

# CONNECTED GOVERNMENT FOR SRI LANKA

INFORMATION AND COMMUNICATION TECHNOLOGY AGENCY OF SRI LANKA

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## Acronyms

APIs	Application Program Interfaces
BPR	Business Process Re-engineering
CACDE	Cabinet and Advisory Committee on Digital Economy
CoPA	Committee on Public Accounts
EAF	Enterprise Architecture Framework
GEA	Government Enterprise Architecture
GoSL	Government of Sri Lanka
HEP	His Excellency the President
HLOC	High-Level Officers Committee
ICT	Information and Communication Technology
ICTA	Information and Communication Technology Agency
IMC	Inter-Ministerial Committee
LIFe	Lanka Interoperability Framework
Mbps	Megabits per second
MoT	Ministry of Technology
NDX	National Data Exchange
RAMIS	Revenue Administration Management Information System
RoC	Registrar of Companies
SLUDI	Sri Lanka Unique Digital Identity
TWG	Thematic Working Groups
UN	United Nations

## 1 Objective

The objective of this document is to outline both short term and long term strategies aimed at establishing a connected government in Sri Lanka.

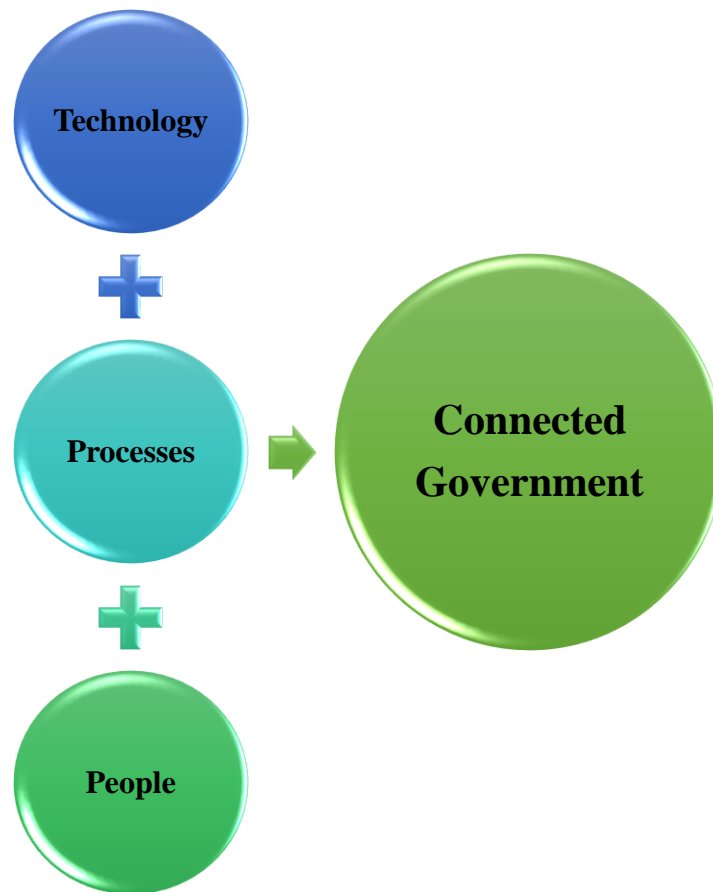
## 2 Introduction

Sri Lanka has been rapidly increasing its digital presence in recent years, despite the economic downturns, and has set ambitious goals for the future. The country's National Digital Strategy for 2030<sup>1</sup>, currently being devised by the facilitation of Ministry of Technology, with the assistance from experts in six thematic areas, aims to transform Sri Lanka into a digitally empowered and prosperous nation, with a focus on, inter alia, Digital Government, Digital Economy, Cyber Security and Digital Infrastructure for Connectivity. The strategy aims to achieve this through several initiatives, including the expansion of affordable and high-speed internet connectivity, the development of digital skills and literacy, the development of a comprehensive digital government framework, and the integration of emerging technologies such as big data, artificial intelligence, and blockchain into key sectors such as healthcare, agriculture, and tourism. By implementing this strategy, Sri Lanka hopes to achieve sustainable economic growth, improve public services, and increase overall digital inclusivity and innovation.

In this setting, the notion of 'connected government' which encompasses the combination of technology, people and processes becomes a key driving force in the achievement of a digitally empowered and prosperous nation. It upholds the need for a unified approach, rather than each component operating in isolation, towards the achievement of greater efficiency, accuracy, accountability, and transparency within the governance framework, making a value addition to both the government as well as citizens/businesses. It is the integration of digital technologies and communication tools to enhance the exchange of information and services between different levels of government, as well as between government and citizens/businesses. The need for a connected government has become increasingly important as society becomes more digitized and interconnected.

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<sup>1</sup> Refer Annex 1 – National Digital Strategy 2030



*Figure 0-1: Composition of Connected Government*

*Source: Author*

### **3 Need for a ‘Connected Government’**

The benefits of a ‘connected government’ can be achieved via the use of technology as the medium which connects different agencies and departments within the government in order to improve the flow of information and increase efficiency. One reason for needing a connected government is to improve communication between government agencies and departments. This can reduce duplication of efforts, improve data sharing and analysis, and lead to better-informed decision-making. Additionally, a connected government can provide better public services by allowing citizens to access government information and services more easily through digital channels, which can save time and money for both citizens and the government. Furthermore, a connected government can improve the ability of government agencies to respond to emergencies and other crises by sharing information and coordinating their efforts more effectively. Overall, the need for a connected government is driven by the desire to improve government efficiency, provide better public services, and ensure that the government is able to respond effectively to the needs of its citizens.

## 4 Characteristics of a ‘Connected Government’

The ‘connected government’ denotes more than a physically connected government, which is just a basic necessity. A connected government should be looked at the point of view of the client. The fundamental questions can be why citizens need a connected government and what citizens achieve by a connected government. Thus connected government refers to the use of technology to improve the efficiency and effectiveness of government services and operations (This implies that the connected government is not the need of the government; it is more about citizens. The government does need it but this is secondary). The key is offering seamless and efficient services to citizens. If citizens interact with just one organization, the task is not complicated. However, if the interactions are with multiple organizations, the matters become complicated.

Following are the inherent characteristics of a connected government:

- **Digitally enabled:** Connected government uses technology to facilitate communication and transactions with citizens, businesses, and other stakeholders.
- **Data-driven:** Connected government leverages data to inform decision-making and drive innovation.
- **Citizen-centric:** Connected government focuses on delivering services and experiences that meet the needs and expectations of citizens and businesses.
- **Collaborative:** Connected government fosters collaboration and partnerships between government agencies, businesses, and other organizations to achieve common goals.
- **Agile:** Connected government is adaptable and able to respond quickly to changing needs and circumstances.
- **Transparent:** Connected government is transparent, providing access to information and data about government operations and decision-making.
- **Secure:** Connected government prioritizes security and privacy to protect sensitive information and prevent cyber-attacks.
- **Inclusive:** Connected government ensures that all members of society, regardless of their background or abilities, have access to government services and opportunities.

## 5 Implementation Approach

### 5.1 Long Term Approach

The majority of governments ranked at the top of the UN e-Government rankings<sup>2</sup> have adopted a strategic approach to achieve a connected government, via a nationwide Government Enterprise Architecture (GEA)<sup>3</sup>. It requires extensive planning, execution, and continuous monitoring in order to reap its maximum benefits.

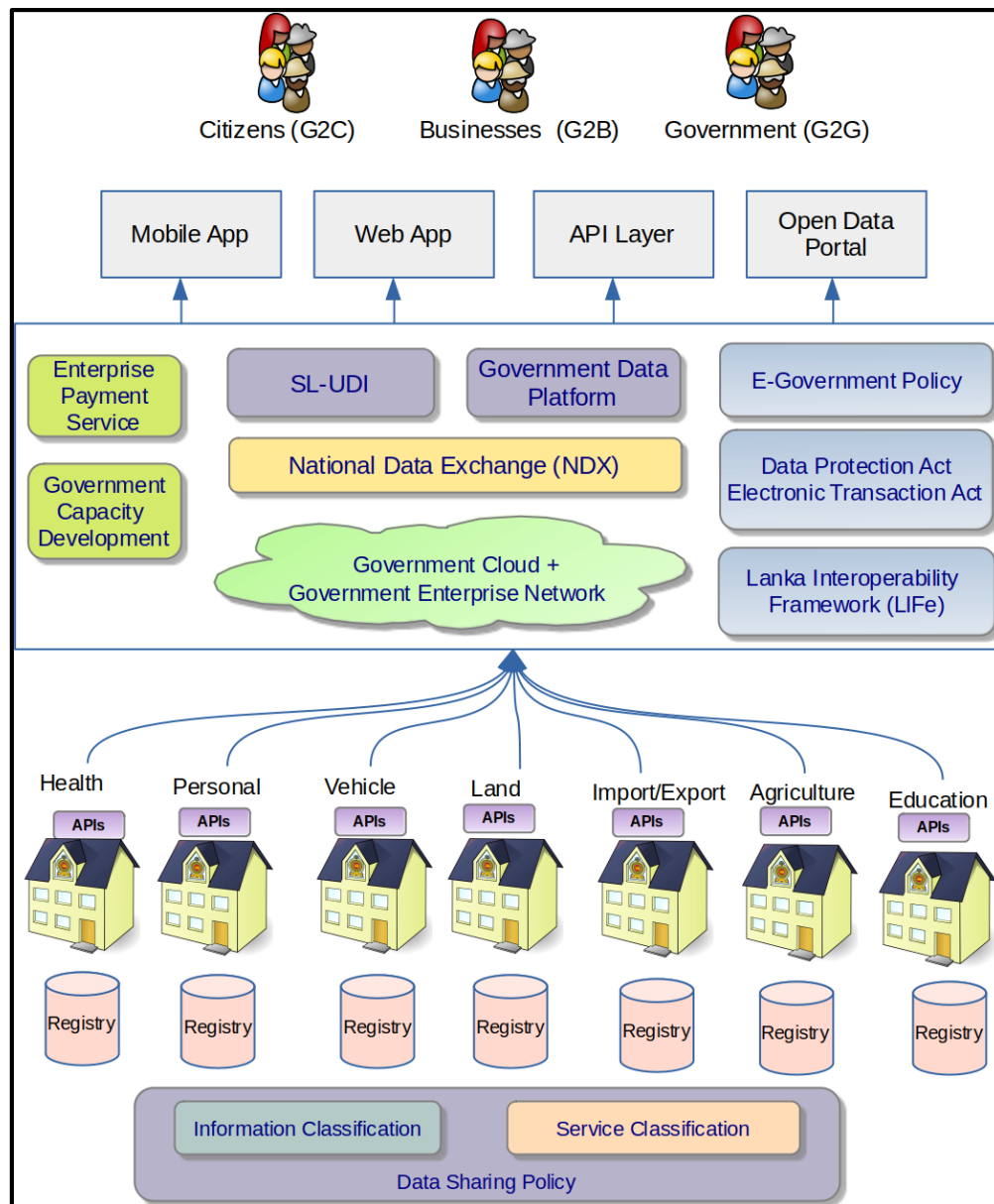


Figure 5-1: Connected Government Architecture

<sup>2</sup> UN e-Government Survey 2022

<sup>3</sup> Refer Annex 2 – Enterprise Architecture 1.0



As depicted in above diagram;

- The open data portal, API layer, mobile and web applications facilitate government services to citizens (G2C)/businesses (G2B) and other government entities (G2G).
- Middleware infrastructure i.e. NDX, enables data exchange among different government organizations.
- The government national cloud and enterprise network act as enabling infrastructure for secure application hosting and connectivity.
- Citizen unique identification for e-KYC and authentication services is facilitated by the SL-UDI.
- Government policies (i.e. Digital Government Policy, Data Sharing Policy, Information & Services Classification, LIFe) facilitate necessary policy direction towards the achievement of Digital Government.
- Legal frameworks (i.e. Electronic Transactions Act, Data Protection Act) provide the required legal and regulatory direction for connected government initiatives, ensuring their effectiveness, legitimacy, and alignment with the rule of law.
- Digital capability and capacity of government workforce paves way towards effective service delivery, citizen engagement, and optimized governance processes leading to greater efficiency, transparency, and citizen satisfaction.
- Domain Applications and Registries (i.e. Health, Land, and Education etc.) establishes a solid foundation for connected government, contributing towards interoperability and data exchange among different government entities.

It is recommended to adopt an industry-recognized Enterprise Architecture Framework (EAF) in alignment of a strategic Enterprise Architecture. According to the widely adopted EA framework, TOGAF<sup>4</sup>, each government organization should undergo analysis in four critical enterprise architectural domains namely; Business, Data, Application, and Technology.

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<sup>4</sup> <https://www.opengroup.org/togaf>

### 5.1.1 Business Domain

It is imperative to identify all government domains such as Health, Education, Personal, Land etc., and re-engineer them using appropriately established blueprints (refer to Figure 5.2). A concentrated effort is necessary to identify all stakeholders within the respective domains, aided by a high-level Inter-Ministerial Committee (IMC) or a council similar to the previously established National Administrative Reforms Council (NARC). This undertaking facilitates the streamlining of current business processes, promoting user-friendliness and reduced complexity, thereby enabling digital transformation with lesser duplications.

In order to accomplish this task, it is recommended to implement targeted Business Process Re-engineering (BPR) initiatives within each government domain. A dedicated effort is a must to introduce BPR initiatives with increased agility where continuous deliveries are frequently made, in order to obtain the support from government entities and citizens.

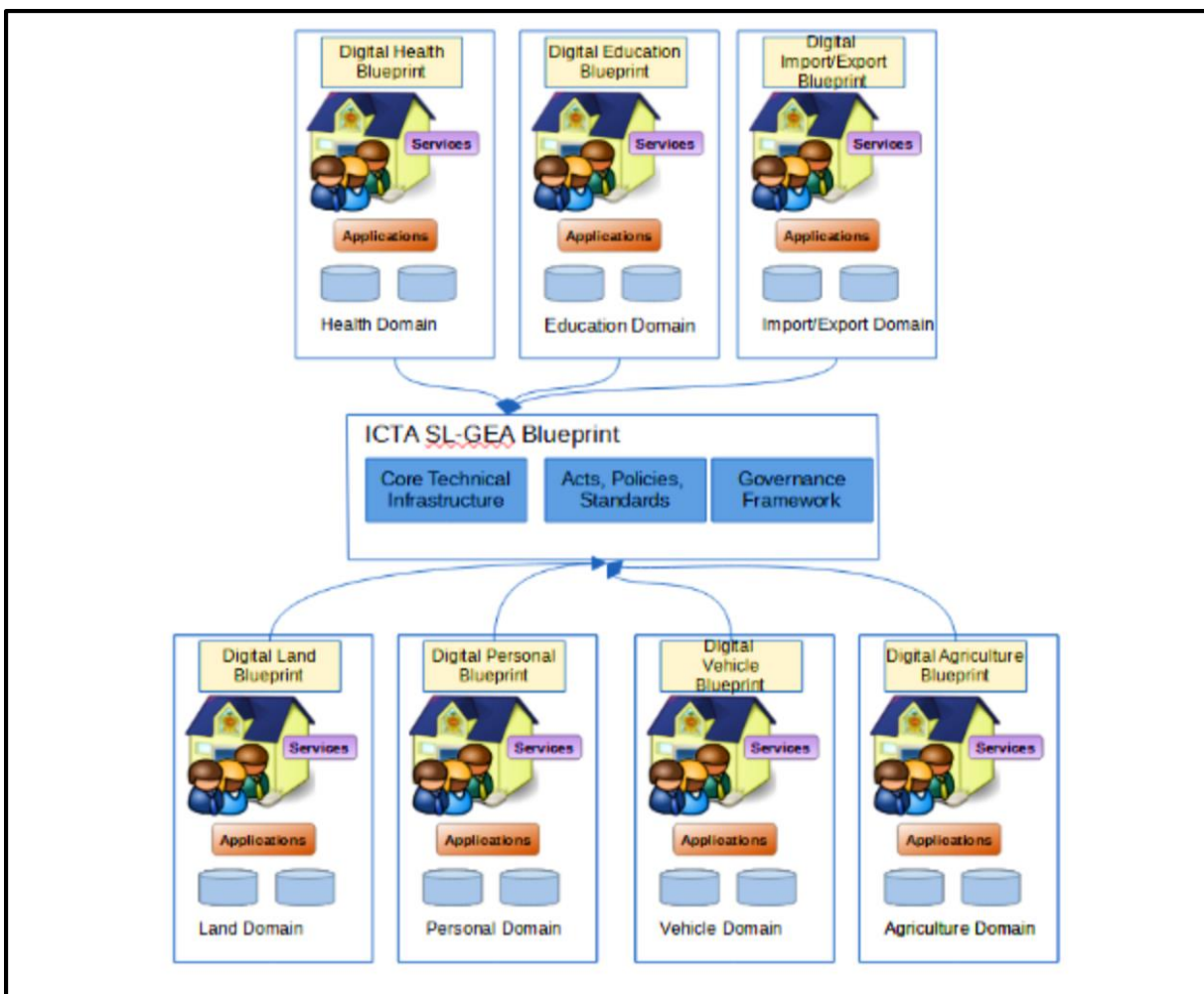


Figure 5-2 : Identifying Government Domains and Building Blueprints

In this setting, capacity building plays a vital role in bridging the BPR initiatives and contribution made by the government entities in fostering a connected government. It enables the government to equip the government workforce with necessary skills, knowledge, and technology to work collaboratively across different departments, agencies, and levels of government.

An integrated capacity building approach<sup>5</sup>, drives the development of government sector capability and capacity.

#### 1. Digital Maturity Model (DMM)<sup>6</sup>

In order to understand an organization's maturity level, it is important to take necessary actions to achieve the desired digital transformation. Accordingly, the Digital Maturity Model for GoSL has been formulated with the consultative engagement of a pool of expert resources on digital maturity across industry, government, and academia.

#### 2. Digital Transformation Unit (DTU)<sup>7</sup>

DTU facilitates the establishment of small transformation units in identified organizations to accomplish smooth digital transformation that provides the necessary first-level support to minimize day-to-day upcoming issues that directly affect the digital transformation journey in government organizations, whilst sustainable continuing the digital transformation initiatives.

#### 3. Chief Digital Information Officer (CDIO)<sup>8</sup>

CDIO is a role that brings together the experience and skills-set of the Chief Information Officer and the Chief Digital Officer. CDIOs are responsible for leading all aspects of IT and digital strategy and leading the Digital Transformation Unit.

#### 4. NextGenGov Initiative along with the Digital Government Competency Framework<sup>9</sup>

The NextGenGov initiative aims to transform Sri Lankan government officials into a digitally capable workforce. The transformation process takes the form of

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<sup>5</sup> Refer Annex 3 – An Integrated Capacity Building Approach for Government Digital Transformation

<sup>6</sup> Refer Annex 4 – Digital Maturity Model for the Government of Sri Lanka

<sup>7</sup> Refer Annex 5 – Digital Transformation Units

<sup>8</sup> Refer Annex 6 – CDIO Document

<sup>9</sup> Refer Annex 7 – Digital Government Competency Framework

a capacity building framework, which is designed to enhance and sharpen the unidentified potential of the government workforce in a manner where they could apply it to navigate the digital transformation journey of the government adopting digital technologies to transform government services and effectively utilize them for the betterment of the national economy, which would eventually make technology more general within the public sector.

The Digital Government Competency Framework is developed to make the government workforce progressively capacitated by specifying the required skills for various employment levels as a unified approach for capacity building across the government.

As part of the governance model, government organizations are required to determine their level of digital maturity, create a Digital Transformation Unit, and identify/appoint a CDIO. The NextGenGov initiative will be made available once this governance model is in place, to capacitate the officials of respective government organizations and assess the required competencies of the staff.

### **5.1.2 Data Domain**

Upon the identification of business domain scopes, it is necessary to determine data boundaries, in consideration of the data classification guidelines outlined in the Data Sharing Policy<sup>10</sup>. Additionally, adherence to the Personal Data Protection Act<sup>11</sup> is imperative to ensure the highest level of security for shared citizen data.

For example, the Land Domain will encompass several government entities and external stakeholders (as depicted in Figure 5.3). It is crucial for all stakeholders involved to reach a mutual agreement concerning data and service level classifications, as well as sharing policies, within the designated scope. This approach involves seamless integration among stakeholders with minimal interruptions in the future.

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<sup>10</sup> <https://life.gov.lk/index.php?lang=en>

<sup>11</sup> <https://www.parliament.lk/uploads/acts/gbills/english/6242.pdf>

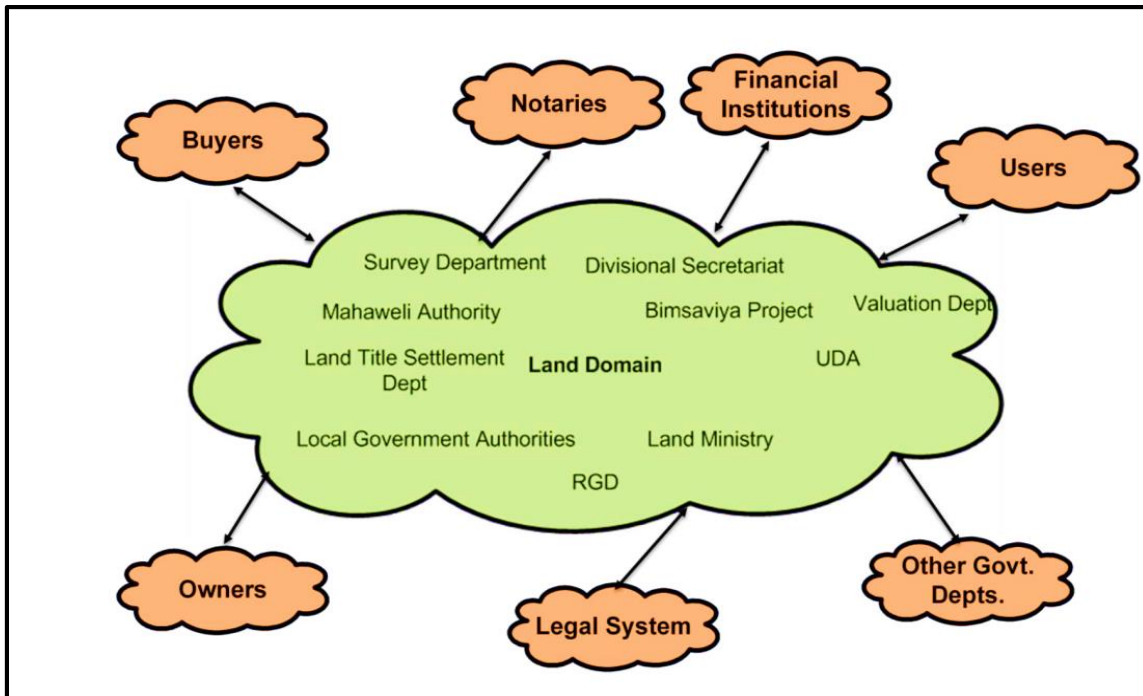


Figure 5-3 : Land Domain

Source: Lanka Interoperability Framework

Building data dictionaries in all identified government domains under LIFe<sup>12</sup> is essential in this approach.

LIFe Standards are defined to:

1. Ensure data is not captured in multiple locations.
2. Ensure data captured has a single owner
3. Ensure data is always current and accurate
4. Ensure the data is shared only with other authorized systems.
5. Ensure the shared data could be easily understood and used.

### 5.1.3 Application Domain

Upon completion of the data classification process, it is important to identify the necessary applications and their corresponding APIs/services that may be shared with other governmental organizations. Neglecting to incorporate external APIs during the development of back-end applications may hinder the realization of a connected government framework in the future. Thus, the integration of APIs at the inception of each back-end development is crucial.

<sup>12</sup> <https://life.gov.lk/index.php?lang=en>

#### 5.1.4 Technology Domain

All the re-engineered back-end data and service APIs are recommended to be channeled through the ICTA managed NDX<sup>13</sup> facilitating a centralized API governance structure.

- If API data schema are complying with LIFe data standards, it is not mandatory to route them through the NDX Service Bus.
- If API data schema are ‘not’ complying with LIFe data standards, it is required to channel those APIs through NDX Service Bus for and mediation.
- However, it is essential to expose them to NDX API Manager for centralized API management

#### 5.2 Short Term Approach

In Sri Lanka, several government departments have created their own applications and databases, in silos, without considering a holistic approach, as described in the ‘Long-Term Approach’. However, adopting a strategic approach may require a significant time period to implement. As a result, it is recommended that a short-term strategy be implemented in conjunction with a long-term strategy for the country.

There are multiple short term goals which could be executed in order to integrate some of the selected government applications, with a greater economic impact.

Steps to be followed are as follows.

##### Step 1

Identify government applications, which need Government wide integration (G2G) with a bigger economic impact.

##### Step 2

Once government applications are selected, identify possible integration points to other government entities.

##### Step 3

Through an established Inter-ministerial Committee (IMC), the selected government entity should get other government parties involved in discussion to identify possible steps to be taken.

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<sup>13</sup> [https://www.icta.lk/icta-assets/uploads/2022/04/Sri-Lanka-Government-Enterprise-Architecture\\_V1.0.pdf](https://www.icta.lk/icta-assets/uploads/2022/04/Sri-Lanka-Government-Enterprise-Architecture_V1.0.pdf)

#### Step 4

Build relevant APIs within respective government applications, which are going to be integrated with the other systems. This effort would probably need some development effort from the department side, which will have a cost involved.

#### Step 5

Once relevant APIs are identified from each party, any application could leverage NDX, to interact with other parties at the API level. The NDX level mediation support could be supported by ICTA or any other institute, which could maintain a similar infrastructure.

### 5.2.1 Use Cases for a Connected Government

The examples, detailed in Annex 8, provide an insight into the practical implementation of connected government solutions. By leveraging emerging technologies and fostering digital transformation, government can better serve the citizens and meet the evolving needs of the society.

### 5.2.2 An Integration Example

The following diagram depicts how NDX could be leveraged to mitigate RAMIS integration.

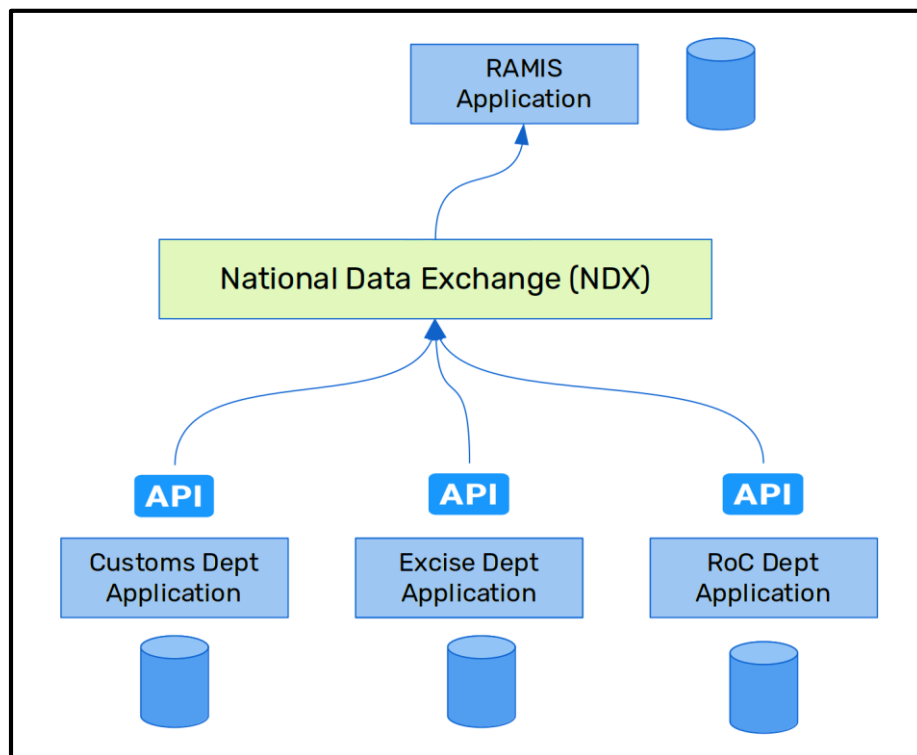


Figure 5-4 : RAMIS Integration

As shown in the above diagram, RAMIS and other connected entities such as Customs, Excise, RoC etc., need to establish their respective APIs in a clear and complete manner in order to enable seamless inter-department (G2G) communications.

By default, most of these APIs are governed at each government department level such as Customs and Excise Department. RAMIS should provide API interfaces to each of these government departments, which they can then use to develop and manage the same. This is considered as the ideal scenario.

In the event if there are APIs that are already written for a different interface, NDX can be utilized, as a short term solution, to provide relevant mediation facility. This would effectively minimize both the development time and associated cost of creating a new API.



## 6 Accountability Matrix

The following accountability matrix is followed in achieving the intended outcome, in alignment of step 1 – 5 specified under the short term approach.

<b>Task</b>	<b>CoPA</b>	<b>IMC</b>	<b>Respective Govt. Organization</b>	<b>MoT</b>	<b>ICTA</b>
Identifying government applications with a greater economic impact, which needs Government wide integration (G2G).	Informed	Accountable	Consulted	Consulted	Responsible
Identifying possible integration points to other government entities.	Informed	Accountable	Consulted	Consulted	Responsible
Getting the other government parties involved to identify the steps to be taken.	Informed	Accountable	Responsible	Consulted	Consulted
API development within the respective government applications, to be integrated with the other systems	Informed	Accountable	Responsible	Consulted	Consulted
Leveraging NDX to interact with other parties at the API level	Informed	Accountable	Consulted	Consulted	Responsible

Table 1 : Accountability Matrix

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National Digital Strategy 2030

### **Annex 2**

Enterprise Architecture 1.0

### **Annex 3**

An Integrated Capacity Building Approach for Government Digital Transformation

### **Annex 4**

Digital Maturity Model for the Government of Sri Lanka

### **Annex 5**

Digital Transformation Units

### **Annex 6**

CDIO Document

### **Annex 7**

Digital Government Competency Framework

### **Annex 8**

Use Cases for a Connected Government