

**A Fixed Fee Statement of Work
Submitted to
Ministry of Labour, Health and
Social Affairs of Georgia
for
Healthcare Management
Information System extension
(phase 2.1)**

DRAFT

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1 Executive Summary

The health system of Georgia unites a large number of healthcare information Providers and Consumers. Creating the Collaborative Healthcare Environment (CHE) is one of the highest priorities and called to integrate all participants in to the common information environment based on National EHR.

The consolidation of medical (and other) information and effective communications between the Providers, Consumers, Ministry and citizens will significantly improve the core business processes, improve the quality and completeness of the information, which will lead to an overall increase in the quality of health services in Georgia.

Within the first phase of the CHE development project EHR based on EMC Healthcare Integration Portfolio was implemented. In order to use current EHR with maximum efficiency, EMC proposes to implement the next phase of the project and carry out the following main activities:

- Integrate EHR with existing HSSP system, including a set of specific functional modules
- Develop an extensible mobile platform, integrated with the EHR and HSSP, and provide modern mobile services to the citizens, doctors and specialists of the Ministry.
- Develop technical requirements for data Providers and Consumers to be connected to CHE
- Develop the long-term CHE extension strategy

Implementation of these activities will accelerate the filling of the EHR database with medical information and allow making full use of EHR by all CHE participants.

See the main Customer Goals and Perspective description in section 1.4.

1.1 Terms and acronyms

CHE	Collaborative Healthcare Environment
CDA	Clinical Document Architecture
DICOM	Digital Imaging and Communications in Medicine. Is a standard for handling, storing, printing, and transmitting information in medical imaging. It includes a file format definition and a network communications protocol.
EMR/EHR	Electronic Medical Records/ Electronic Health Records
HIS	Health Information System
HL7	Health Level-7 or HL7 refers to a set of international standards for transfer of clinical and administrative data between Hospital information systems.
HMIS	Health Management Information System
HSSP	Health System Strengthening Project
ICD-10	International Classification of Diseases (ICD)
ICPC2	International Classification of Primary Care, Second edition (ICPC-2)
IHE	Integrating the Healthcare Enterprise
MoLHSA	Ministry of Labour, Health and Social Affairs of Georgia
NCSP	Nomesco Classification of Surgical Procedures
TR	Technical Requirements
USAID	United States Agency for International Development
XDS	Cross-Enterprise Document Sharing
Customer	ESABI Ltd
Clinical/medical information	Medical data and patient records to be stored in EHR

1.2 Background

Currently MoLHSA operates Health Management Information System, which includes a wide range of information modules, allowing you to perform accounting and processing of information in the field of public health in Georgia. HMIS provides the ability to exchange information among key stakeholders of the health system of Georgia, such as the Ministry of Health, Labor and Social Affairs of Georgia, hospitals, insurance and pharmaceutical companies, as well as the population of Georgia.

Within the previous phases of Collaborative Healthcare Environment creation the following subsystems were implemented:

- A system to store electronic medical records (EMR¹) for the Georgian population
- A facility to enable collection of patient-related activity data via (a) an electronic message interchange (HL7) and (b) manual submission via web-based form
- A “light version” of a citizen portal which will be restricted in scope and provide the Citizen with a read only view of their medical data
- A “light version” of a doctors portal which will be restricted in scope and provide
- Doctors with a form search, view and submission of medical data determined within the project which will be defined as the Central EMR minimum data set

As part of Phase 2.1 is necessary to continue the creation of Collaborative Healthcare Environment by expanding the current functionality, as well as integration of existing subsystems.

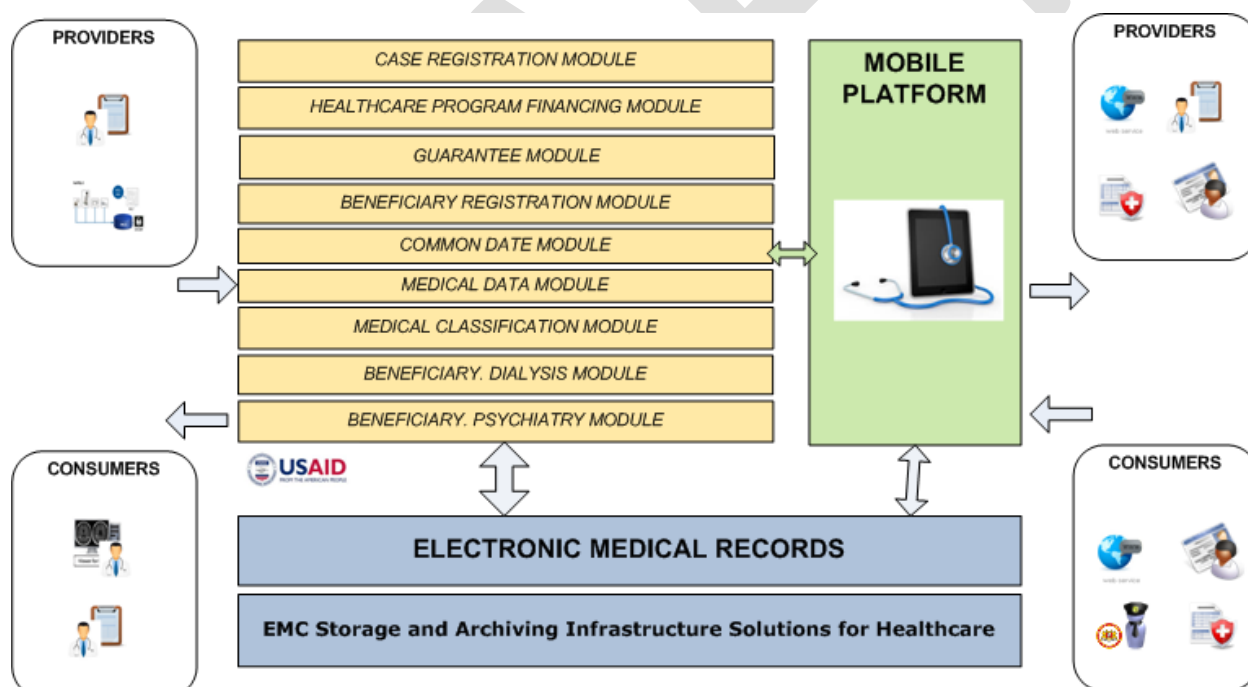


Figure 1. The target infrastructure after phase 2.1

¹ Based on EMC Healthcare Integration Portfolio (Integrated Patient Record)

1.3 Technical Landscape

The main parts of technical landscape are:

- EHR (EMR + wHospital)
- HSSP modules
- Mobile platform/services

The main activities for the current phase:

- EHR with HSSP integration
- EHR functionality enhancements
- Mobile platform/services implementation
- Partial data flow redesign to improve data management efficiency
- Users experience improvements

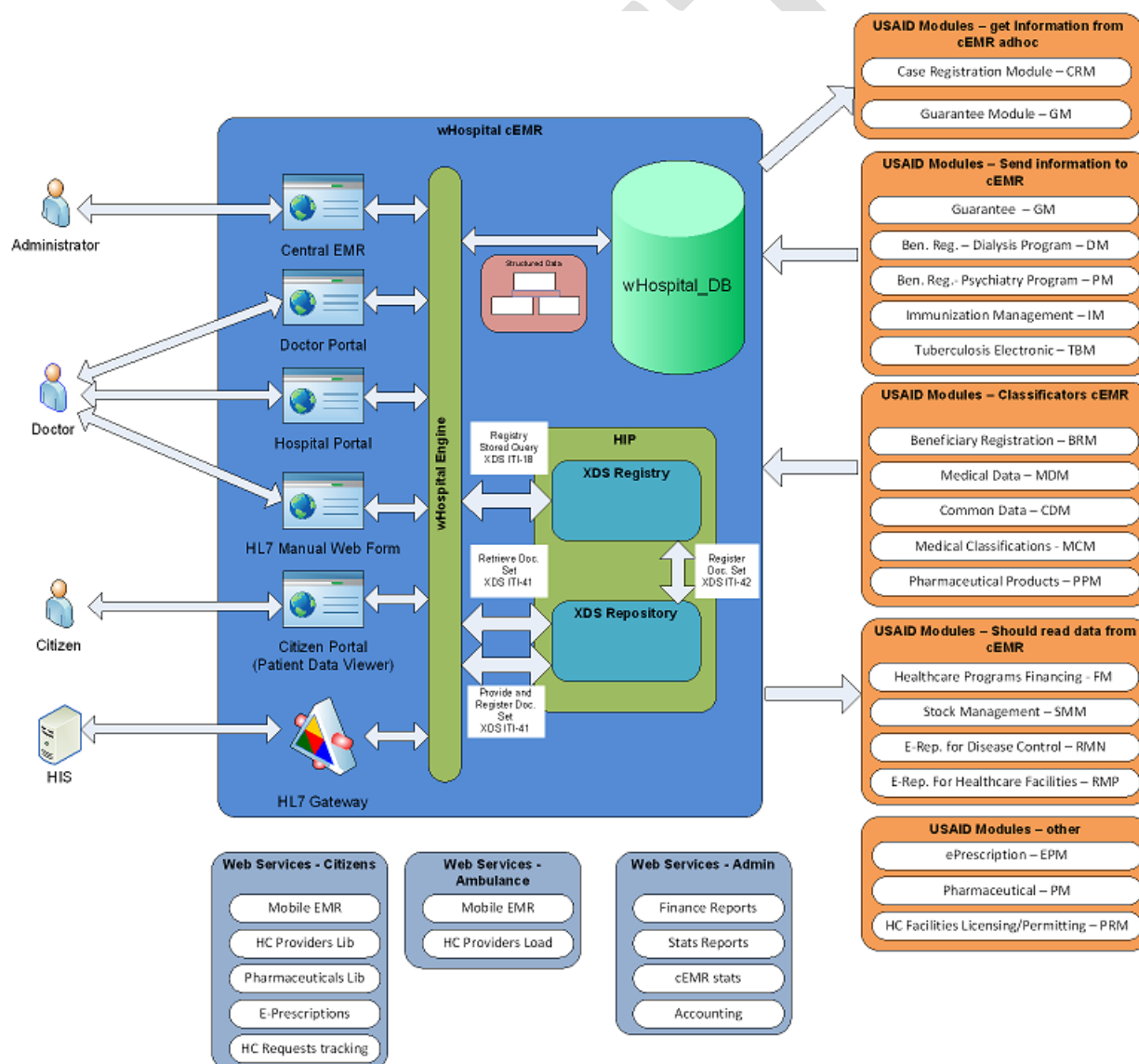


Figure 2. Common technical landscape (to be)

1.4 Customer Goals and Perspective

The main goals of Collaborative Healthcare Environment implementation are:

- To improve the healthcare services delivered in Georgia
- To continue the eGovernment improvement initiatives in Georgia under their HMIS overall program to extend to a Central Electronic Medical Record facility

The following are the key technical objectives of the current phase engagement for MoLHSA:

- To integrate part of HSSP modules (Health System Strengthening Project) with EMR (the detailed list is provided below)
- To partially reengineer the processes and data flow to prevent data duplication and improve user experience
- To create modern extensible mobile platform and provide the Ministry, clinics (doctors) and citizens with the mobile healthcare services
- To improve information (medical and other data) management by implementing the workflow subsystem which will allow to design the automate the processes

The following² are the key technical objectives for the future phases and are not inside the scope of this project phase:

- To continue to improve data management and business processes automation
- To manage DICOM images by implementing the Vendor Neutral Archive
- To manage and share the video content with the Video Archive
- To improve the healthcare analytics by implementing the Analytics Subsystem

2 Scope of Services

The following section defines the areas that are in and out of scope for this project. Any areas that are not defined as “in scope” are specifically “out of scope.” Items defined in the “out of scope” section are presented for clarity.

In Scope Activities:

Experienced EMC Information Intelligence Group Consulting personnel or authorized agents will work closely with Ministry of Labour, Health and Social Affairs of Georgia staff to manage the Healthcare Management Information System extension (phase 2.1). During this engagement, EMC will:

1. Assign a project manager to manage this effort and conduct meetings as necessary and as mutually agreed upon, including status meetings and timely meeting minutes.
2. Develop Solution Architecture and provide Architecture Review document
3. Develop Technical Architecture (infrastructure) and provide Infrastructure Review document
4. Implement functional requirements:
 - EHR and HSSP modules integration (type 1: intellectual integration)
 - EHR and HSSP modules integration (type 2: data transfer to EHR)
 - EHR and HSSP modules integration (type 3: show some HSSP data in EHR UI)
 - EHR and HSSP modules integration (type 4: data transfer to HSSP)
 - Mobile platform/services development
5. Create documentation for the current phase functionality
 - User manuals

² To be clarified and specified within the next phase. Out of the current scope.

- Administrator manuals
- 6. Develop the long-term strategy and according documentation
 - Collaborative Healthcare Environment enhancement strategy for 2015-2016 years
 - Technical requirements towards Healthcare Environment data Providers and Consumers
 - The strategy and universal mechanism for the data interchange between EHR and HSSP

Out of Scope Activities:

Any activities not listed above including, but not limited to the following:

1. Any installation, configuration or testing of hardware or software not specifically described in this SOW.
2. Load testing or performance benchmarking relative to the solution deployed in this SOW.
3. Any OS or non-EMC application or hardware tuning, troubleshoots or maintenance steps including patches, upgrades and/or installations/re-installations.
4. Any CPU, server, or mid-range host monitoring and console operations.
5. Troubleshooting, performance tuning, or configuration of the client's messaging environment.
6. Network (LAN or WAN) support of day to day operations, resolution of network connectivity or security access issues. EMC will not be responsible for the performance of any third party products in the customer environment, including but not limited to the following software: database management, application and web server, operating system, backup/restore, or clustering/high availability.
7. Installation, certification or configuration, and support of electrical, network, telecommunications, any environment not described in the SOW, cabling infrastructure and components.
8. Server and/or file system consolidations and/or relocation or validation of databases or data files.
9. applications
10. Migration or conversion of any historical or legacy data.
11. Upgrade of any existing EMC applications unless otherwise specified in this SOW.
12. Creation and/or follow-up on support tickets opened through the EMC Support Desk which is not related to this Service
13. EMC is not responsible for correctness of the data, which transfers to EHR from HSSP or other external sources (e.g. MoLHSA databases). EMC does not provide the data validation and correction.
14. Organization and managing the process of connecting medical data Providers and Consumers to the EHR/HMIS

2.1 Technical requirements mapping

The following Table contains the mapping of the chapters for Customer Technical Requirements document and the current SoW to ensure that all Customer requirements are taken into consideration and will be met within the Work Packages, described in sections 3.1, 3.2, 3.3, 3.4 and 1.1.

TR Chapter	Description	SoW chapter
D.1	Common requirements towards CHE	9.1.1
D.2	EHR and USAID modules integration requirements	9.1.2
D.3	Data flow pre-requirements	9.1.2.1
D.5	Mobile platform common requirements	9.3.1
E.1.1	(EHR)-(Case Registration) integration requirements	9.2.1
E.1.2	(EHR)-(Guarantee) integration requirements	9.2.2
E.2	EHR and HSSP modules integration (type 2: data transfer to EHR):	9.2.3
- E.2.2	- (EHR)-(Beneficiary Dialysis) integration requirements	- 9.2.3.1
- E.2.3	- (EHR)-(Beneficiary Psychiatry) integration requirements	- 9.2.3.2
- E.2.4	- (EHR)-(Immunization) integration requirements	- 9.2.3.3
- E.2.5	- (EHR)-(Tuberculosis) integration requirements	- 9.2.3.4
E.3	EHR and HSSP modules integration (type 3: show HSSP data in EHR UI):	9.2.4
- E.3.1	- (EHR)-(Beneficiary Registration) integration requirements	- 9.2.4.1
- E.3.2	- (EHR)-(Medical Data) integration requirements	- 9.2.4.2
- E.3.3	- (EHR)-(Common Data) integration requirements	- 9.2.4.3
- E.3.4	- (EHR)-(Medical Classifications) integration requirements	- 9.2.4.4
E.4	EHR and HSSP modules integration (type 4: data transfer to HSSP):	9.2.5
- E.4.1	- (EHR)-(Finance) integration requirements	- 9.2.5.1
- E.4.2	- (EHR)-(Stock Management) integration requirements	- 9.2.5.2
- E.4.3	- (EHR)-(E-Reporting 4 National Center) integration requirements	- 9.2.5.3
- E.4.4	- (EHR)-(E-reporting 4 HC Facilities) integration requirements	- 9.2.5.4
E.5	Mobile platform functional requirements:	9.3.2
- E.5.2	- Mobile services for citizens	- 9.3.2.1
- E.5.3	- Mobile services for doctors	- 9.3.2.2
- E.5.4	- Mobile services for MoLHSA	- 9.3.2.3
E.6	e-Prescription management subsystem requirements	9.2.5.2 9.3.2.1.5
G	REQUIREMENTS TOWARDS DOCUMENTATION	4

3 Description of Work

The overall engagement is divided into individual Work Packages (WPs) that are described below, together with the assumptions, pre-requisites, and estimated Person-Days (PDs) required to produce the expected outputs (deliverables). In each case, EMC shall be responsible for the timely and efficient creation of the relevant deliverables, and for the quality of their content, in line with both this SOW.

3.1 Analysis

3.1.1 Work Package 1 – Project charter preparation

Activities: The detailed activities of Work Package 1 include:

- Develop and approve project charter

Deliverables:

- Project charter

Acceptance Criteria:

- Project charter approved and signed

Assumptions:

No specific assumptions

3.1.2 Work Package 2 – Functional requirements for mobile platform collection

Preliminary technical requirement towards mobile platform functionality are given in section 9.3.

Activities: The detailed activities of Work Package 2 include:

- Gathering the main Customer needs and expectations regarding to the mobile services with subject matter experts and IT-specialists
- Functional requirements analysis for citizen's mobile services
 - Directory of medical institutions
 - Pharmaceutical products directory
 - First aid manual directory
 - Mobile EMR
 - E-Prescriptions
 - Medical services requests (status tracking)
- Functional requirements analysis for doctor's mobile services
 - Mobile EMR access
 - Clinics workload management (available beds etc.)
- Functional requirements analysis for Ministry mobile services
 - Common financial indicators
 - Common healthcare statistics
 - EHR filling control
 - Expenses control
- For all the services the "to be" data flow diagrams must be specified

Deliverables:

- Functional specification for mobile middleware platform
- Functional specification for mobile services for
 - citizens
 - doctors
 - Ministry

Acceptance Criteria:

- Functional specification contains the detailed description of the platform architecture and services functionality in accordance with Customer expectations

Assumptions:

- Customer provides the subject matter experts and IT-specialists to discuss mobile platform requirements with EMC analysts and architects
- Based on the analysis and refinement of functional requirements of the project cost and duration can be adjusted by agreement of the parties
- The list and functionality of mobile services is the subject of discussion and can be changed (compared with the list given in section 9.3.2)

3.1.3 Work Package 3 – Functional requirements for 1st part of EHR-HSSP integration collection

Preliminary technical requirement towards 1st part of EHR-HSSP integration are given in sections 9.2.1 and 9.2.2.

Activities: The detailed activities of Work Package 3 include:

- HSSP modules functionality analysis
 - Case Registration Module functionality analysis
 - Guarantee Module functionality analysis
 - Information Portal functionality analysis
 - Beneficiary Registration Module
 - E-Reporting Module for National Center for Disease Control and Public Health
 - and other modules which takes part (in a background) in medical case management processes
- Common HSSP data flow analysis
- Use-cases specification and justification
 - Urgent cases (the basic module is Case Registration Module)
Clinics provide the medical services in urgent mode (e.g. the patient was delivered to the hospital by ambulance). Clinic enters according data (medical and finance) to the HSSP.
 - Planned services (the basic module is Guarantee Module)
Patient communicates with clinics and MoLHSA to specify and approve the needed medical services. According data (medical and finance) entered by the Ministry specialists and clinics to the HSSP database.
 - Regular services (the basic module is E-Reporting Module)
Patient gets the medical services in the clinics domiciliary. Clinics enter according information to the HSSP database.

For all the cases described above “to be” use-cases and data flow diagrams must be developed. The medical data must be transferred and stored in the EHR database. “A” class clinics (see 9.1.2.2.1) must be able to enter the case information via EHR UI, whereas “B” class clinics (see 9.1.2.2.2) must be able to continue to work with HSSP UI.

- Detailed integration requirements specification

Deliverables:

- Functional specification for EHR-HSSP part 1 integration. The document must contains:
 - Detailed use-cases description for all the cases types
 - Detailed data flows between HSSP modules (other modules which takes part case management processes) and between EHR-HSSP
 - Functional specification for according EHR UI enhancements
 - Functional specification for according HSSP enhancements

Acceptance Criteria:

- Functional specification contains the detailed description of the EHR-HSSP part 1 functionality in accordance with Customer expectations

Assumptions:

- Customer provides the subject matter specialists to interact with the EMC analysts
- Customer provides the technical specialists to interact with the EMC architects
- Customer provides a description of existing applications (HSSP modules and so on.)
- Based on the analysis and refinement of functional requirements of the project cost and duration can be adjusted by agreement of the parties

3.1.4 Work Package 4 – Functional requirements for 2nd part EHR-HSSP integration collection

Preliminary technical requirement towards 2nd part of EHR-HSSP integration are given in sections 9.2.3, 9.2.4 and 9.2.5.

Activities: The detailed activities of Work Package 4 include:

- HSSP modules functionality analysis
 - Beneficiary Registration Module – Dialysis Program
 - Beneficiary Registration Module - Psychiatry Program
 - Immunization Management Module
 - Tuberculosis Electronic Module
 - Healthcare Programs Financing Module
 - Common Data
 - Medical Data
 - Medical Classification Module
 - Pharmaceutical Products Module
 - E-reporting Module For Healthcare Facilities
- Use-cases specification and justification for all the modules types
 - Type 2 modules (see 9.2.3)

For all the “type 2” modules the “to be” HSSP-EHR data flow diagrams must be developed.

For Beneficiary Registration Module – Dialysis Program and Beneficiary Registration Module - Psychiatry Program modules the medical data (provided service history and brief description) to be transferred and stored in EHR database must be described.

For Immunization Management and Tuberculosis Electronic modules the EHR-suitable data must be identified and described as well.

- Type 3 modules (see 9.2.4)

The “type 3” modules data could be used in EHR as auxiliary data (directories, classifications and so on). This refers to the Beneficiary Registration Module, Medical Data Module, Common Data Module, Medical Classifications Module and Pharmaceutical Products Module. For these modules the data to be used/shown via EHR UI must be specified and described.

- Type 4 modules (see 9.2.5)

The “type 4” modules must be analyzed in terms of possibility and necessity of EHR-data usage (e.g. for creating more complex reports). For such HSSP modules the needed EHR-data must be specified and described. The according HSSP functionality enhancements must be specified as well.

- Develop the Collaborative Healthcare Environment enhancement strategy for 2015-2016 years

The document must describe the following aspects of CHE extension:

- HSSP architecture transformation strategy
- improving the functionality and flow of information within the HSSP
- expansion and deepening of EHR-HSSP integration
- new HMIS subsystems implementation strategy (VNA, Video archive, Analytics subsystem etc.)

Deliverables:

- Functional specification for EHR-HSSP part 2 integration
 - “Data transfer from HSSP to EHR” integration (“type 2 modules”)
 - “Show/use auxiliary HSSP data in EHR” integration (“type 3 modules”)
 - “EHR data transfer to HSSP” integration (“type 4 modules”)
 - Functional specification for according HSSP enhancements
- Collaborative Healthcare Environment enhancement strategy for 2015-2016 years

Acceptance Criteria:

- Functional specification contains the detailed description of the EHR-HSSP part 2 functionality in accordance with Customer expectations

Assumptions:

- Customer provides the subject matter specialists to interact with the EMC analysts
- Customer provides the technical specialists to interact with the EMC architects
- Customer provides a description of existing applications (HSSP modules and so on.)
- Based on the analysis and refinement of functional requirements of the project cost and duration can be adjusted by agreement of the parties
- If the modules, specified as “type 2” module, do not contain any clinical data to be stored in EHR database, such modules must be marked as «Not involved in to the integration».
- If the modules, specified as “type 3” module, do not contain any auxiliary data to be used/shown in EHR, such modules must be marked as «Not involved in to the integration».
- If the modules, specified as “type 4” module, do not need to get EHR-data it functional efficiency or such improving will lead to dramatic HSSP module upgrade/recreation, such modules must be marked as «Not involved in to the integration».

3.1.5 Work Package 5 – Project management for analysis phase

Activities: The detailed activities of Work Package 5 include:

- Manage analysis activities
- Organize work sessions with Customer's subject matter and technical specialists
- Develop analysis plan
- Develop brief analysis report
- Manage detailed functional specification development
- Manage the project scope

Deliverables:

- Phase detailed plan
- Status reports

Acceptance Criteria:

- Plan is approved
- Analysis results provided

Assumptions:

- No specific assumptions

3.2 Development and testing

3.2.1 Work Package 6 – Technical specification preparation and project plan update

Activities: The detailed activities of Work Package 6 include:

- Additional analysis of the current HMIS architecture
- Solution Architecture development
- Additional analysis of the current infrastructure
- Technical Architecture development
- Project plan update

Deliverables:

- Solution Architecture Review
- Technical Architecture Review
- Updated project plan

Acceptance Criteria:

- Solution Architecture Review contains all the aspects of target architecture in accordance with Technical Requirements
- Infrastructure Review contains all the aspects of target architecture in accordance with Technical Requirements

Assumptions:

- Customer provides access to the current HMIS and provides the technical specialists to communicate with EMC architects
- Customer provides access to the current infrastructure and provides the technical specialists to communicate with EMC architects

3.2.2 Work Package 7 – Development and testing of 1st part of EHR-HSSP integration

Activities: The detailed activities of Work Package 7 include:

- Detailed analysis of the Case Registration Module database structure
- Case Registration HL7 V3 Data Model development
- Detailed analysis of the Guarantee Module database structure
- Guarantee case Registration HL7 V3 Data Model development
- EHR-HSSP Integration module implementation
 - Integration with the basic case management modules such as Case Registration, Guarantee, Information Portal, Beneficiary Registration and E-Reporting
 - Integration with other modules which takes part (in a background) in case management processes
- EHR functionality enhancements
- Case registration functional testing
 - Urgent cases management
 - Planned cases management
 - Regular cases management

- Data transfer testing (EHR->HSSP, HSSP->EHR)
 - EHR must receive all the clinical data related to the cases management process
 - HSSP must receive all the financial and other needed data to be able to manage the financial aspects of the cases management process
- Develop user manuals
- Work sessions with the Customer specialists
 - Functionality demonstration, discussion and justification
 - Correct the software configuration according to the Customer feedback

Deliverables:

- System distributive (Integration module and UI enhancements)
- Case (for all the cases types) Registration HL7 V3 Data Model description
- User manual for Cases management via EHR UI
- Work sessions protocols

Acceptance Criteria:

- Case can be registered through EHR UI
- Case information (including finance data) transfers to HSSP successfully
- Transferred data is enough to manage the cases in HSSP
- Case information, registered in HSSP, transfers to EHR successfully
- Case information can be viewed through EHR UI
- System configured according to the Customer remarks described in the work sessions protocols

Assumptions:

- Customer is responsible for test environment implementation, which could be used for HER-HSSP integration testing
- Customer ensures all the HSSP modules work and ready for the integration
- Customer organizes the Work sessions and deliver specialists to participate

3.2.3 Work Package 8 – Development and testing of 2nd part of EHR-HSSP integration

Activities: The detailed activities of Work Package 8 include:

- Implement “type 2” HSSP modules integration with EHR
 - EHR - Beneficiary Dialysis Module integration implementation
 - EHR - Beneficiary Psychiatry Module integration implementation
 - EHR - Immunization Module integration implementation
 - EHR - Tuberculosis Module integration implementation
- Implement “type 3” HSSP modules integration with EHR
 - EHR - Beneficiary Registration Module integration implementation
 - EHR - Medical Data Module integration implementation
 - EHR - Common Data integration implementation
 - EHR - Medical Classifications Module integration implementation
- Implement “type 4” HSSP modules integration with EHR
 - EHR - Finance Module integration implementation

- EHR - E-Reporting 4 National Center Module integration implementation
 - EHR - E-reporting 4 HC Facilities Module integration implementation
- EHR functionality enhancements
- HSSP functionality enhancements
- Data transfer testing
 - Transferring the clinical data from “type 2” modules to EHR for permanent storage
 - Transferring the auxiliary data from “type 3” modules to EHR
 - Transferring the clinical data from EHR to “type 4” modules
- Develop user manuals
- Work sessions with the Customer specialists
 - Functionality demonstration, discussion and justification
 - Correct the software configuration according to the Customer feedback
- Develop technical requirements towards Healthcare Environment data Providers and Consumers

This paper must provide the technical requirements for medical data Providers and Consumers in the presence of EHR-HSSP integration. The document must contain a description of methods of transmitting / receiving information, data formats, and so on. The main purpose of the document is technical support for the process of connecting the CHE participants to the EHR.
- Develop the strategy and universal mechanism for the data interchange between EHR and HSSP

The mechanism must provide the ability to configure the data transmission between EHR and HSSP without the need to implement specific integration module to each existing or new HSSP module. Moreover this mechanism should become the basic for the universal data exchange within HMIS.

Deliverables:

- System distributive (Integration module and UI enhancements)
- User manuals for EHR and HSSP users (who use EHR data via HSSP UI)
- Work sessions protocols
- Technical requirements towards Healthcare Environment data Providers and Consumers
- The strategy and universal mechanism for the data interchange between EHR and HSSP

Acceptance Criteria:

- The “type 2” HSSP modules are able to transfer the clinical data to EHR and EHR is able to store and show this information
- The “type 3” HSSP modules data can be used (showed via EHR UI or user in a background) in EHR as auxiliary information
- The “type 4” HSSP modules can use EHR-data and HSSP UI is able to show this information
- System configured according to the Customer remarks described in the work sessions protocols

Assumptions:

- If the modules, specified as “type 2” module, do not contain any clinical data to be stored in EHR database, such modules must be marked as «Not involved in to the integration».
- If the modules, specified as “type 3” module, do not contain any auxiliary data to be used/shown in EHR, such modules must be marked as «Not involved in to the integration».
- If the modules, specified as “type 4” module, do not need to get EHR-data it functional efficiency or such improving will lead to dramatic HSSP module upgrade/recreation, such modules must be marked as «Not involved in to the integration».

- Customer is responsible for test environment implementation, which could be used for HER-HSSP integration testing
- Customer ensures all the HSSP modules work and ready for the integration
- Customer organizes the Work sessions and deliver specialists to participate

3.2.4 Work Package 9 – Mobile Platform development and testing

Activities: The detailed activities of Work Package 9 include:

- Mobile platform architecture development

The mobile platform must:

- Ensure management of mobile devices and applications
- Provide mobile services unified mechanism for data encryption to protect sensitive information
- Provide mobile services universal functions of authorizing and authenticating users of mobile services through integration with national registers
- Provide mobile services unified access to the national classification systems
- Provide access to mobile services to information systems MoLHSA
- Provide the ability to access mobile services to systems of other ministries
- Provide access to mobile services to mobile operators to send notifications to mobile devices (SMS - Alert)
- Mobile services implementation
 - Group 1: Mobile services directories
 - Group 2: Active mobile services
- Mobile services testing
 - Directory of medical institutions
 - Pharmaceutical products directory
 - First aid manual directory
 - Mobile EMR
 - e-Prescriptions
 - Clinics workload management (available beds etc.)
 - Medical services requests (status tracking)
 - Common financial indicators
 - Common healthcare statistics
 - EHR filling control
 - Expenses control

Deliverables:

- Mobile platform architecture review
- Distributive (middleware components and mobile applications)
- User manuals for mobile services

Acceptance Criteria:

- Mobile platform architecture review contains all the aspects of target architecture in accordance with Technical Requirements

- User is able to install the services to mobile phone and use it in accordance with functional specification

Assumptions:

- The list and functionality of mobile services can be changed after the completion of analysis step (see 3.1.2).

3.2.5 Work Package 10 – Project management for development and testing phase

Activities: The detailed activities of Work Package 3 include:

- Manage technical specification development
- Upgrade the project plan
- Manage development activities
- Manage testing activities
- Manage the project scope and change requests
- Organize work sessions with Customer's subject matter and technical specialists

Deliverables:

- Updated phase detailed plan
- Status reports
- Work sessions minutes of meeting

Acceptance Criteria:

- Updated plan is approved
- All needed software successfully developed in accordance with functional specifications
- Users and administrator manuals are provided

Assumptions:

No specific assumptions

3.3 Deployment

3.3.1 Work Package 11 – Deployment of the 1st part of EHR-HSSP integration

Activities: The detailed activities of Work Package 11 include:

- Deploy EHR-HSSP part 1 integration distributive
- Develop and approve the Deployment Checklist document
- Check the deployment correctness and the system healthy according to the Technical Architecture review and Deployment Checklist
- System configuration and tuning if needed
- Develop system installation and validation protocol
- Develop administrator manual
- Develop system installation and configuration report

Deliverables:

- Distributive (integration module and EHR extensions), v.1.0
- Deployment Checklist
- System installation and validation protocol
- Administrator manual to support the integration module
- Upgraded user manuals

Acceptance Criteria:

- The system deployed in accordance with Technical Architecture review
- The system validation performed according to the Deployment Checklist and the results of checking are “success” for all the tests

Assumptions:

- Customer is responsible for productive environment preparation according to the Technical Architecture review
- Customer provides the technical infrastructure specialists

3.3.2 Work Package 12 – Deployment of the 2nd part of EHR-HSSP integration

Activities: The detailed activities of Work Package 12 include:

- Deploy EHR-HSSP part 2 integration distributive
- Develop and approve the Deployment Checklist document
- Check the deployment correctness and the system healthy according to the Technical Architecture review and Deployment Checklist
- System configuration and tuning if needed
- Develop system installation and validation protocol
- Updating administrator manual
- Updating user manual

Deliverables:

- Distributive (integration module and EHR extensions), v.2.0

- Deployment Checklist
- System installation and validation protocol
- Updated administrator manual
- Updated user manuals

Acceptance Criteria:

- The system deployed in accordance with Technical Architecture review
- The system validation performed according to the Deployment Checklist and the results of checking are "success" for all the tests

Assumptions:

- Customer is responsible for productive environment preparation according to the Technical Architecture review
- Customer provides the technical infrastructure specialists

3.3.3 Work Package 13 – Mobile platform deployment

Activities: The detailed activities of Work Package 13 include:

- Deploy mobile platform distributive
- Configure mobile platform integration with EHR and HSSP
- Develop and approve the Mobile platform Deployment Checklist document
- Check the deployment correctness and the platform healthy according to the Technical Architecture review and Deployment Checklist
- Platform configuration and tuning if needed
- Develop platform installation and validation protocol
- Install and configure the mobile services for
 - Citizens
 - Doctors
 - Ministry
- Develop and approve the Mobile services Deployment Checklist document
- Check the deployment correctness and the services healthy according to the Technical Architecture review and Deployment Checklist
- Services configuration and tuning if needed
- Develop services installation and validation protocol
- Develop administrator manual
- Develop user manual

Deliverables:

- Distributive (mobile platform/services)
- Platform installation and validation protocol
- Services installation and validation protocol
- Administrator manual to support mobile platform
- User manuals for mobile services

Acceptance Criteria:

- The platform and services deployed in accordance with Technical Architecture review
- The platform and services validation performed according to the Deployment Checklist and the results of checking are “success” for all the tests

Assumptions:

- Customer is responsible for productive environment preparation according to the Technical Architecture review
- Customer provides the technical infrastructure specialists

3.3.4 Work Package 14 – Project management for deployment phase

Activities: The detailed activities of Work Package 14 include:

- Manage deployment activities
- Coordinate communications between EMC and Customer infrastructure specialists
- Manage installation and configuration documentation development

Deliverables:

- Updated phase detailed plan
- Status reports
- System installation and validation protocols

Acceptance Criteria:

- All developed software successfully deployed to the Customer infrastructure
- Installation and configuration documentation is provided

Assumptions:

No specific assumptions

3.4 Acceptance

3.4.1 Work Package 15 – Acceptance of the 1st part of EHR-HSSP integration

Activities: The detailed activities of Work Package 15 include:

- Develop and approve the UAT (User Acceptance Testing) program for the 1st part integration
- Perform 1st part integration acceptance according to the UAT
- Develop acceptance protocol
- Perform system configuration/tuning if needed
- Update user and administrator manuals if needed

Deliverables:

- User Acceptance Testing program
- Acceptance Protocol
- Updated manuals
- Final distributive

Acceptance Criteria:

- Integration module and EHR extensions provides entire set of needed functionality in accordance with functional specification (for 1st part integration)
- User manuals contains description for all implemented functionality
- System and documentation updated in accordance with acceptance protocol

Assumptions:

- Customer is responsible for system acceptance testing organization (class, hardware, software etc.)

3.4.2 Work Package 16 – Acceptance of the 2nd part of EHR-HSSP integration

Activities: The detailed activities of Work Package 16 include:

- Develop and approve the UAT (User Acceptance Testing) program for the 2nd part integration
- Perform 2nd part integration acceptance according to the UAT
- Develop acceptance protocol
- Perform system configuration/tuning if needed
- Update user and administrator manuals if needed

Deliverables:

- User Acceptance Testing program
- Acceptance Protocol
- Updated manuals
- Final distributive

Acceptance Criteria:

- Integration module and EHR extensions provides entire set of needed functionality in accordance with functional specification (for 2nd part integration)
- User manuals contains description for all implemented functionality

- System and documentation updated in accordance with acceptance protocol

Assumptions:

- Customer is responsible for system acceptance testing organization (class, hardware, software etc.)

3.4.3 Work Package 17 – Mobile platform acceptance

Activities: The detailed activities of Work Package 17 include:

- Develop and approve the UAT (User Acceptance Testing) program for the mobile services
- Perform mobile services acceptance according to the UAT
- Develop acceptance protocol
- Perform system configuration/tuning if needed
- Update user and administrator manuals if needed

Deliverables:

- User Acceptance Testing program
- Acceptance Protocol
- Updated manuals
- Final distributive

Acceptance Criteria:

- Mobile platform provides entire set of needed functionality in accordance with functional specification
- User manuals contains description for all implemented functionality
- Services and documentation updated in accordance with acceptance protocol

Assumptions:

- Customer is responsible for system acceptance testing organization (class, hardware, software etc.)
- Customer provides mobile device for testing and ensure it operates normally (particularly, is able to get and send data)

3.4.4 Work Package 18 – Project management for acceptance phase

Activities: The detailed activities of Work Package 18 include:

- Manage all acceptance activities from EMC side
- Manage acceptance program development
- Approve acceptance program with Customer
- Develop acceptance protocol
- Manage system and documentation upgrade

Deliverables:

- Updated phase detailed plan
- Status reports
- System Acceptance Protocols
- Updated manuals
- Final distributive

Acceptance Criteria:

- All deployed software successfully validated and accepted according to the UAT
- System and documentation updated in accordance with acceptance protocol

Assumptions:

No specific assumptions

4 Documentation

The following main documentation to be developed within the current project phase:

No.	Document	Section
1.	Project charter	3.1.1
2.	Functional specification for mobile platform/services	3.1.2
3.	Functional specification for EHR-HSSP part 1 integration	3.1.3
4.	Functional specification for EHR-HSSP part 2 integration	3.1.4
5.	Solution Architecture Review	3.2.1
6.	Technical Architecture Review	3.2.1
7.	Mobile platform architecture review	3.2.4
8.	Project plan	3.2.1
9.	Users manuals	3.2.2, 3.2.3, 3.2.4, 3.4.1, 3.4.2, 3.4.3
10.	Administrators manuals	3.3.1, 3.3.2, 3.3.3
11.	System/services Deployment Checklist	
12.	System/services installation and validation protocol	
13.	User Acceptance Testing program	3.4.1, 3.4.2, 3.4.3
14.	Acceptance Protocol	
15.	Collaborative Healthcare Environment enhancement strategy for 2015-2016 years	3.1.4
16.	Technical requirements towards Healthcare Environment data Providers and Consumers	3.2.3
17.	The strategy and universal mechanism for the data interchange between EHR and HSSP	3.2.3

5 Project Management and Governance

Throughout the course of the project, the Controlling phase, the EMC Project Manager will proactively manage and control the scope, budget, risks of the project as well as direct the work of the EMC resources. These tasks will be performed in concert with the Ministry of Labour, Health and Social Affairs of Georgia Project Manager or Sponsor.

The Information Intelligence Group Regional Delivery management team will provide regular delivery oversight and become actively engaged should the occasion arise that senior management is required to resolve issues that cannot be resolved by the project team on the ground.

Project management team will provide overall engagement coordination, project status, change control, scope, communication, schedule, issue, budget and deliverable management for activities as defined in this proposal.

- a. Formalization of any requirements or change requests expressed by Ministry of Labour, Health and Social Affairs of Georgia personnel during meetings
- b. Highlight of any project risks or issues, in particular related to Ministry of Labour, Health and Social Affairs of Georgia personnel availability
1. An initial kick-off and startup period / effort are included as part of this deliverable.
- c. This will include a series of meetings with Ministry of Labour, Health and Social Affairs of Georgia personnel to review the overall objectives, risk scope, and project plans to ensure a successful startup of the effort and establish a working project plan.

It is assumed that project meetings will take place at Ministry of Labour, Health and Social Affairs of Georgia premises or through Conference Calls.

6 Project Timeline and Fees

6.1 High Level Project Schedule

Information Intelligence Group Consulting anticipates that the project will be completed in approximately 23 weeks depending upon the resource assignment. The following is a high-level schedule for each major work package of the project.

Activity	Weeks																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Functional requirements for mobile platform collection																								
Functional requirements for 1 st part of EHR-HSSP integration collection																								

Note that this high level project schedule should be reviewed and revised by the customer and EMC project managers at the start of the project. A more complete project plan should be developed and agreed by the customer and EMC project managers upon project initiation and planning.

7 Fixed Price Payment

7.1 Fixed Fee Payment Schedule

Milestones will be confirmed as "Complete" only when formally accepted in writing by MoLHSA unless otherwise provided for in this SOW. Target dates for completion of the Milestones will be agreed between the parties in the Project Initiation Plan and EMC shall use all reasonable endeavors to meet these agreed dates.

Milestone Payment	Description	Date	Amount (\$)
Milestone 1	Completion of Work Package 1	20.10.14	
Milestone 2	Completion of Work Package 2	31.10.14	
Milestone 3	Completion of Work Package 3	24.10.14	
Milestone 4	Completion of Work Package 4	05.11.14	
Milestone 5	Completion of Work Package 5	05.11.14	
Milestone 6	Completion of Work Package 6	15.11.14	
Milestone 7	Completion of Work Package 7	25.12.14	
Milestone 8	Completion of Work Package 8	15.01.14	
Milestone 9	Completion of Work Package 9	20.12.14	
Milestone 10	Completion of Work Package 10	15.01.14	
Milestone 11	Completion of Work Package 11	20.01.14	
Milestone 12	Completion of Work Package 12	15.02.14	
Milestone 13	Completion of Work Package 13	20.01.14	
Milestone 14	Completion of Work Package 14	15.02.14	
Milestone 15	Completion of Work Package 15	01.02.14	
Milestone 16	Completion of Work Package 16	28.02.14	
Milestone 17	Completion of Work Package 17	28.02.14	
Milestone 18	Completion of Work Package 18	28.02.14	
TOTAL			

Prices quoted are exclusive of Taxes and VAT. Project expenses are however included in the total amount. On the basis of the activities described in this Statement of Work summarized above, this makes a total price of XXX. The total cost and duration of the project can be adjusted after the completion of the functional analysis step.

Should additional effort be required due to changes in the scope of this Project or material delays by MoLHSA which have been notified as Relief Events pursuant to the terms of the Agreement governing this Statement of Work, the relevant days and expenses will be covered through a Change Request (see Change Control Process) or a simplified "Extension of Contract" form to be provided by the EMC PM.

Invoices will be issued to the address indicated on the cover sheet, unless EMC is notified of a different invoice address (Please indicate invoice address above if necessary).

Note: Payment is due within 30 days of date of invoice.

7.2 Work hours and overtime

Normal working hours are 8 hours per Person Day between 10 AM and 6 PM Tbilisi time zone on weekdays.

7.3 Travel and Expenses

All prices quoted are inclusive of travel costs and other expenses incurred for the delivery of the scope detailed in SOW only. Any other expenses needed to be incurred by EMC due to change in scope will be included in the Change Request which will be issued as needed.

7.4 Project Organization

Information Intelligence Group Consulting will staff this engagement with appropriately skilled resources. The staffing process will occur once this Statement of Work has been approved. Information Intelligence Group Consulting will insure that resources with the appropriate technical skill set will be properly aligned with the requirements of the engagement. The following descriptions characterize the roles and responsibilities of each EMC project participant.

Resource	Description
Architect	Takes the lead in process design/redesign, solution architecture design, infrastructure design and planning, acceptance testing, and maintenance strategy development. Lead and participate in application customizations and technical implementations using structured techniques.
Associate Consultant	Works under the supervision of the project manager and with guidance from a senior project team member. This role engages with the client on requirement definition, solution feature mapping, solution design, infrastructure analysis, and acceptance testing.
Consultant	Works under the supervision of the project manager and with technical guidance from the Architect. This role engages with the client on requirement definition, solution feature mapping, solution design, infrastructure analysis, and acceptance testing.
Senior Consultant	Works under the supervision of the project manager and with technical guidance from the Architect. This role engages independently with the client on requirement definition, solution feature mapping, solution design, infrastructure analysis, and acceptance testing. A Senior Consultant takes the lead in defining the details of the upgrade path and also execution of the upgrade steps.
Delivery Manager	Serves as a customer contact and overall company customer interface relationships for defined scope of work to ensure responsiveness. Provides technical and/or business consultative leadership functions. Maintains awareness of existing or potential customer escalation issues, and provide command/control and timely updates.
Project Manager	Functions as the primary contact for Ministry of Labour, Health and Social Affairs of Georgia for this project. Assumes daily responsibility for the activities of the consultants and serve as the primary liaison for management. Possesses the ability to lead complex projects to a successful completion—on time and within the agreed budget and level of quality. Develops and maintains the project plan, manages issues, provides time and labor cost estimates, and maintains staffing at proper levels. Assumes responsibility for testing and implementation timelines.

7.4.1 Escalation

If problems occur within the project, solutions should be sought in the first instance within the project management team. Should further escalation become necessary, both parties' nominated contacts for the resolution of such situations shall be brought in. The nomination of contacts for the various questions should occur when the project commences. On EMC's side, these are:

- Standard products and licenses: EMC IIG PS Russia&CIS Account Manager
- Project progress; technical issues: EMC PM or EMC IIG PS Russia&CIS Delivery Manager
- Project Commercial issues: EMC IIG PS Russia&CIS Country Manager

7.5 Fee and Timeline Considerations

1. The engagement referenced by this SOW will be delivered on a **Fixed Fee** basis, unless mentioned otherwise.
2. The project is invoiced based on individual milestones acceptance.
3. Milestone payments should be done not later than 45 work days after milestones acceptance.
4. The cost provided herein is based solely on the resources assigned to the project and does not include the cost of client personnel who will also be involved in the project or of related software or hardware.
5. Project delays resulting from customer owned software or hardware issues may result in additional fees should the timeline of the project be impacted by these delays.
6. The cost herein is based on delivering the solution and deliverables as described in this SOW. Changes to the solution, deliverables and/or assumptions will require a revised price quote.
7. The cost herein does not include system administration activities such as the creating user accounts; adding users to groups, managing attribute lookup data, etc. These activities can be negotiated as part of a separate support and maintenance agreement.
8. Participants in the Knowledge Transfer sessions have previously been involved in the appropriate requirements and/or development engagement activities, and have received the prerequisite Documentum product fundamentals training appropriate to their business role.

7.6 Assumptions and Constraints

In addition to the specific assumptions detailed with each Work Package above, the project scope, timeline and fees outlined in this document are based on the following assumptions:

1. Ministry of Labour, Health and Social Affairs of Georgia will provide a project sponsor that will be available to EMC on an as-needed basis during the project.
2. This implementation will utilize only out of the box functionality for all products installed. No product customizations are expected, however should any customizations be required, a formal change request will document the approach, design and expected level of effort.
3. EMC will have access to necessary infrastructure support personnel including system and database administrators.
4. Review of all deliverables within a 2 day timeframe is necessary to meet the timeline of this engagement. Any delays can impact the project timeline and fees.
5. Any changes in project scope may impact the estimated timeline and fees.
6. Any requests for additional functionality or extended task duration is subject to change control
7. Ministry of Labour, Health and Social Affairs of Georgia will ensure that all passwords, systems access, knowledgeable technical personnel, and subject matter experts are available to EMC as needed to complete this engagement.

8. EMC will provide standard templates and mechanisms for performing System and user acceptance testing. Any changes to our standard approach will require a review of the project schedule and fees. Ministry of Labour, Health and Social Affairs of Georgia will be responsible for overall testing and test documentation.
9. During the course of this engagement, Information Intelligence Group Consulting will work very closely with the Customer's program management and technical staff. Continued access to key staff members and rapid review of deliverables is vital to the successful completion of the project. The Customer must ensure that required staff is available on a priority basis to the project team throughout the engagement period.
10. The Customer will provide a work area for the consultants while on site. This work area should include access to the network and the relevant servers, printer access, access to the Internet (to support a Virtual Private Network connection) and a working telephone.

8 Scope and Change Control

Changes to the SOW can only be made by the Ministry of Labour, Health and Social Affairs of Georgia PM or EMC PM, using the Change Request Form (provided during Project Initiation).

The requested change must be described and reasons for the change stated. The Change Request Form must also be signed by the relevant PM.

Change Requests will be submitted to the other party. The PM will indicate the effects of the Change Request in terms of cost, deadlines etc. on the Change Request Form based on Work Package and Work Units detailed in this SOW.

This project will focus on delivering the services as described previously in this Statement of Work. Additional requirements, based on Work Packages and Work Units, will require additional consulting time (with requisite funding) to be included in the completed deliverable. In the event that additional time is needed to complete the project, Information Intelligence Group Consulting will present Ministry of Labour, Health and Social Affairs of Georgia with a Change Order for additional time and cost. The project fees estimated in this Statement of Work will not be exceeded without a written and approved Change Order authorizing additional time and fees.

No services outside those described in this Statement of Work will be performed without an approved Change Order authorizing that work.

9 Appendix. Functional requirements

9.1 Target architecture requirements

9.1.1 Common Architecture requirements

9.1.1.1 Collaborative Healthcare Environment

The project should be designed not only to software architecture HMIS, but also determined the structure of a unified information environment Health - Collaborative Healthcare Environment (CHE), which is a collection of HMIS, suppliers and users of information, as well as standards for storing, managing and sharing information.

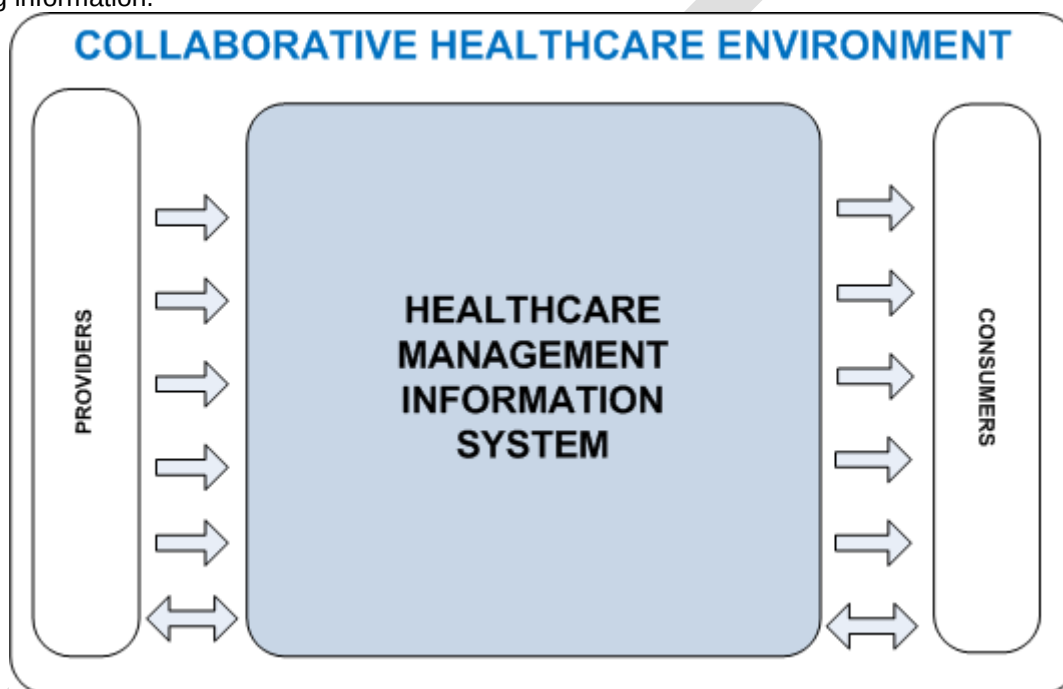


Figure 3. Collaborative Healthcare Environment

As part of the information environment should be exchanged and manage different kinds of information covering all aspects of medical services. In other words, as part of a CHE, and HMIS in particular, should be treated not only information related to electronic medical records of patients, the results of surveys and so on., But also information related to the financing of health programs, contracting, payments, interaction with insurance companies, supervisors, etc.

In this case, all of these types of information to be processed in accordance with common rules and standards, and architecture should be designed so as to provide the ability to connect to the information environment of new suppliers / consumers of information, both external and internal (various departments of the Ministry).

Also, the project should be developed targeted technical architecture HMIS, taking into account the features of the current infrastructure, taking into account the strategy for the development of Collaborative Healthcare Environment and target software architecture HMIS.

Target technical architecture should define the basic principles of how HMIS in general and contain general requirements for technical architecture designed subsystems HMIS.

9.1.1.2 HMIS components schema

There must be a strategy for the transition from the current fragmented architecture HMIS in the target architecture, which unites all the parts into a single system HMIS health information management. Target

Architecture HMIS should be verified and detailed, must be determined by the purpose and strategy of each subsystem, as well as procedures and standards for the exchange of information between subsystems. Figure 4 schematically illustrates a transition that must be carried out in the framework of the creation of a single health information environment.

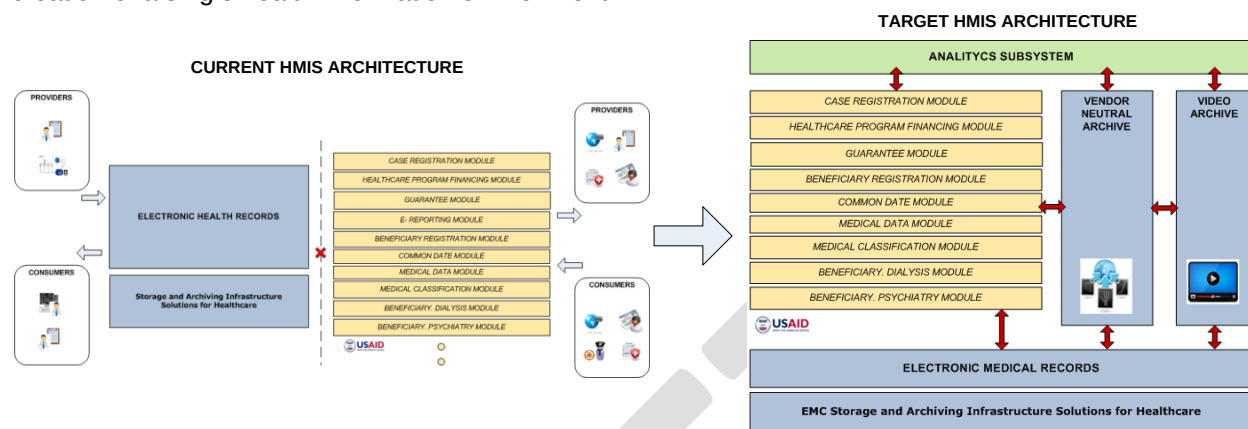


Figure 4. Current to target architecture

9.1.2 Common EHR-HSSP integration requirements

EHR integration with HSSP modules is one of the highest priorities in the context of building a unified information environment health (CHE). Each module implements the specific functionality and operates a particular set of information. Integration with HSSP modules must be implemented taking into account the specificity of each particular module. Tab. 2 defines the types of integration and a list of modules for each type.

Type	Integration type description	Modules	Details
1	Intellectual integration. Clinics class, working directly with the EHR, it is necessary to provide the opportunity to interact with these modules through EHRs Doctor Portal.	Case Registration Module – CRM	9.2.1
		Guarantee Module – GM	9.2.2
2	Transfer the data from HSSP to EHR. HSSP modules contain information that must be accumulated in the EHR. It is necessary to implement the ability to transfer data from HSSP and get in EHR.	Beneficiary Registration Module – Dialysis Program – DM	9.2.3.1
		Beneficiary Registration Module - Psychiatry Program – PM	9.2.3.2
		Immunization Management Module – IM	9.2.3.3
		Tuberculosis Electronic Module – TBM	9.2.3.4
3	Show some HSSP data in EHR UI HSSP modules contain information that can be used to display in HER UI, as well as to automate certain processes and reporting.	Beneficiary Registration Module – BRM	9.2.4.1
		Medical Data Module – MDM	9.2.4.2
		Common Data Module – CDM	9.2.4.3
		Medical Classifications Module - MCM	9.2.4.4
		Pharmaceutical Products Module – PPM	
		Pharmaceutical Module – PM	
4	Transfer the data to from EHR to HSSP HSSP modules must be able to read information from the EHR to improve the quality and composition of information provided to HSSP users.	Healthcare Programs Financing Module - FM	9.2.5.1
		Stock Management Module – SMM	9.2.5.2
		E-Reporting Module for National Center for Disease Control and Public Health – RMN	9.2.5.3
		E-reporting Module For Healthcare Facilities – RMP	9.2.5.4

5	Not involved in to the integration	Dashboard – AM	-
		Information Portal – PM	
		E-reporting Module For Insurance Companies – RMI	
		User Management Module – UMM	
		Vital Registration Module – VRM	
		Mediation Module – MM	
		Medical Staff Certification/Accreditation Module – DCM	
		Healthcare Facilities Licensing/Permitting Module – PRM	
		ePrescription Module – EPM	

9.1.2.1 Data flow pre-requirements

Figure 5 illustrates the requirements for the basic flow of data between EHR and HSSP modules.

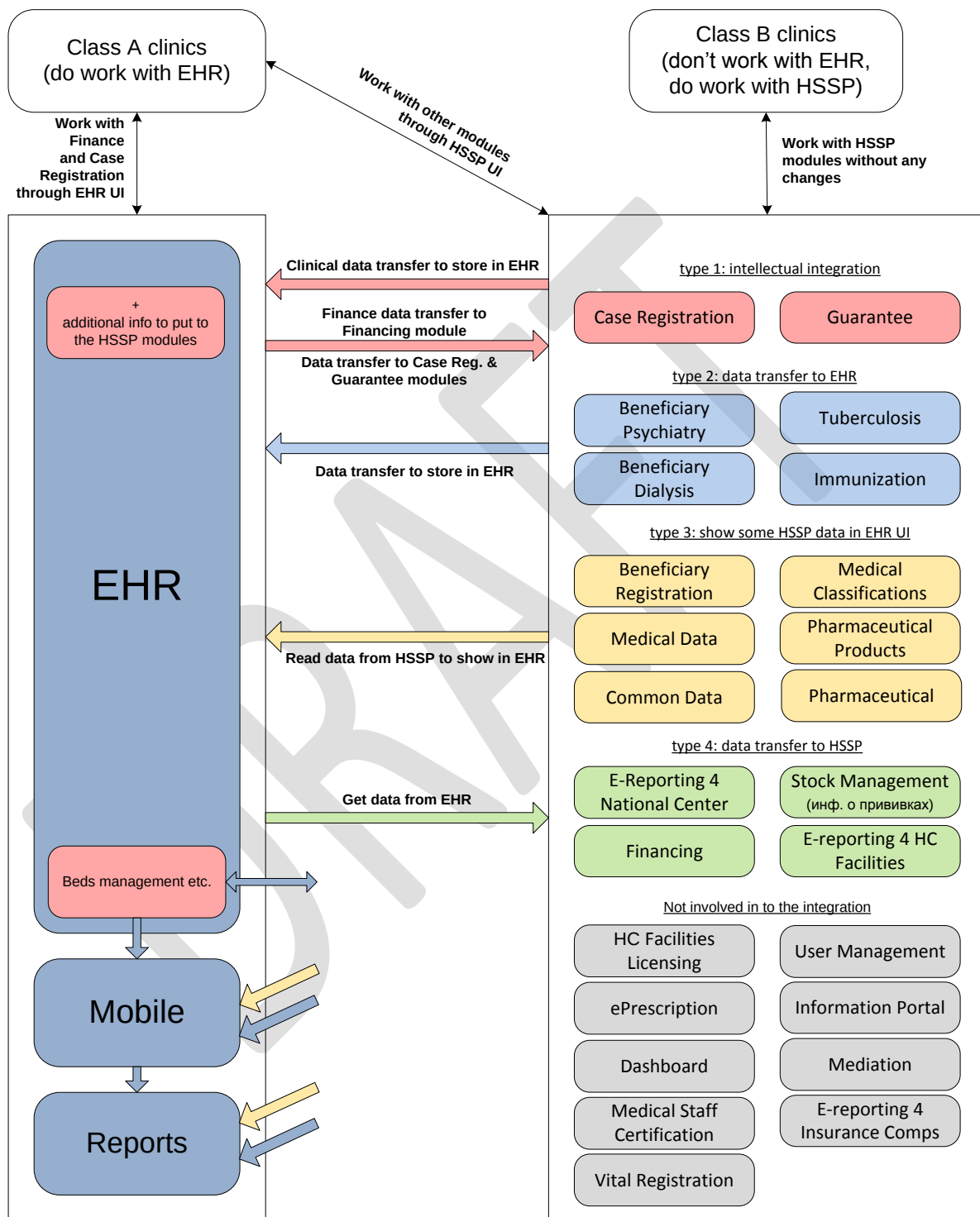


Figure 5. Preliminary integration schema

9.1.2.2 Clinics interaction with HMIS

All clinics interacting with HMIS, can be divided into two classes:

- Class A Clinic

Clinics, have the technical capacity to work with EHR, please contact the respective interfaces (Doctor Portal and so on.) Are the main providers of information to EHR. Order of interaction clinics this class modules HSSP should be adjusted (see details in 9.1.2.2.1).

- Clinic for a Class B

Clinic class B, do not have the technical ability to work with the EHR, continue to work with modules HSSP unchanged.

9.1.2.2.1 Class A clinics

Currently, management of urgent-case studies carried out by the Case Registration Module. For A class clinics the ability to work with urgent-case studies via HER UI must be implemented. At the same time EHR interface must allow all the necessary inputs for cases, including clinical and financial (with subsequent transfer of the necessary information to the appropriate HSSP modules in automatic mode). Class A clinics specialists must be able to work with other HSSP modules via HSSP interface.

9.1.2.2.2 Class B clinics

Class B clinics must be able to continue to work with HSSP modules. The clinical information, entered by the users via HSSP UI, must be automatically transferred to the EHR. For some modules must be capable of obtaining additional information from the EHR to improve the HSSP users experience.

9.2 Functional requirements

9.2.1 EHR-HSSP integration (type 1): Case Registration Module

Within EHR integration with Case Registration Module should be realized the opportunity to work with urgent-case studies via EHR UI for Class A clinics. Clinical information on a case should be maintained directly in the EHR, and additional information (financial and other) shall be transmitted automatically to the appropriate modules HSSP (module Healthcare Programs Financing Module and so on).

Class B clinics should be able to continue to work with cases through HSSP interface. However, with all clinical information has to be entered into the module Case Registration Module shall be transmitted automatically to the EHR for permanent storage.

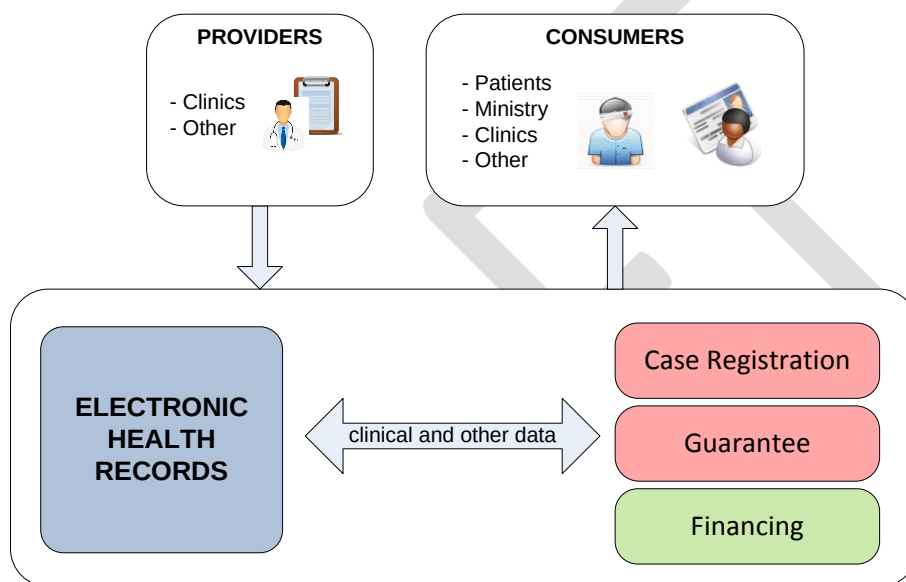


Figure 6. EHR-HSSP type 1 integration. Common schema

9.2.2 EHR-HSSP integration (type 1): Guarantee Module

Processing regular (non-urgent) cases, implemented in modules Guarantee Module and Case Registration Module, also needs to be closely integrated with the EHR.

Class A clinics should be able to enter information about regular case studies via EHR. Clinical information on a case should be maintained directly in the EHR, and additional information should be automatically transferred to the appropriate HSSP modules (Guarantee Module, Healthcare Programs Financing Module and so on.). At the same EHR interface should allow to carry out the binding of the case with an appropriate guarantee from the Guarantee Module.

Clinics Class B should be able to continue to work with regular case studies via the respective HSSP modules. In this case, the transfer is subject to the EHR information about cases, created in the Case Registration Module on the basis of information from the Guarantee Module.

In addition, when working with Guarantee Module must be possible to appeal to the EHR database to search for and obtain clinical information about the patient (Form 100) for use in the Guarantee Module interface.

9.2.3 Common functional requirements towards type 2 integration

As part of the integration of EHR with HSSP modules by type 2 should be implemented the ability to transfer clinical information entered by the user in the interface of the module, in EHR for permanent storage and provision concerned to authorized users via EHR (for example, through the Doctor Portal).

In the context of interaction class A clinics with HMIS to be implemented synchronization of data between the clinical and EHR Modules HSSP. I.e. in that case, if the clinical information (e.g., history of dialysis procedures performed) introduced by class A clinics in EHR, while working professionals with HSSP modules (in this case, the Beneficiary Registration Module - Dialysis Program), this clinical information should not be administered again manually in the interface module, and shall be transmitted automatically from the EHR.

CHE architecture must be capable of transmitting the required data to be stored in EHR not only of the HSSP modules, but also the possibility of obtaining clinical information from external sources (databases of the Ministry and so on.). Figure 7 shows an overall flow diagram for the data integration type 2.

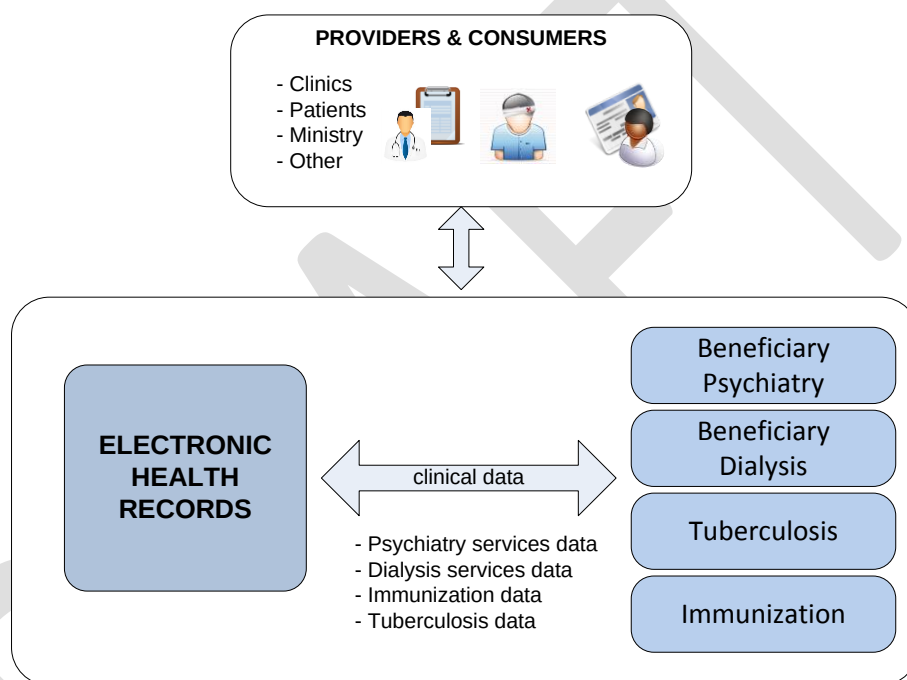


Figure 7. Common type 2 integration schema

9.2.3.1 (EHR)-(Beneficiary Dialysis) integration requirements

From the Beneficiary Registration Module - Dialysis Program to EHR must be transmitted information concerning the service history of individual patients, namely: information about procedures performed by hemodialysis.

9.2.3.2 (EHR)-(Beneficiary Psychiatry) integration requirements

From the module Beneficiary Registration Module - Psychiatry Program to EHR must be transmitted information concerning the service history of individual patients.

9.2.3.3 (EHR)-(Immunization) integration requirements

From the module Immunization Management Module to EHR must be transmitted information concerning the service history of individual patients during vaccination companies. In particular, it concerns the history of vaccinations performed, recorded complications from the vaccine, and so on.

9.2.3.4 (EHR)-(Tuberculosis) integration requirements

Module of Tuberculosis Electronic Module to EHR must be transmitted information concerning the service history of TB patients. Transfer is subject to the information on the results of laboratory tests and during the treatment of patients.

9.2.4 Common functional requirements towards type 3 integration

Within integration of EHR with USAID modules by type 3 should be implemented the ability to read the auxiliary information from the USAID modules, to display in the interface EHR. This information should be capable for cases management (see 9.2.1 and 9.2.2) for Class A clinics, as well as be used to automate certain processes and reporting.

CHE architecture should provide data required reading not only of the USAID modules, but also the possibility of obtaining additional information from external sources (databases of the Ministry and so on.). Figure 8 shows the general scheme of data streams for the integration of the type 3.

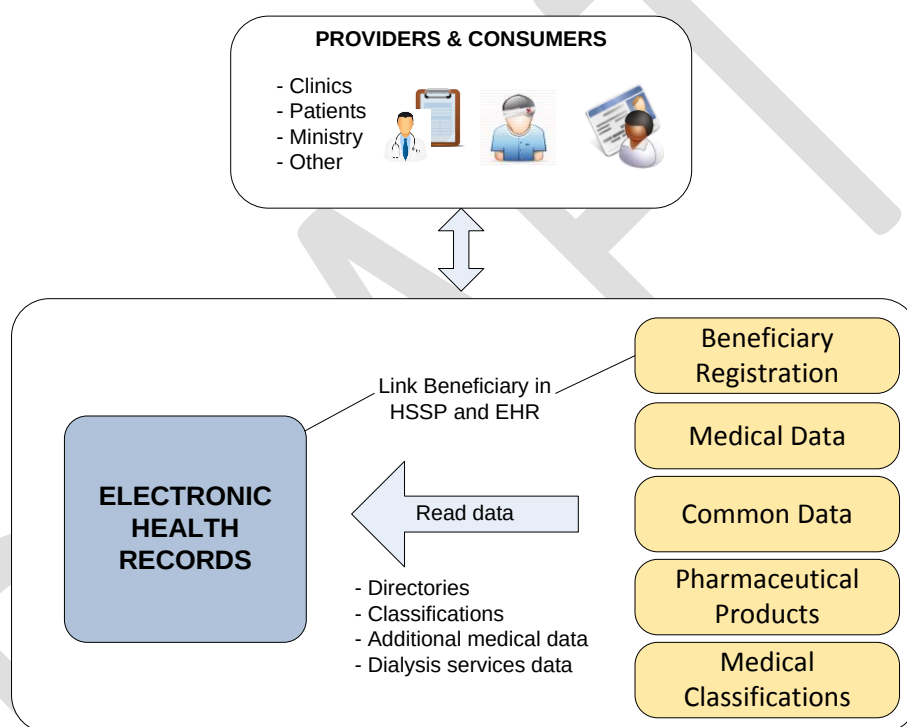


Figure 8. Common type 3 integration schema

9.2.4.1 (EHR)-(Beneficiary Registration) integration requirements

Required to enable the logical linking of patient records in the EHR with the appropriate entries in the database module Beneficiary Registration Module. This link should provide users with the ability to view EHR more information about patients / beneficiaries.

9.2.4.2 (EHR)-(Medical Data) integration requirements

Information on the limits for beneficiaries enrolled in the Beneficiary Registration Module must be readable by the users within the EHR work with cases (see 9.2.1 and 9.2.2), as well as in reporting and automation of certain processes. In this case, information about the new costs of patient care, entered by

the user via EHR, should automatically appear in the Medical Data Module database (either directly or through the Healthcare Programs Financing Module).

9.2.4.3 (EHR)-(Common Data) integration requirements

Common Data Module contains general background information that is used when working with other USAID modules. This information should also be available for reading from the HER interface.

9.2.4.4 (EHR)-(Medical Classifications) integration requirements

Medical Classifications Module contains information about basic health classifiers used in the automation of various processes. In particular, this information is used in Case Registration Module, Healthcare Programs Financing Module, Guarantee Module and others. Thus, in the framework of opportunities to work with cases in the EHR interface (see 9.2.1 and 9.2.2), the usage of classifiers diseases, medical procedures (ICD-10, ICPC2, NCPS, etc.) must be implemented.

9.2.5 Common functional requirements towards type 4 integration

Within integration of EHR with USAID modules by type 4 must be implemented the ability to transfer clinical information contained in the database EHR, modules USAID to provide interested to authorized users via the interface modules.

CHE architecture must be capable of transmitting the required EHR data not only to USAID modules, but also at the request of any external consumer, satisfying certain requirements.

9.2.5.1 (EHR)-(Finance) integration requirements

As part of the integration of EHR with Case Registration Module and Guarantee Module via EHR Class A clinics can be administered information to be automatically transferred to the module Healthcare Programs Financing Module.

In other words, no matter how (from what interface) the case is managed, related financial information should automatically be accumulated in the module Healthcare Programs Financing Module in the full extent necessary to complete the work unit.

9.2.5.2 (EHR)-(Stock Management) integration requirements

EHR integration with Stock Management module must be implemented as part of a management subsystem electronic prescriptions. This toolkit should automatically receive information from the EHR, electronic prescriptions concerning prescription.

9.2.5.3 (EHR)-(E-Reporting 4 National Center) integration requirements

The functionality of the E-Reporting Module for National Center for Disease Control and Public Health can be expanded and improved by obtaining additional data from EHR to build reports.

9.2.5.4 (EHR)-(E-reporting 4 HC Facilities) integration requirements

Requirements for EHR integration module E-reporting Module For Healthcare Facilities are similar to the requirements set out in section 9.2.5.3.

9.3 Mobile platform/services implementation

9.3.1 Mobile platform architecture requirements

Mobile platform should serve as the basis for an effective communication and information support for patients, medical professionals and employees of ministries and management staff with mobile devices and interfaces.

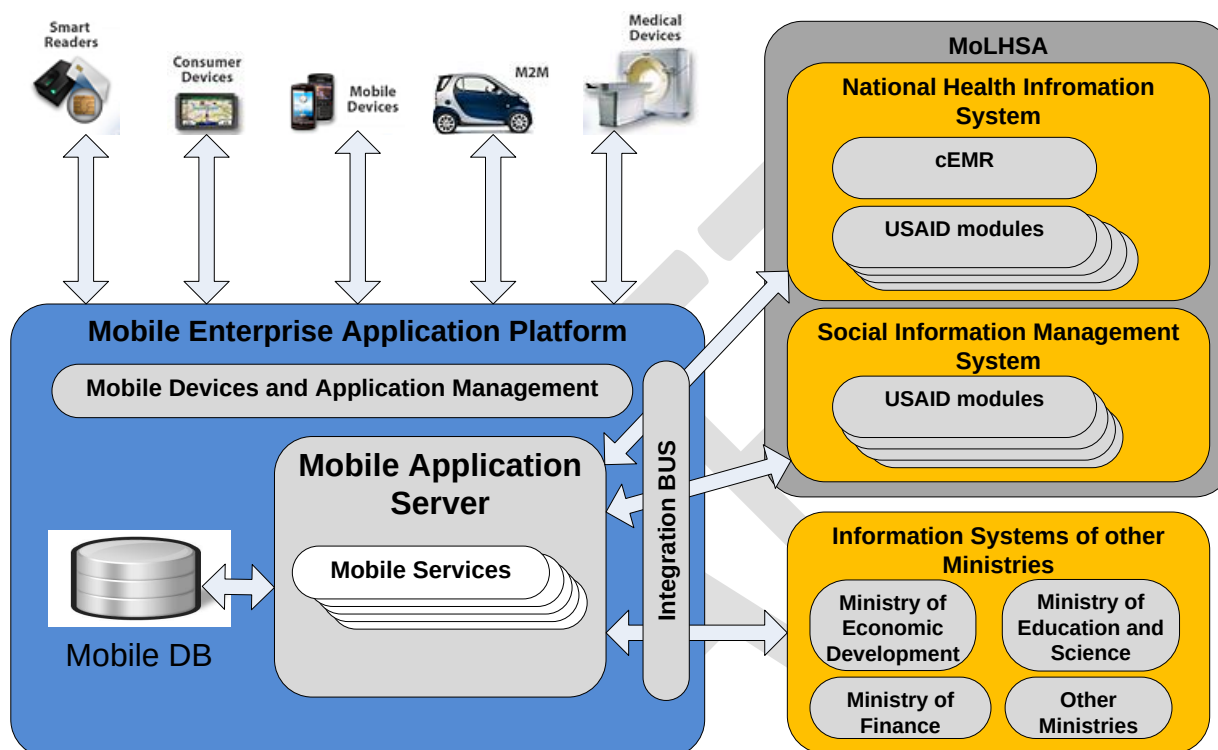


Figure 9. Common mobile platform architecture

For the effective development of mobile services, the mobile platform must:

- Ensure management of mobile devices and applications.
As mobile services can provide access to confidential information, you must enable the registration of mobile devices and the management of user access to certain services.
- Provide mobile services unified mechanism for data encryption to protect sensitive information
- Provide mobile services universal functions of authorizing and authenticating users of mobile services through integration with national registers (HSSP User Management Module, Civil Registry, HC providers Registry, etc.).
- Provide mobile services unified access to the national classification systems (HSSP Common Data, HSSP Medical Classification Module, etc.).
- Provide access to mobile services to information systems MoLHSA (National Healthcare Information System, Social Information Management System) for the effective exchange of information
- Provide the ability to access mobile services to systems of other ministries (Ministry of Finance, Economic Development, Education and Science, and others.)
- Provide access to mobile services to mobile operators to send notifications to mobile devices (SMS - Alert)

Mobile services must be divided into two groups:

- Group 1: Mobile services directories.

This type of service should enable users to obtain background information on publicly available data via mobile devices. It may be information about medical institutions with reference to the map, information about medications, etc. In other words, service manuals should provide access to static (rarely changing) information and create simple and independent applications with a mechanism for periodic updating of data based on official sources.

- Group 2: Active mobile services.

This is a more complex form of services, which includes tight integration with existing information systems (EHR, HSSP modules, etc.). In contrast to the service manuals, data mobile services should provide users with access to live data, such as: the current state of electronic medical record (EMR / EHR), access to electronic prescriptions and directions (integration with e-Prescription), etc. Active mobile services should be "mediators" between mobile devices and other information systems within the unified information environment health.

9.3.1.1 Mobile services-directories architecture requirements

Mobile Services - Dictionaries

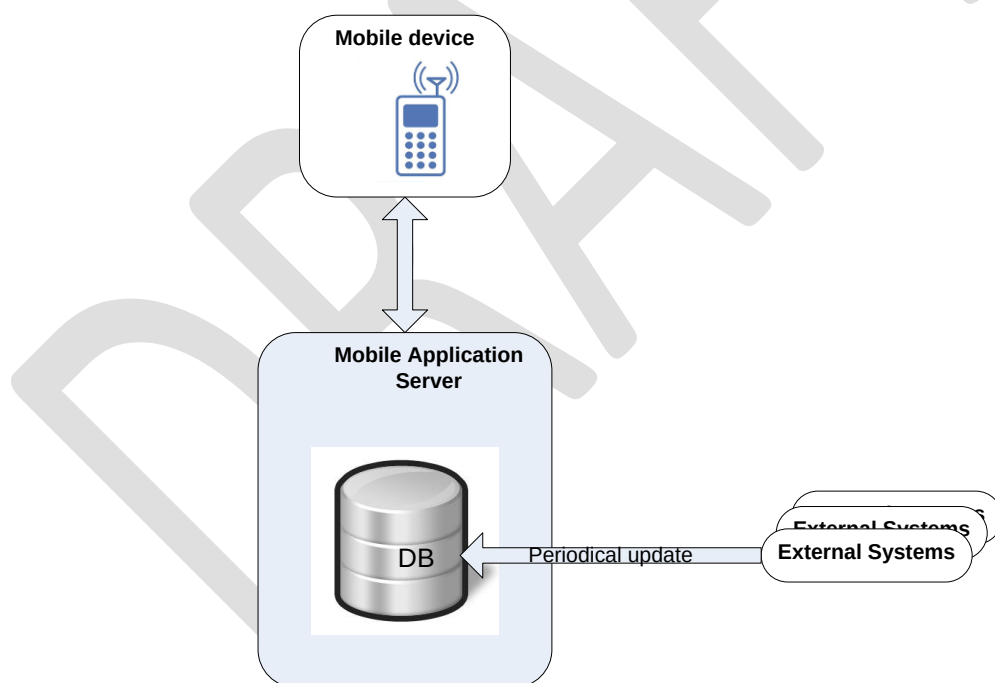


Figure 10. Common architecture of the mobile services - Dictionaries

Architecture of mobile services-directories should consist of the following components:

- Applications downloaded to the mobile device - a mobile phone or tablet running iOS / Android / Windows mobile.
- The server communicates with mobile devices and access to relevant information
- A database containing relevant information
- An application that enables you to synchronize data in the database server with data from other systems

9.3.1.2 Active mobile services architecture requirements

Active Mobile Services

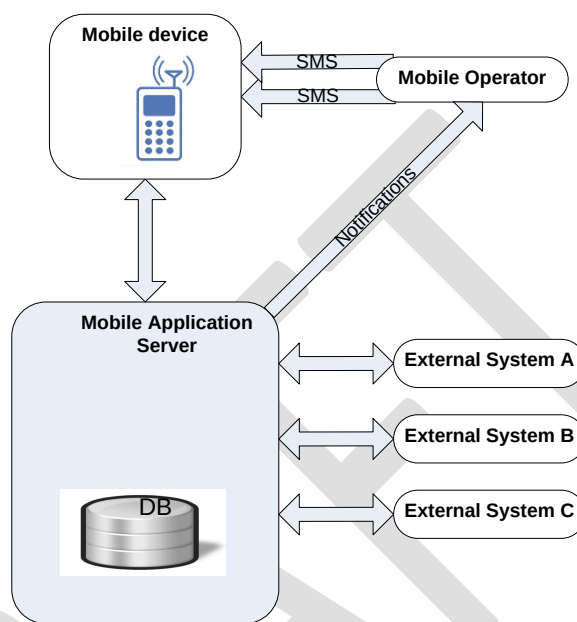


Figure 11. Common architecture of the active mobile services

Architecture of active mobile services consists of the following components:

- Applications downloaded to the mobile device - a mobile phone or tablet running iOS / Android / Windows mobile.
- The server communicates with mobile devices and access to relevant information. In addition to communication with the mobile application server must also interact with other systems (EHR, modules HSSP and so on.) To obtain and possible changes in the information contained in other systems.

In addition to providing access to external systems, active mobile services should also have the opportunity to actively inform users of mobile devices regarding events through interaction with mobile operators to send SMS alerts.

9.3.2 Mobile services functional requirements

The following mobile services must be implemented:

No	Service	Description	Consumer	Functionality	Details
1.	Directory of medical institutions	Provides (with location) information about the available Medical Institutions	Patient	Information about: - Medical facilities - pharmacies - Emergency room	9.3.2.1.1
2.	Pharmaceutical products directory	Provides information on the approved / recommended by the Ministry of medicines.	Patient	- View descriptions of medicines information on contraindications, interchangeability of medicines, etc.	9.3.2.1.2
			Doctor		
3.	First aid manual directory	Provides brief information on how to provide first aid (while waiting an ambulance)	Patient	- A person gets into an accident - Passer call an ambulance and while she rides gives first aid - A mobile application should contain brief instructions and pictures	9.3.2.1.3
4.	Mobile EMR	Provides complete information about the patient, including service history.	Patient	- View their history - View appointments - See their insurance limits	9.3.2.1.4
			Doctor (emergency)	<u>Case:</u> The ambulance doctor should promptly obtain basic information about the patient: - Drug intolerance - Blood - Chronic diseases	9.3.2.2.1
5.	e-Prescriptions	Mobile service, which is integrated with a comprehensive service for the management of electronic prescriptions.	Patient	- View discharged patient prescriptions - Integration with the handbook of medicines - Comes to the pharmacy and tells ID prescription drug gets	9.3.2.1.5

6.	Clinics workload management (available beds etc.)	Provides an opportunity to determine the recommended clinic to deliver patient ambulance.	Doctor (emergency)	Ambulance sets parameters: - Diagnosis (from the handbook) - Age - Location (automatically) Response of the system contains the recommended clinic, capable of receiving the patient (taking into account the specialization clinics)	9.3.2.2.2
7.	Medical services requests (status tracking)	Provides the ability to track orders from the population to health services (integration HSSP Guarantee module)	Patient	- Enter the application ID - The status of the application in the database of the Ministry - Notification of the results of the coordination of the application	9.3.2.1.6
8.	Common financial indicators	Dashboard provides the ability to display a summary Fin. information (within the meeting)	Ministry	- General insurance payments - Payments broken down by providers, month, etc. - Total expenditure for the current year in the context of the main areas - Other.	9.3.2.3.1
9.	Common healthcare statistics	Dashboard provides the ability to display a summary of statistical information (within the meeting)	Ministry	- Statistics on major diseases (heart attacks, cancer, tuberculosis, etc.) - Statistics on births, deaths - Statistics for ambulance - Other.	9.3.2.3.2
10.	EHR filling control	Provides the ability to monitor filling EHR patient data (within the meeting)	Ministry	- The amount of information (number of records, the number of unique patients) for each connected to the EHR clinic for the last month, year - Alert in the absence of evidence of new information from the clinic in the last week, month	9.3.2.3.3
11.	Expenses control	Provides the ability to control the costs of benefits providers.	Ministry	- Mapping of large payments (more than ... lari)	9.3.2.3.4

9.3.2.1 Mobile services for citizens

9.3.2.1.1 *Directory of medical institutions*

Directory of medical institutions should provide mobile users information on existing institutions, contact information, the ability to view maps showing the location, find the nearest Medical Institutions in the presence of a mobile device in the current geographical location of the device, the ability to speed dial a phone number of the selected health facilities.

Information about Medical Institutions should be periodically updated on the basis of existing medical facilities in Georgia registers and other sources (e.g., information about the pharmacies).

9.3.2.1.2 *Pharmaceutical products directory*

The manual should provide mobile users a complete description of drugs, including a description of the pharmacological action, dosage form, dosage, side effects, etc.

Should be possible to expand this service in the future to search for possible substitutes one drug to another health. Furthermore, it must be possible to integrate this service with pharmacy systems to obtain information on the availability and cost of medicines in pharmacies as well as integration with the State Register of approved drugs, etc.

In the operation of the service should use the information contained in the Pharmaceutical Products Module database, as well as the Medical Classification Module.

9.3.2.1.3 *First aid manual directory*

Set of mobile services for the population should contain background information on first aid and emergency situations. The directory should contain a brief text, graphics and video instructions to enable citizens to provide first aid while waiting for the ambulance.

9.3.2.1.4 *Mobile EMR*

This service should provide access to electronic patient records contained in the EHR. The patient should be able to view the full information about their medical history, doctor appointments, insurance limits and so forth.

9.3.2.1.5 *E-Prescriptions*

Your mobile service should provide patients with the opportunity to obtain information about the Prescription medications on your mobile device. This information can be used to effectively communicate with pharmacies when buying these drugs.

As part of the operation of the service must use information from the Pharmaceutical Products Module.

9.3.2.1.6 *Medical services requests (status tracking)*

As part of the mobile service should be implemented the integration with Guarantee Module, under which the application management of the population to receive certain medical services.

The initiator of the application (citizen) should be able to obtain a summary of the status of your application by using a mobile device.

At the end of the process of consideration of the application of the citizen, the information about its results should come to the mobile phone of the applicant.

9.3.2.2 Mobile services for doctors (emergency)

9.3.2.2.1 *Mobile EMR (short)*

The ambulance doctor should be able to prompt access to basic medical information about you. The physician must obtain at least the following amount of information: age, drug intolerance, blood group and Rh factor, chronic diseases, surgeries in the last year.

9.3.2.2.2 *Clinics workload management (available beds etc.)*

The members of the ambulance crew should be able to provide timely information on the workload of nearby clinics. The mobile application must provide the relevant information on the basis of a minimum set of input parameters, such as the patient's age, the preliminary diagnosis (choice of directory), location (automatically).

Search should include information about available in this case hospitals, indicating the degree of congestion, the distance and contact information.

9.3.2.3 Mobile services for MoLHSA

9.3.2.3.1 *Common financial indicators*

Employee of the Ministry during the operational meeting should be able to obtain information on key financial indicators, grouped according to the given parameters.

The content and appearance of a report on financial performance should be determined at the design stage.

9.3.2.3.2 *Common healthcare statistics*

By analogy with the report on key financial indicators of employee of the Ministry should have an opportunity to obtain general statistical information on health care. In particular, it should be information about birth and death rates for certain periods of time, statistics on the incidence of the population, about costly operations performed, the statistics of the ambulance and so on.

9.3.2.3.3 *EHR filling control*

Employee of the Ministry should be able to control filling EHR data from the connected to the system of clinics. Service should display a summary of the amount of information obtained from each attached clinic for a certain period of time.

In addition, the service should provide the initiation of alerts in the absence of evidence of new information from the clinic in the last week, month.

The content and appearance of a report should be determined at the design stage.

9.3.2.3.4 *Expenses control*

Employee of the Ministry should be able to continuously control the conduct of large payments to health care providers.

The procedure for generating alerts, content and appearance of a report should be determined at the design stage.