

**ICT SYSTEM GUIDELINES/BLUEPRINT**

**FOR**

**SOKOTO STATE CONTRIBUTORY HEALTHCARE  
MANAGEMENT AGENCY**

**(SOCHEMA)**

**JUNE, 2018.**

## CONTENTS

<b>Content</b>	<b>Page</b>
1. Introduction/Background	3
2. Components of the Health ICT Strategic Framework	4
3. Recommended Health ICT Architecture	7
4. Capabilities of a Health Insurance ICT Ecosystem	9
5. Software features and check-list for engagement of a Health ICT firm	10
6. Contracting Guideline	13
7. Contracting Check-list	17

## **INTRODUCTION/BACKGROUND**

### **[Based on the National Health ICT Strategic Framework (2015-2020)]**

As a result of lack of coordination of ICT for health in Nigeria, its full benefits have not being fully realized. This uncoordinated efforts within the Nigeria health system has led to resource wastage, duplication of efforts and poor health indices. The National Health ICT Strategic Framework provides a policy guideline for strategic application and use of ICT to achieve UHC in Nigeria.

To support the attainment of UHC in Nigeria and strengthen the health system, innovative use of ICT for Health to improve service delivery, ensure responsiveness, increase access, coverage and financial risk protection must be prioritized. All plans, projects and interventions geared towards UHC achievement must be aligned to a robust and functional health ICT ecosystem. A Health ICT Strategy will enable Nigeria to leverage current and future ICT investments to build an integrated national health information infrastructure and help enable Universal Health Coverage (UHC) by 2020.

In the context of the Nigeria National Health ICT Strategic Framework, the Sokoto State Contributory Healthcare Management Agency shall be positioned to leverage on the existing initiatives rather than re-inventing the will as State Contributory Health Scheme has the capacity and potential to unify the health system in Sokoto State.

## MAJOR COMPONENTS OF THE STRATEGIC FRAMEWORK

COMPONENT	DESCRIPTION
<b>Leadership and governance</b>	Focuses on the oversight and coordination of Health ICT activities at the federal, state and local levels, ensuring alignment with national health goals and priorities
<b>Strategy and Investment</b>	Describes the planning for, engagement of and alignment with all stakeholders involved in Health ICT activities and procurement of financing for Health ICT.
<b>Legislation, Policy and Compliance</b>	Covers national policies and legislation for Health ICT in terms of development, alignment and regular review
<b>Architecture, Standards and Interoperability</b>	Describes the development and use of enterprise architecture and standards for enhanced interoperability, integration and health information exchange.
<b>Capacity Building</b>	Details the empowerment of the health and ICT workforce to develop, use and maintain Health ICT through education and training programs
<b>Infrastructure</b>	Refers to the physical facilities and related assets that forms the foundation for Health ICT implementations
<b>Solutions (Services and Applications)</b>	Reports on devices and tools utilized by end users to collect, transmit, access and maintain health information

*The framework as adapted from the 2012 WHO-ITU e-Health Strategy Toolkit*

**Recognising the importance of all the components, focus presently is on the bottom four:**

### 1. Infrastructure

Infrastructure refers to the physical facility and related assets that form the foundation for Health ICT implementations, consisting of reliable electricity, cellular and Internet connectivity, and ICT equipment (e.g., computers, servers and data warehouses). Specific infrastructure recommendations include:

- Establishing that a strategy for ongoing funding and investment in electrical power provision, acquisition, installation and maintenance at all health facilities exists.
- Define minimum infrastructure and computing requirements for each type of health facility and health administrative office and link to accreditation and assessment for participation in the State Contributory Health Scheme.
- Develop and introduce a basic equipment package for health facilities based on prioritized services and application needs that encourages local ownership and capacity building.
- Strengthen local and regional support programs, such as the Rural Information Technology Centres to ensure ongoing support for infrastructure development and maintenance.
- Install and maintain Internet and/or broadband connectivity for all tertiary and secondary along with prioritized primary health facilities as well as State and LGA level health administrative offices.
- Develop incentive mechanism for further Health ICT infrastructure improvements

## 2. Services and Applications

Services and applications refer to the actual ICT tools and systems used in the delivery and administration of health, consisting of individual electronic health information, healthcare communications and collaboration, healthcare service delivery, health information and knowledge and healthcare management and administration. Specific examples of types of tools include hospital-based EHRs, decision-support tools, disease surveillance tools, patient monitoring and care and distance learning applications.

Specific recommendations for the services and applications component are:

- Develop and implement services and applications to enable and delivery UHC, including at minimum digital beneficiary enrolment, premium payment, coverage verification, and recording of patient encounters.
- Select additional priority Health ICT services and applications for scale-up based on need, strategic alignment with Health and Health ICT priorities, preparedness and evidence
- Gather and disseminate best practices for the implementation of Health ICT services and applications

Most e-Health services in Nigeria are SMS-based, data applications, pre-loaded applications or accessible through web-based portals. The majority of services have been directed towards maternal and child health. Most states have numerous on-going ICT for health implementations. It is important to note that fragmentation is an issue and there is a need for unification of effort. This exactly will be the role a robust Health Insurance Solution Ecosystem will play because health insurance or a mandatory contributory scheme possesses the capacity of unifying and congregating the health system.

### **3. Architecture, Standards and Interoperability**

Implementation and harmonization of digital registries, data collection instruments and reporting indicators that meet the needs of SHIS and UHC and other prioritized services and applications. It also involves the establishment of guidelines, minimum functional requirements, and interoperability standards that allow for the consistent and accurate collection and exchange of health information across the health system

### **4. Capacity Building**

This ensure the capacity building, workforce development of Health ICT skills and competences while establishing special Health ICT education, training and career path development programs, Development and implementation of a strategy for the training and recruitment of a cadre of professionals into positions to design, implement and maintain Health ICT systems.

## RECOMMENDED HEALTH ICT ARCHITECTURE

The National Health ICT Strategic Framework recommended architecture that facilitates interoperability by creating a framework that is service oriented, maximally leverages health information standards, enables flexible implementation and supports the interchangeability of individual components. It shall integrate the Health Enterprise (IHE) and other transaction standards form the basis for the interactions between the architecture components and Point-of-Service (POS) applications. This architecture is designed to build upon and amplify the health benefits of existing Nigerian health and government initiatives.

Recommended health ICT architecture for Sokoto State CHEMA shall mimic the nationally acceptable framework for easy scalability. The recommended components of the architecture are:

- An **enterprise master patient index (EMPI), or Client Registry (CR)** manages the unique identity of citizens receiving health services within the state; this takes care of ‘for whom’. The CR will link insurance beneficiaries to unique patient identifier which can be leveraged to provide a strong foundation for a client registry portion of a health information exchange (HIE).
- A **Health Worker Registry (HWR)** is the central authority for maintaining the unique identities of health providers participating in Sokoto State CHEMA, this represents ‘By whom’. Health Care Providers must log into the Agency’s portal and website to fill a detailed form and register to participate in the scheme. The medical professional’s credentials, skill set and qualification will be uploaded. These will be verified during accreditation and assessment of the health workforce participating in the scheme.
- **Health Facility Registry (FR)** captures uniquely all places where health services are administered within the state i.e. ‘Where?’ Electronic form will capture level of care of facility, name of facility, as well as names and skill sets and qualifications of all medical professional and health workforce in the facility. It will capture medical infrastructure available in the facility which of course will include ICT infrastructure.
- A **Health Management Information System (HMIS)**. It is a collection of indicator-centric records for cohorts with information in the exchange.

- **A Shared Health Record (SHR)** enables the collection and storage of electronic health information about individual patients in a centralized repository which is capable of being shared across different healthcare settings.
- **A Terminology Service (TS)** serves as a central authority to uniquely identify the clinical activities that occur within the care delivery process by maintaining a terminology set mapped to international standards such as ICD10, etc i.e. “What?”
- **A Health Interoperability Layer (IL)** receives all communications from point of service applications within a health geography, and orchestrates message processing among the point of service application and the hosted infrastructure elements. Because there currently is not an HIE, this component of the architecture does not currently exist in Nigeria.
- **Point of Service (POS)**, or point of care applications are a diverse group of actors that leverage the health information exchange to improve the quality of care by using higher quality and more timely data to support their activities. These systems include mobile messaging tools [SMS/interactive voice response (IVR)], EMRs, laboratory or stock management systems and monitoring and evaluation tools.



## **CAPABILITIES OF A HEALTH INSURANCE ICT ECOSYSTEM**

Several capabilities of an ICT-enabled health system should include the following:

- Ability to capture and exchange patient-level healthcare information
- Ability to exchange, report and aggregate healthcare information
- Ability to enrol, pay for health insurance and verify coverage
- Ability to send appointment and care alerts to patients and health workers
- Ability for patients to send alerts to health care facilities
- Availability of electronic training and reference materials
- Ability to pay providers both capitation and fee for service claims.
- Ability to unify enrollee, provider, TPA and Agency (Regulator)

## **SOFTWARE FEATURES AND CHECK-LIST FOR ENGAGEMENT OF A HEALTH ICT FIRM**

The check-list of functionalities includes all listed below which may be modified with additional functionalities based on needs and future scalability.

### **1. Benefit Plan Module**

- Health Policy/ Benefit Plan based module
- ICD/ CPT/ SNOMED (11 and 111) based benefit plan structure
- Multi-level Service mapping support
- Ability to set all the policy limits – module wise, service wise, co-pays & deductibles if any.

### **2. Enrollment Module**

- Seamless enrollment /registration of members & dependents
- E-card generation.
- VIP/ Non VIP categorization support

### **3. Admin Module**

- Operators – roles & permissions
- Add Bank – Branch wise functionality
- Add Providers – Branch wise functionality

### **4. Pre-Authorization Module**

- Workflow based model
- Functionality of authorizing online approvals

### **5. Claims Module**

- Workflow based model catering to Direct Billing & Reimbursement claims
- Batch generation logics
- Claim generates to Audit to Payments seamless structure
- Auto-validation rules

- Auto SMS/ Emails triggers
- Online claims resubmission functionality

## **6. Payment Module**

- Logic of batch wise payment requests
- End to end tracking of settlements

## **7. Network Module**

- Ability to tag multiple networks policy to policy
- Provider rates / tariffs
- Provider discounts – service wise discount feature

## **8. CRM Module**

- Call center
- Multiple search functionality for member/ provider details and history
- Reports & Analytics
- Mobile messaging tools SMS, interactive voice response (IVR), EMRs, laboratory or stock management systems
- Monitoring and evaluation tools.

## **9. Provider Logins and Dashboard**

- Registration and credentialing
- Facility registry with functionality to record health workforce and available infrastructure.
- Manual / Auto-approvals functionality
- Online Pre-authorizations – option to self-authorize based on set up of limits and eligibility criteria.
- End to end tracking of authorizations to claims
- Network module view access
- TOB view access

## **10. Health Management Information System**

- With functionality for performance management and assessment using a collection of indicator-centric records.
- Direct upload of reports from PHCs and participating healthcare facilities

### **11. Corporate/Organized Private Sector Login and Dashboard**

- Ability for Corporate HR to enrol their members after premium payment on line
- Request for card printing or E-cards
- Provision for Reimbursement Claim Submission

### **12. Completely integrated Mobile App for enrollees.**

### **13. Website + portal**

## **CONTRACTING GUIDELINE.**

In general, if a contract is presented to the agency from an electronic health record vendor, it will be written from the perspective of the vendor. The agency can request language changes to make the intent of the contract more “equal,” although many companies may not be flexible about language changes. Do not be afraid to seek legal guidance.

### **GENERAL**

- The contract should have bi-lateral termination clauses without penalty given within a certain notice period.
- The contract should stipulate that it may not be transferred by one party without written approval of the other party.
- The contract should have a definition section for anything that is not readily understandable.
- The contract should spell out what happens in the event of default by either party and should be as evenly weighted as can be possibly negotiated.

### **SOFTWARE**

- The contract should spell out who owns the data (agency should have complete data ownership) and that the data will be returned in a nonproprietary form (standard, interoperable) should the agreement between the two parties be terminated for any reason.
- The contract should also include language regarding the vendor turning over source code, data models, design documents, etc. should it, for whatever reason, go out of business or cease to operate.
- The contract should spell out whether the cost of the system includes upgrades, patches, etc. and, if so, how many, who is responsible for applying them, at what cost, and what happens if an upgrade negatively impacts the system.
- The contract should spell out how non-vendor upgrades, patches, etc. (such as for the operating system, reporting software, or database management system) are handled, who is responsible, etc., similar to above.
- If the system includes third party software and/or content, the contract should spell out the associated costs, who is responsible for those costs, and how updates are handled.

- The contract should include language regarding the vendor ensuring the confidentiality of patient and practice information.
- The contract should state that the vendor agrees to make the necessary modifications to ensure compliance at no additional cost to the agency.
- The contract should be structured to include a progressive payment schedule based on the achievement of certain implementation milestones.
- Example:
  - 15%      Signing of contract
  - 10%      Installation of software and hardware
  - 20%      Completion of training
  - 25%      Completion of system testing
  - 30%      Final system acceptance
- The contract should recognize the need for additional template development and screen customizations and specify vendor/client responsibilities. If the vendor is to provide assistance with template development, include this step as a payment schedule milestone (example above).
- The contract should specify the conditions under which a breach of contract has occurred, such as the system not performing as specified, consistent poor performance, etc. and at what point money is refunded, or payments may cease.

## **SUPPORT**

- The contract should outline what support hours will be available (including time zone) and what level of support is included.
- Costs for additional support should be itemized on the contract.
- The contract should clearly outline the terms of the support agreement.

## **INTERFACES**

- For each interface to another system, e.g., laboratory, billing, scheduling, etc., the contract should indicate whether the cost of the interface includes interface programming time and, if so, how many hours are included. It should detail what happens if and when those hours and the associated costs are exceeded.

- The contract should also identify what is included with the interface, for example interface specifications.
- The contract should state what happens if subsequent programming is needed either because of initial errors or if additional modifications are needed.
- The contract should stipulate who owns the interface and who will troubleshoot it when it goes down or errors occur.
- Each interface should have terms outlined regarding which party is responsible for upgrading it, and which party will assure that it functions with new upgrades of main products.

## **TRAINING**

- The contract should identify how many training hours are included, who is covered, and what is included with the training, e.g., training material, etc.
- The contract should explain what happens if additional training is needed and what the billing rate is for additional time.
- The contract should spell out what are acceptable and non-acceptable costs and establish a per diem rate for trainers (if there are on-site sessions).
- The contract should stipulate what (if any) follow-up training is provided and at what cost.

## **IMPLEMENTATION**

- The contract should spell out what is and is not included in the implementation costs: what services will be received, how many hours, who the resources will be, what sort of materials will be provided (e.g., project plan, implementation guides, specifications), etc.
- The contract should spell out what are acceptable and non-acceptable costs and establish a per diem rate for implementation staff.

## **CAVEATS**

- Look at the warranty, disclaimer and limitation of liability sections very carefully. Usually these are written all in caps or bold type, and they severely limit vendor's liability. Vendors are not likely to change either section substantively (if at all) even if a practice requests it, so read and understand this part and what it means for the agency.

- Check carefully to see what the vendor warrants to the practice and what the practice's responsibilities are with regard to it.
- Look to see if the contract specifies minimum hardware requirements and be prepared to meet them. If the agency uses what a vendor considers to be "substandard" equipment (to try to save some money), it may invalidate the agreement.
- Read the indemnification section carefully as well. This is another section that vendors are not likely to change, so a practice should understand what it is stipulating.
- Check the duration and termination clauses – again the agency should be able to "free" itself from this with relatively little organizational pain.
- Understand the different ways in which the vendor can terminate the agreement and make a contingency plan for this.



## CONTRACTING CHECKLIST.

1. Clarify exactly what you are buying and what the vendor is selling, including:
  - **Hardware – what devices**
  - Software – what applications
  - Implementation support
  - Interfaces
  - Data and chart conversions
  - Customizations
  - Networks/infrastructure
  - Testing
  - Training
2. Before sending out RFP and negotiation with vendor check the following:
  - Do you have approval to proceed with negotiations from your board of directors (if applicable) or others as required?
  - Do you need the help of a consultant, attorney or an expert?
  - Will contract negotiation be performed with one vendor or two? Note that Even if you have a clear “winner,” you probably want to consider your second choice as a viable option in the event of contract negotiation failure with the first though this rarely happens but it gives you a leverage to negotiate strongly.
  - Who will be included in the negotiation process?
  - Are all the contract elements specified in your RFP included in the offered contract, including the best offer from the vendor that has been tailored to your situation?
  - Keep track of any issues that arise during the selection process that you may want to negotiate or attach to the contract. For instance, if the vendor promised something unique for you; add a feature/function for you, or affirm that the system will be able to handle a key requirement for you—get that in writing in the contract.
3. Conduct project implementation planning concurrent with contract negotiations, and attach the plan to the contract. At a minimum, the implementation plan should include:

- Project phasing (if any)
- Project start and go-live dates
- Key milestones
- Level of effort for buyer
- Level of effort for seller
- Recommended project organization chart