

Terms of Reference
**Consultancy Firm for Implementing an Unified Ticketing and Billing
Platform**
ICTA/GOSL/CON/QBS/2016/176

1. Introduction

The government has recognized the critical role that Information and Communication Technology (ICT) can play in fostering social integration, peace, growth, poverty reduction and improving the efficiency and effectiveness of public service. Accordingly, the government intends to use ICTs to improve the reach and responsiveness of public services, reduce transaction costs to business, make government more transparent and accountable, and address the urgent needs of low income communities. As a result, initiatives for Digitizing the Economy has been initiated by the government of Sri Lanka.

The key elements and objectives of the government's digitization of the economy program include, (i) develop the required digital infrastructure across the country to effectively serve all citizens, (ii) create an enabling environment for the knowledge economy (iii) develop specialized ICT skills and broad ICT literacy at all levels of education (iv) deliver faster, more efficient, and more transparent government services to all citizens and businesses, (v) use ICT as a lever for social development, and (vi) create jobs through a dynamic and competitive ICT sector and through diffusion of ICT across the nation.

Transport sector is a key component of the economy of any country. Therefore, under the umbrella of 'Digitization of Economy', government of Sri Lanka aims to implement multiple initiatives covering all the areas including the transport sector. Investments on related infrastructure developments including building of new expressways and railways are high in Sri Lanka. More attention has to be given for public transportation since social, economic and environmental aspects are directly linked with this. Convenience and efficiency of the public transportation have to be increased for encouraging the general public to use public transport. ICT can be used as an effective tool for significantly improving the quality of transport service for bringing convenience for citizens and improving efficiency of the overall public transport service. Investing on ICTs for development of a ticketing and billing system would help transport sector to increase their operational efficiency and transparency of the processes and also providing commuters an efficient and reliable service.

2. Background

Aligned with above objectives and strategies, the Ministry of Transport and Civil Aviation (MoT), the National Transport Commission (NTC) and the Information and Communication Technology Agency of Sri Lanka (ICTA) in collaboration with the relevant stakeholders had a series of discussions to identify the possibility of implementing an “Unified Ticketing and Billing Platform” with best practices and latest state-of-the-art technologies. General public, related government organizations and private businesses will be well benefited in numerous ways by this initiative.

In this context, an “Unified Ticketing and Billing Platform” can lead to a convenient payment solution to the citizen with simple and multiple top-up, and tap-in and tap-out facilities. Private bus owners and government owned transport authorities will be significantly benefited by greater visibility and control on the income they receive through operating transport services. Furthermore, agencies such as NTC will be benefited from this initiative through collecting passengers’ transport usage data, and thereby can make future strategic decisions for better improving the transport services. Moreover, the development of a cashless system may reduce costs of printing cash notes and coins which would also eventually save tax payers money.

3. Objective of the Assignment

Primary aim of this initiative is to implement an Unified Ticketing and Billing Platform which will be served as the core system for ticketing and billing functions of the transport service.

4. Scope of Work

The selected service provider shall design, develop, deploy and maintain the Unified Ticketing and Billing Platform.

4.1 Implementation Approach

- The consultant is expected to work collaboratively with the respective teams jointly appointed by ICTA, NTC, MoT and other stakeholder organizations.
- The consultant is required to review previous conducted studies on the same domain. For example, a Study on Implementing an Unified Transport Ticketing and Payment Platform has conducted with the objective of implementing the project.
- Review and understand all related architectural aspects, on-going and proposed initiatives/projects, related infrastructure and components.
- The consultant is expected to review the concept diagram presented in the Figure-01 and the High-level Architecture of Ticketing and Billing Platform (Figure – 02) and propose a suitable architecture for developing the Ticketing and Billing Platform.

- Consultant is required to identify the high-level modules, and functional and non-functional requirements in relation to the proposed system (Annex-01).
- Design the Unified Ticketing and Billing platform based on above.
- Implement the solution and deploy the solution in Lanka Government Cloud.
- The vendor is required to meet the User Acceptance Criteria defined by ICTA.
- Provide support and maintenance services for the period as specified in the in TOR.

*A description of Figure 1, and 2 is given in Annex 1.

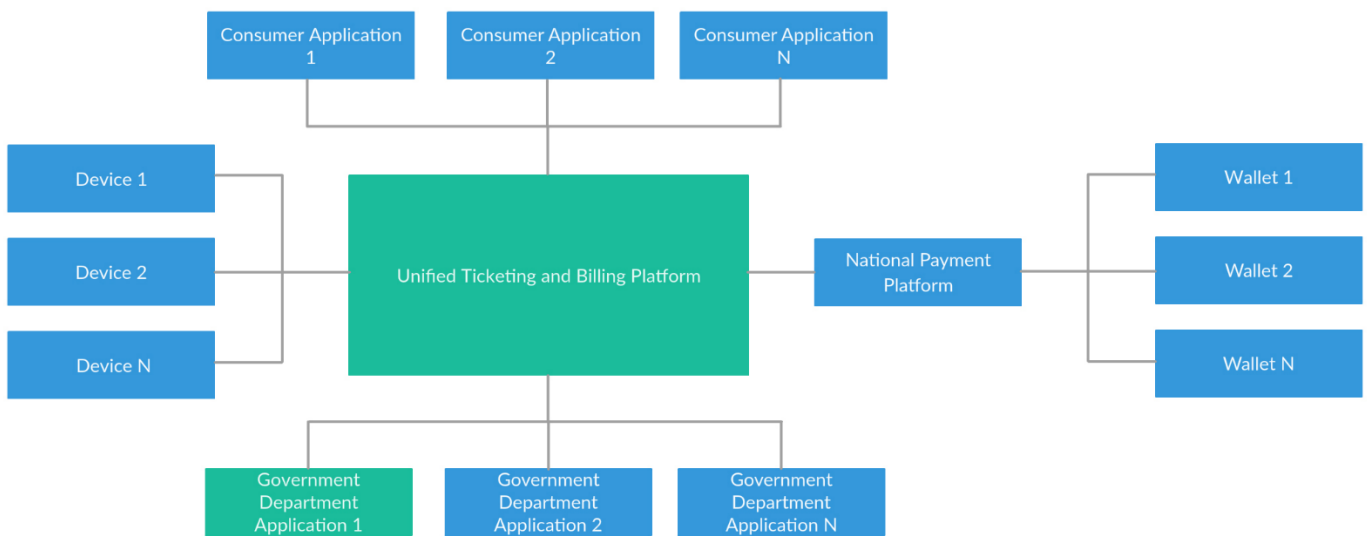


Figure-01: Concept Diagram

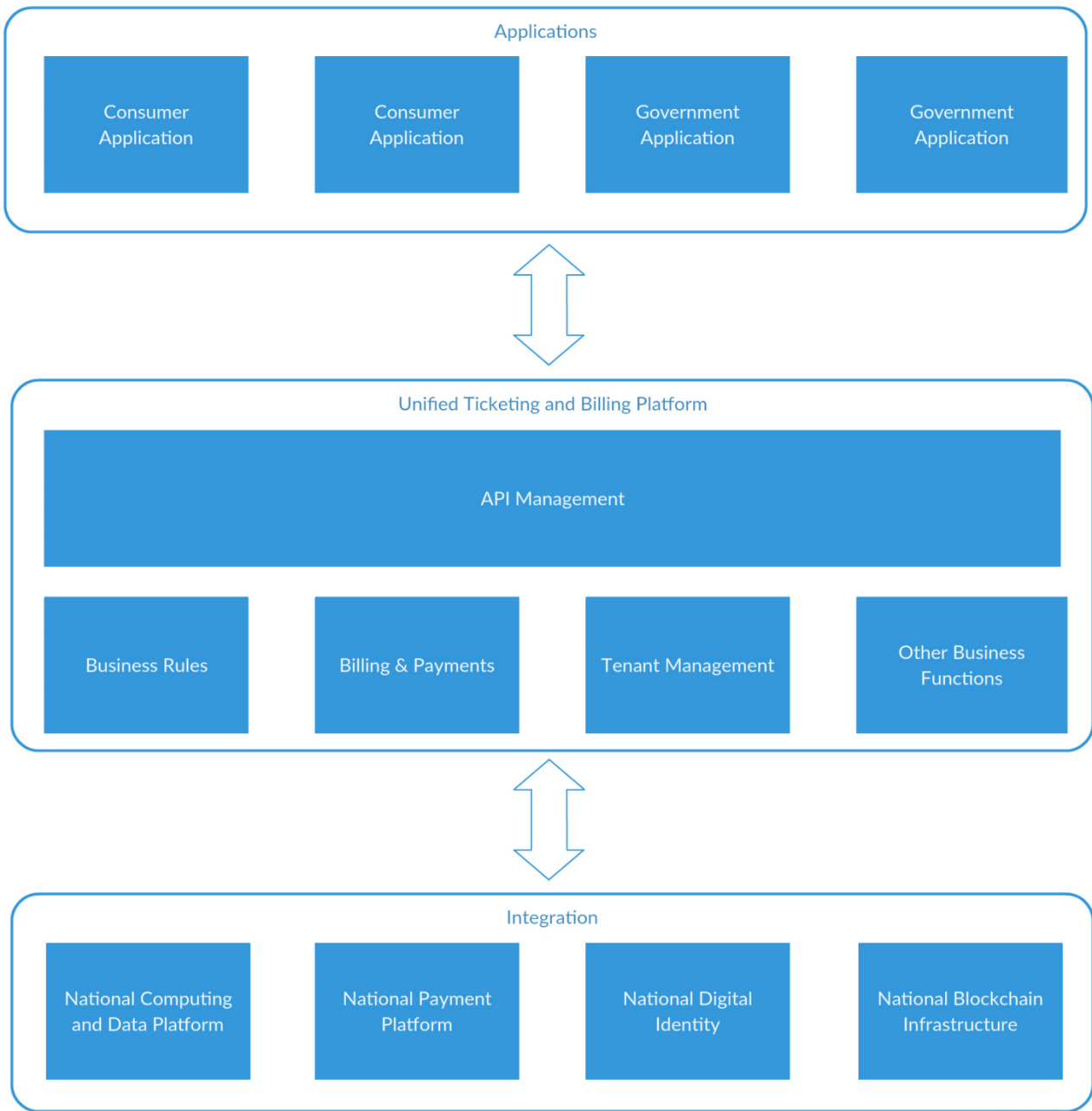


Figure-02: high-level Architecture

4.1 General Requirements

- The consultants should sign a Non-Disclosure Agreement (NDA) in order to prevent access to confidential data by third parties.
- Adherence to the latest revisions of the e-Government Policy of Sri Lanka.
- Adherence to Lanka Interoperability Framework.
- Maintain project source code in the ICTA Source Code Management system (SCM).
- Adopt a proper application release procedure to release the Web/mobile Application to ICTA for deployment in the staging / production environments.
- Deploy into production in a Cloud Computing Platform.
- Adhere to ICTA project management practices.
- Participation for the meetings/discussions of project committees, governance committees such as Project Steering Committee (PSC) and Project Review Committee (PRC) as and when required.

5. Deliverables and Time-line

The Consultancy firm will be engaged for a period of 116 weeks. Initial 20 weeks will be allocated for designing and implementing the solution, and 96 weeks are allocated for providing support and maintenance. Consultancy firm is also required to submit the following list of deliverables;

Table 1. List of deliverables

No	Key Deliverable	Duration
1	Initiation (Project Inception, Requirement Analysis)	Commencement Date + 3 weeks
2	Design (Design Definition, Architecture Definition, Testing Strategy)	Commencement Date + 6 weeks
3	Construction (Development and Testing)	Commencement Date + 18 weeks
4	Implement (User Acceptance and System Stabilization, Documentation and User Training)	Commencement Date + 20 weeks
5	Support and Maintenance	User Acceptance Date + 2 years

6. Services and Facilities Provided by ICTA

6.1 Project Documents

- Study report on Implementing an Unified Transport Ticketing and Payment Platform

6.2 Organizing workshops, events and demonstration sessions with stakeholders and steering committee

6.3 The Integration platforms such as National Payment Platform, National Digital Identity etc. will be provided.

6.4 Access to cloud environments for staging and production

6.5 Access to Bug tracking system and source code repository

7. Review Committees and Review Procedures

All deliverables will be reviewed by the team appointed by ICTA.

Annex-01

High-level Module and Functional Requirements

Business Rules

Business rules module will be define, deploy and maintain business rules related to the Unified Ticketing and Billing Platform. Business rules module will facilitate for following areas (not limited to):

- Evolving business conditions, such as changes by competitors or in the economic environment.
- New regulations, procedures and/or policies.
- Locality-specific decisions, such as eligibility verification or pricing.
- Customer-specific decisions, such as sales authorization, priority assignment or contract-related provisions.
- Product-specific decisions, such as configuration and availability.
- Process-specific decisions, such as workflow routing, approvals and straight-through processing.

API Management

Application Programming Interfaces (APIs) will be provided for the 3rd party stakeholders who are willing to integrate with the Unified Ticketing and Billing Platform where APIs will be provided as Representational state transfer (REST).

Billing and Payments

Billing and payments will be operated by a separate module in order to facilitate billing and payments.

Tenant Management

The Unified Ticketing and Billing Platform will be developed based on multitenant architecture where a tenant is a group of users who share a common access with specific privileges to the software instance. A tenant will be provided for each and every department where respective department's configurations, business rules, relevant data, etc. are store separately.

Other Business Functions

Other business function module will be facilitate all the other functionalities of the system such as User Management, client support, etc.

Integrations

1. National Payment platform (NPP)

All the payments will be routed to NPP in order to be executed for payments where relevant parties are debited and credited.

2. National Blockchain Infrastructure

In order to implement integrity of the platform all the transactions will be published on National Blockchain infrastructure.

3. National Digital Identity

National Digital Identity will allow the citizens to be identified uniquely based on their biometrics in order to make transactions.

4. National Computing and Data Platform

National Computing and Data Platform will enable the departments to manage all data, data-in-motion and data-at-rest to obtain actionable intelligence to make decisions.

5. Applications

Applications can be built based on the REST APIs provided by the Unified Ticketing and Billing Platform where all the functionalities will be provided as APIs. Any given application built should adhere to the standards given by ICTA.