13 (“Detailed CV format for proposed staff”).

Resource Category	Proposed number of staff	Qualification	Experience	Name	Area of expertise	Position Assigned	Task Assigned

Date:

Authorized Signatory:

Seal of the Organization:

Name:

Designation:

8.16. Manufacturer Authorization Form (MAF)

(This form has to be provided by the manufacturer of the third-party software products being proposed by bidder on the software manufacturer's letter head)

To,

Managing Director,

RajCOMP Info Services Limited (RISL),

First Floor, Yojana Bhawan, Tilak Marg,

C-Scheme, Jaipur (Rajasthan)

Subject: Issue of the Manufacturer's Authorization Form (MAF)

[Reference No. …….. Dated: ……]

Sir,

We <name and address of the software manufacturer> who are established and reputed manufacturer / producers of <name of application> having factories / development facilities at <addresses of manufacturing location> do hereby authorize <M/s _____> who is our <Distributor/ Channel Partner/ Retailer/ Others <please specify> to bid, negotiate and conclude the contract with you against the aforementioned tender reference for the following Software manufactured by us: -

< manufacturer / producer will mention the details of all the proposed product(s) with their version details>

We undertake to provide full guarantee and warranty for the offered Solution, Products, and services for the entire project contract period as per this Bidding document.

We also undertake to provide any or all of the following materials, notifications, and information pertaining to the Products manufactured or distributed by the Selected Bidder:

a. Such Products as the Purchaser may opt to purchase from the Supplier, provided, that this option shall not relieve the Supplier of any warranty obligations under the Contract; and
b. in the event of termination of production of such Products:

i. advance notification to the Purchaser of the pending termination, in sufficient time to permit the Bank to procure needed requirements; and
ii. Following such termination, furnishing at no cost to the Purchaser, the blueprints, design documents, operations manuals, standards, source codes and specifications of the Products, if requested.

We duly authorize the said firm to act on our behalf in fulfilling all installations, Technical support and maintenance obligations required by the contract.

Yours faithfully,

For and on behalf of M/s (Name of the manufacturer)

(Authorized Signatory)

Name, Designation & Contact No.:

Address: _____

Seal: