PROJECT PREPAREDNESS FRAMEWORK

URBAN E-GOVERNANCE & ICT

CITIIS

City Investments To Innovate, Integrate and Sustain

Project Preparedness Framework - Urban E-governance and ICT
City Investments To Innovate, Integrate and Sustain
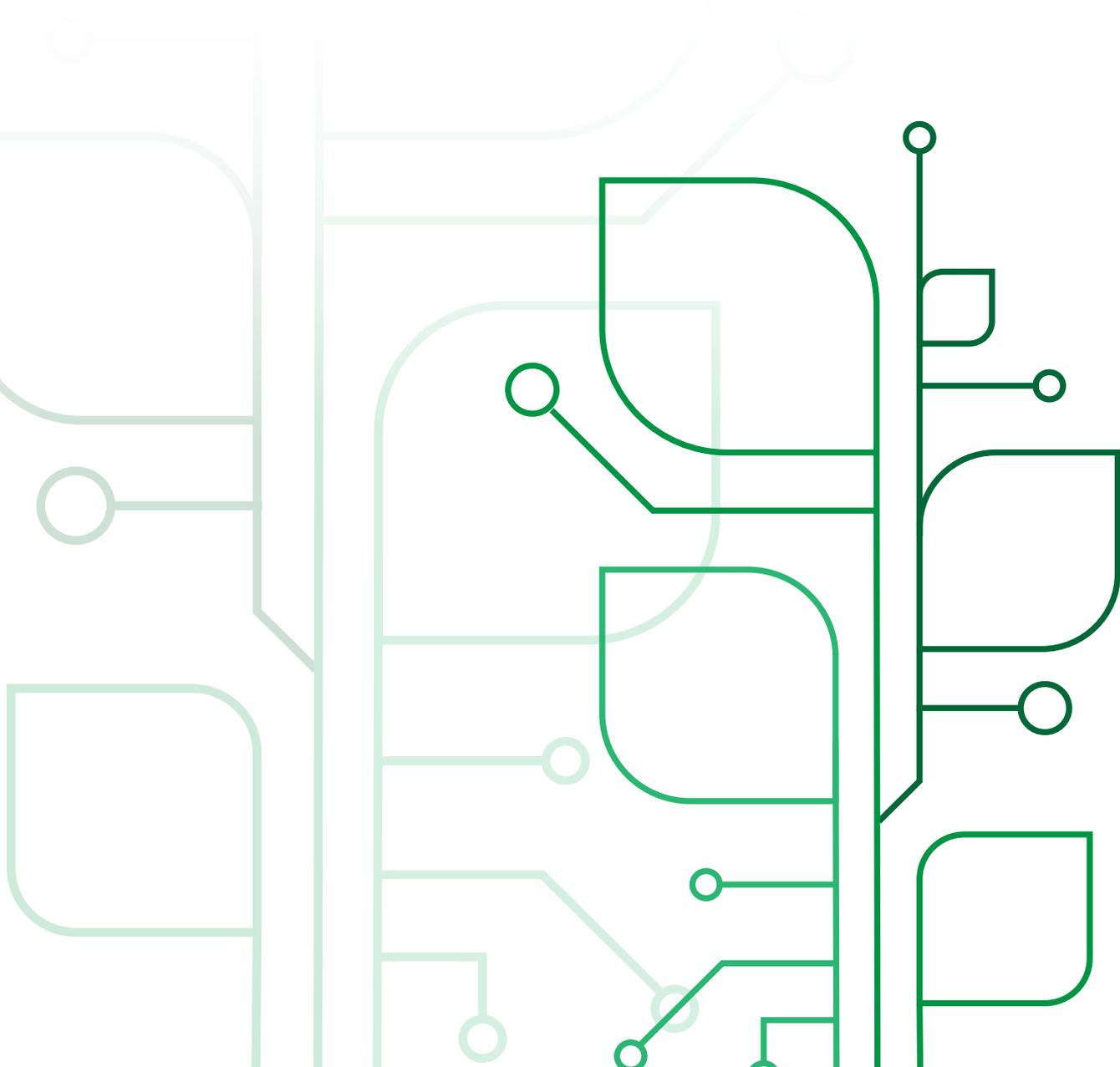
Kochi - E-health Solution

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The 'Supporting Smart Cities Mission for a more inclusive and sustainable urban development in India' is a joint program of the Ministry of Housing & Urban Affairs (MoHUA), Agence française de développement (AFD), European Union (EU), and National Institute of Urban Affairs (NIUA). It aims at putting in place a complementary instrument for the Smart Cities Mission (SCM) to provide financing incentives and technical support for demonstrative projects that were selected through a competitive process. It supports projects of excellence, and builds the capacity of Urban Local Bodies to implement integrated projects. The program will also develop peer learning activities, develop cooperation between smart cities and enhance the capitalisation of best practices at state and national levels.

A core component of this program is City Investments to Innovate, Integrate, and Sustain (CITIIS). Twelve projects have been selected across twelve smart cities under the program through a challenge process. The CITIIS Program Management Unit (PMU) established at NIUA started visiting the Smart City Special Purpose Vehicle (SPVs) soon after the tripartite agreements were signed in March, 2019. This handbook provides the initial assessment of projects as per the project proposal submitted by the SPV and observations of the CITIIS PMU from the city visits.

KOCHI

A. Project Information

Project Name: E-health Solution
Project Owner: Cochin Smart Mission Ltd. (CSML)
CITIIS Thematic Area: Urban e-Governance and ICT

City Profile*:
Population: 602,046
Area: 107.13 sq. kms.
Density: 5620 persons per sq. kms.
Literacy Rate: 97.36%
Ease of Living Index Rank, 2018: 45
Census of India, 2011

B. Project Description

E-health Solution is being developed and implemented by the Kerala State Health Department (KSHD) which integrates all departments and government hospitals into an efficient Hospital Information and Management System. The cloud based E-health Solution will rely on high speed Multi-Protocol Label Switching (MPLS) connectivity as every transaction is stored in a cloud based State Data Centre. The success of this project will contribute enormously in improving the lives of common people who depend on public healthcare institutions for health related services.

I. Project Objectives

Provide affordable and quality healthcare services to the citizens through installation of state of the art IT infrastructure to implement e-Health Solution

II. Proposed Project Components

No.	Non-Area Based Components	Characteristics	Features
1.	High Speed Internet Leased Line, LAN	Transfer of EMR (Electronic Medical Records) require high bandwidth, accordingly a high-speed internet line using Optical Fibre (Gigabit- Capable Passive Optical Network (GPON)) is required	IT connectivity
2.	Workstation & Computer Hardware	To implement e- Health solutions, additional Workstations, Printer, Scanner, Biometric readers and other Computer Hardware will be required	ICT-enabled government services

III. Selection Criteria

Relevance & Feasibility	• Kochi already has a large number of advanced healthcare facilities. But most of them are in the private sector. • The existing network and the computer hardware infrastructure is very old and inadequate to implement an e-Health solution. • The project aims at building a digital database of individual medical records that are easily accessible to medical practitioners. • It includes unique patient identification in different settings and exchange of data between different health care delivery units at the primary, secondary, and tertiary level across the state.
Sustainability Aspects	• The key objective of this project is to facilitate availability, accessibility, and affordability of health services for all categories of people through the use of ICT. • Scientific Supply Chain Management will be made possible through the framework. It will optimize inventory management and ensure timely availability of medicines, equipment etc. • Handholding and training of the doctors and other healthcare professionals will be provided as part of this project. PMU for E-health at the State level will be responsible for the operation of this project. • ICT based Health solution will lower the cost in operation of the project over time as Doctors will be able to issue medical prescriptions digitally
Innovation and Integration Aspects	• Demographic data will be dynamically updated. This will provide accurate and complete information of the population. • Since the software solution is already developed by the State, implementation of E-health Kochi will be cost effective.
Participatory Approach	• The State Government has already developed an E-health website https://ehealth.kerala.gov.in • Consultations with hospitals and the state e-health team have been conducted to understand the requirement of the project. • The SPV plans to conduct a hand holding by SeMT to the doctors and healthcare professionals for the seamless operation of the E-health Solution.

Focus on E&S issues	• The project will have limited environmental impacts.
	• The social impacts would depend on,
	  – Inclusiveness of the e-health solution
	  – Robustness of data security measures

IV. Tentative Financing Plan and CITIIS Grant Allocation

No.	Project Financial Resources	Cost (INR)
1.	CITIIS Grant Requested	18,87,00,000
2.	CITIIS Grant Allocated	15,10,00,000
3.	Other Sources of Finance	
	Additional Amount to be raised by SPV	3,77,00,000
4.	Total from Other Sources of Finance	3,77,00,000
5.	Total Project Cost	18,87,00,000

C. Preliminary Assessment of Project Proposal

Prior to the first field visit to Kochi, the CITIIS PMU carried out a preliminary assessment of the selected project by reviewing the submitted project proposal, supporting documents, and the SPVs presentation during CITIIS jury. The objective was to assess several factors, including the level of readiness of the SPV, pre-requisites to the project, anticipated risks such as social, environmental, technical, administrative, and institutional risks.

I. List of anticipated Project Risks

No.	Risk Type	Risk Anticipated	Source
1.	Technical	Health professionals are not technology savvy	SPV Proposal

II. Required Project Specific Clarifications

In addition, the PMU also compiled a list of questions against the required clarifications from the SPV during the course of the site visit, given as under.

- What part of the project has already been undertaken, as part of the pilot, and what is being covered under CITIIS?
- Is there any plan to integrate public health insurance schemes into the solution?

D. City Report

The first city visit to Kochi was organised on 31st May, 2019 comprising of a 5-member delegation from the National Institute of Urban Affairs (NIUA).

The agenda consisted of,
- Detailed presentation on CITIIS project by CSML
- Detailed presentation and discussion on CITIIS Maturation Phase and Monitoring & Evaluation by PMU
- Discussion with Mr. Mohammad Hanish, CEO, CSML, on Maturation Phase and CITIIS Project
- Stakeholder Meeting (Detailed list of stakeholders attached as Annexure II)

Visit to General Hospital, Ernakulam where the E-health Solution has already been implemented

The City Report consists of information obtained through discussion during the field visits, including information on preparedness and readiness of the SPV, gaps in existing project related documentation, project robustness, institutional processes, and risks associated with the project.

I. City Preparedness

This section aims to highlight problem areas, evaluate capacity and readiness of SPVs, and gauge necessary project requirements at the start of the maturation phase. City preparedness has been categorised under three broad headings.

1. Key Facts from Site Visits
2. Requirement of Project Specific Information
3. Current Organizational Structure of the SPV
4. Stakeholder Connect Status

1. Key Facts from Site Visits

- The state e-health department has designed the E-health Solution which has already been implemented in six hospitals in Trivandrum and two hospitals in Kochi.
- With Aadhar as basis of patient identification, the solution generates Unique Health IDs (UHID) as a unique patient identifier. Seven lakh patients have been registered and corresponding UHIDs have been assigned.
- The solution has integrated doctors, diagnostic staff as well as pharmacies into the system.
- Keltron, a govt. of Kerala owned electronics enterprise, is the dedicated vendor for all hardware to be procured for the project.
- The state has already recorded data for 2.5 crore people via a door-to-door public health survey, consisting of house details, demographic details, village-level details, and is integrated with the E-health data. The survey was primarily undertaken in the rural areas.
- The online booking system offered by E-health Solution is already being used at General Hospital,

Ernakulam to facilitate crowd management. The average daily footfall at OPD in this hospital is 5,000 patients.

- Appointments can also be booked at Akshaya centers, a network of effective Common Service Centers (CSC) across the state.
- As part of this project, the SPV wants to implement the solution in 6-8 public hospitals in Kochi.
- The state e-health department has a recommended list of hardware which the implementing agency, CSML in this case, can adapt for the solution.

2. Requirement of Project Specific Information
- Impact Assessment study from the pilot implementation, identifying benefits as well as challenges.
- Needs Assessment of public hospitals in ADB area to prioritize the hospitals for implementation.
- Indicators being tracked by the state department for monitoring and evaluation.

3. Current Organizational Structure of the SPV
- The SPV has a dedicated Project Manager and an E&S Nodal Officer for the project.
- Six SPV staff members : General Manager (Civil), Urban Planner, Environmental Engineer, IT Specialist, Energy Specialist, Finance.
- The SPV CEO, Mr. APM Mohammed Hanish, is also the MD of Kochi Metro Corporation.

4. Stakeholder Connect Status
- In the stakeholder meeting, the SPV had representation from state e-health department, Aardram Mission and Medical and Non-medical representatives from General Hospital, Ernakulam.
- The state project leverages a dedicated network of public health professionals, primarily doctors, for design and implementation of the solution.
- Kudumbashree, a community organization of Neighbourhood Groups (NHGs) covering all rural and urban areas of Kerala, could be leveraged as a public participation partner.

II. Project Robustness
This section aims at gauging the robustness of proposed project components and establish if any modifications would affect project implementation and subsequently its success. The SWOT (Strength, Weakness, Opportunities, and Threats) analysis given below lists the current situation of the project, assesses the impact of internal and external factors on the project, as well as current and future potential.

III. Components
The project components are clearly defined in alignment with state's e-health strategy.

However, given the flexibility to innovate as part of maturation grant, the city may explore additional components such as:

- Integration of private hospitals with E-health Solution.
- Integration of insurance providers, especially public health insurance schemes, with E-health Solution.
- Introduction of ways other than smart phones for booking appointments.
- Innovation in training and roll-out for smooth transition by public health professionals.
- Online payment gateway.

1. SWOT Analysis

No.	SWOT	Remarks
1.	Strengths	**A. Organisational Structure** • The SPV has a dedicated Project Manager and an E&S Nodal Officer for the project. **B. Technology Solution** • As per official UIDAI statistics, the state of Kerala has more than a 100 percent saturation of Aadhar which makes the aadhar-based solution sustainable. • The solution uses Health Level-7 or HL7, an international standard for transfer of clinical and administrative data in software applications across healthcare systems. • The system is based on Linux OS, so is less vulnerable to any cyber threats. • There are multiple backups at different data centres. • Avoiding data transfer on Hyper Text Transfer Protocol (HTTP). **C. Stakeholder Engagement** • Kudumbashree, a community organization of Neighbourhood Groups (NHGs) covering all rural and urban areas of Kerala, could be leveraged as a public participation partner.
2.	Weaknesses	**A. Inclusive Design and Implementation** • The online appointment booking solution is primarily for the low-income population but has a dependency on access to smart phones for users, which might be low in this income group. • The end user (patient) cannot download reports without aadhar or UHID. • The adoption by doctors, especially the elderly doctors, requires extensive training sessions **B. Scope of Solution** • The scope of the technology solution is limited to govt. hospitals which would limit the reliability of disease surveillance. • The payment is still out of the system as requires an overhaul of accounting systems across state public health system.
3.	Opportunities	**A. Innovation and Integration** • The solution is being implemented across the state, so any successful innovation at the city level could act as a proof of concept for implementation in the solution as well as design and implementations of best practices for state-wide roll-out. • The project could explore synergies with other state sponsored health programs such as, Ardram Mission - Conversion of government clinics into family health centers to reduce the burden on district hospitals Aawaz - An insurance scheme for migrant labours. **B. Monitoring & Evaluation** • Being a digital solution, there is a possibility to have a robust M&E framework for the project.
4.	Threats	The technology solution is already designed and deployed via state e-health team, leaving limited flexibility for SPV to innovate.

IV. Measures for Project Risk Management (to be filled by Mentors)

1. Risk Amelioration/Reduction Measures

This section would aim at risk reduction measures that may include redefining project components, or rejecting components as required.

2. Risk Management Measures

Notes: