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## REVISION HISTORY

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Addendum B – Current State Assessment Slides and Summary
Addendum C – Data Centre & DRC Report
Addendum D – Government IP Network (GOVNET) Report
Addendum E – Voice over IP (VOIP) Report
Addendum F – Public Contact Centre Report
Addendum G – e-Community Centre Report
Addendum H – Project Methodology
Glossary

ADSL: Asymmetric Digital Subscriber Line
ATM: Asynchronous Transfer Mode
BOQ: Bill of Quantities
CPU: Central Processing Unit
CTI: Computer Telephony Integration
DDN: Digital Data Network
DMZ: Demilitarized Zone
e-CIC: e-Community Information Centre
e-CLC: e-Community Learning Centre
FR: Frame Relay
FTP: File Transfer Protocol
FTTB: Fibre Transmission to Building
GOVNET: Government Data Network
HTML: Hypertext Markup Language
ICT: Information and Communications Technology
IDS: Intrusion Detection System
IP: Internet Protocol
IPMG: Internet Protocol Media Gateway
IPTV: Internet Protocol Television
IVR: Interactive Voice Response
LAN: Local Area Network
LDAP: Light Directory Access Protocol
MAN: Metro Area Network
MPLS: Multi-Protocol Label Switching
MSTP: Multi Service Transport Platform
NMS: Network Management System
NOC: Network Operation Centre
VSAT: Very Small Aperture Terminal
VOIP: Voice over Internet Protocol
PBX/PABX: Private Branch Exchange/Private Automatic Branch Exchange
PSTN: Public Switched Telephone Network
QoS: Quality of Service
RAID: Redundant Array of Independent Disks
ROI: Return of Investment
SDH: Synchronous Digital Hierarchy
SMS: Short Message Service
SPOF: Single Point of Failure
TCO: Total Cost of Ownership
TCP: Transmission Control Protocol
UDP: User Datagram Protocol
VISS: Video Security System
VLAN: Virtual LAN
VPN: Virtual Private Network
WAN: Wide Area Network
WiMAX: Worldwide Interoperability for Microwave Access
WLAN: Wireless LAN
WWW: World Wide Web
EXECUTIVE SUMMARY

This report is the Final Report of the e-Government Consultancy Project for the development of the Master Plan for the Fiji e-Government programme.

1. Report Scope

The scope of this report covers:

a) The vision, goals and desired outcomes of e-Government in Fiji.
   Four strategic thrusts for the success of the e-Government programme have been recommended.

b) An assessment of the current state of e-Government readiness in Fiji.
   Current government services were reviewed, screened, shortlisted and prioritised for online automation consideration. Sixteen application clusters have been identified and ranked for implementation recommendation.

c) A holistic e-Government Framework.
   The Framework provides a comprehensive view of what it takes to establish e-Government, including issues covering the business, technology, process, information, governance, social and cultural aspects required for a successful e-Government programme.

d) Indicative cost estimates.
   The costs include development and maintenance for the recommended applications.

e) Recommended implementation approach.
   The approach in setting up the application systems, system software and common services, network and infrastructure, and the integration of all
theses components with the Data Centre and the Government Infocomm Infrastructure (GII) projects have been explored and recommended.

f) High-level reports for Data Center and GII

High-level reports for Data Center and GII (inclusive of GovNet, VOIP, Public Contact Centre, e-Community Centre and Project Methodology) are included in the addendum of this document to provide a quick current state assessment as well as the preliminary suggestions.

2. Key Recommendations

2.1. Four strategic thrusts for the success of the e-Government Programme (Section 2.2):

   i. Implement financially sustainable service delivery models
   ii. Reinvent services delivery model to provide citizen-centric outcome
   iii. Enhance operational efficiencies within and across government agencies
   iv. Enhance ICT skills competency of government employees at all levels

2.2. Sixteen application clusters identified for implementation (Section 3.4):

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<th>Ministry(ies)</th>
<th>Recommended</th>
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<th>Department or Ministry</th>
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<td>Finance &amp; National Planning (ITCS)</td>
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<td>Examinations &amp; Results</td>
<td>Education</td>
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<td>Titles &amp; Deeds</td>
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2.3. Recommended Architecture Framework (Section 4.1)

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<tr>
<td>Forestry Services</td>
<td>Fisheries &amp; Forestry</td>
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![Diagram of e-Government Architecture Framework](image_url)
2.4. Indicative costing estimates for e-Applications (Section 5.1 & 5.2):

The total estimated development cost for all the 10 recommended e-Application clusters was US$3,559,763. The number of full-time staff required to provide ongoing maintenance and support will be covered in the Governance Framework Report.

2.5. A staged implementation schedule with pilot (Section 6.5):

![Implementation Schedule Diagram]

2.6. Four transition management strategies (Section 7.3):

i. Defining e-Government Strategic Value Network
ii. Communicating the Need and Benefits of e-Government

iii. Enabling Stakeholders to Maximise e-Government

iv. Managing e-Government through e-Governance

3. Next Steps

With the approval of this report, the other implementation projects on e-Applications, Data Centre, GII will commence and are expected to complete in 15 months by March 2009.
1 INTRODUCTION

1.1 Background

A Memorandum of Understanding (MOU) was signed in May 2004 between China’s Ministry of Information Industry and Fiji’s Ministry of Information Communication and Media Relations (MICMR) to establish ICT cooperation between the 2 countries. In this MOU, the Chinese Government would provide a loan amounting to RMB 165 Million to the Fijian Government to finance Fiji’s first e-Government project, the scope of which covers both e-Government consultancy (formulation of a Fiji e-Government Master Plan) as well as the development and implementation of supporting government communication infrastructures and short-listed high-priority government services for online automation.

The scope of the e-Government project is divided into 2 phases. Phase 1 involves three e-Government Consultancy Projects for the development of Fiji’s e-Government Master Plan, Governance Framework and the ICT Competency Development Plan. Phase 2 of the e-Government project involves the actual realisation of the plan. Specifically, the following activities will be carried out:

a) Development of the functional requirements for the recommended online applications

b) Development of technical and operational requirements for the Data Centre (DC) and the Government Info-communication Infrastructure (GII)

c) Construction and roll-out of the online applications and the supporting DC and GII
d) Training and knowledge transfer

The Information Technology and Computing (ITC) Services has been appointed as the implementation agency to oversee this e-Government project with support from China’s Alcatel Shanghai Bell (ASB) and Singapore’s NCS Pte Ltd, the leading e-Government Service Provider which played a key role in Singapore’s e-Government successes for more than 2 decades. Contract was in force with Phase 1 of the e-Government project started on 2nd October 06.

The e-Government Consultancy Project for the development of the Master Plan (or otherwise known as “this project”) commenced in end Oct 2006 followed by a Project Kick-Off Meeting (KOM) attended by all CEOs from the various government Ministries. As the e-Government project is a Government-wide initiative, their collective support, commitment and participation was absolutely essential to the success of this project. During the KOM, the e-Government Master Plan Consultancy Project objectives, scope, deliverables and implementation schedule as well as their expected involvement were communicated to the CEOs. In addition to the KOM, a series of e-Government Focal Points Workshops were also conducted. These workshops were attended by senior representatives appointed by their CEOs to act as focal persons for their respective Ministries. Details on the working arrangements between the focal persons and the NCS consultants were communicated in these workshops.

1.2 Project Scope

To maximise the benefits of e-Government to Fiji’s key stakeholders, namely its citizens, business community and government employees, a holistic but targeted approach has to be taken. This is done by first defining Fiji’s e-
Government vision and desired outcomes over the next few years, assessing the current state of Fiji’s e-Government readiness to meet these desired outcomes as well as the needs of key stakeholders, and then recommending specific e-Government programmes to bridge the gap (between the desired outcomes and the current state). Specifically, the Phase 1 e-Government Consultancy Projects involve the following activities:

a) Validate the vision and desired outcomes for e-Government in Fiji

b) Identify e-Government thrusts to support the vision

c) Conduct preliminary analysis and assessment of current key services and ICT systems across all Ministries

d) Identify high priority and feasible services for online automation

e) Develop an enterprise architecture to support current and future e-Government initiatives

f) Define a Governance Framework to regulate and control e-Government initiatives

g) Develop ICT Competency Development Plan for citizens, businesses and government employees

h) Develop an implementation plan for the roll-out of short-listed e-Applications, supporting ICT systems, infrastructure and facilities

The deliverables at the end of Phase 1 are the recommendation of a list of short-listed applications for online automation, a Governance Framework including standards and practices, and an ICT Competency Development Plan.
2 FIJI E-GOVERNMENT

2.1 Vision, Goals and Desired Outcomes

For over 2 decades, Fiji’s GDP growth per capita has not been performing as well as its neighbouring countries within Oceania and the rest of the world. Its dismal performance is underpinned by the following factors:

![GDP per capita, constant US dollars, 1992-2005](image)

*Source: Earth Trends 2007*

**Figure 2-1:** Fiji’s GDP per capita is below the world’s average

a) High unemployment (6% annually)

b) Low productivity levels (0.8% to 1% over the last 10 years)

- 70% of labour force continues to be employed in the low-tech agricultural sector and only 30% of the labour force is supporting higher productivity industry and services sectors
c) Low productive land usage – more than 90% of land is privately owned, leaving less than 10% (owned by the State) being put to good economic use.

d) Lack of employment opportunities and prospects leading to emigration of talent (qualified graduates and professionals) to other countries.

e) Poor telecommunication, water and electricity infrastructures at many sub-urban and rural communities.

More details of the abovementioned and other national issues are highlighted in Fiji’s 20 Year Development Plan (2001 – 2020) released by the Ministry of Finance and National Planning.

From the economic perspective, the Industry & Services sectors have in recent years become the main engine of growth for the Fijian economy. These sectors contributed almost 90% of the GDP growth in 2005. Tourism services, sugar and garment exports combined contributed more than 90% of Fiji’s total domestic exports and foreign exchange earnings in 2005.

![Major GDP Contributors](image)

*Source: Bureau of East Asian and Pacific Affairs (Sep 2006)*

**Figure 2-2:** The Services and Industry sectors are the growth engines for Fiji
Figure 2-3: Sugar, garment exports and tourism services are top earners

However, from the social perspective, living conditions continue to be difficult for citizens, typically the youths who make up the majority of the population and who are faced with difficulties of urban living like finding employment, shelter, etc. Poor telecommunication and utility facilities in many sub-urban and rural areas are also motivating factors for many to migrate to the cities. This exodus has brought along with it many other social issues such as squatter problems, increasing crime rate, etc.

It has been revealed in some studies that a 1% increase in internet penetration could result in an increase in exports by as much as 4%. e-Government can play an indirect role in alleviating many of the economic and social issues the country is currently facing. The Fiji Government should play a more active and prominent role in supporting the high growth services sectors. Making government services more accessible, convenient and hassle-free has been the strategy adopted by many governments in helping businesses become more competitive as well as in attracting new foreign investments into the country.
Taking a look at the ease of doing business, Fiji is ranked 36 out of 178 economies.

![Ease of Doing Business - Global Rank](image)

**Figure 2-4: Fiji’s ranking in Doing Business 2008**

Fiji obviously compares very favorably with its neighbours in the South Pacific. However, there is much room for improvement when compared with the developed economies which use IT to improve the business environment.

Statistics published by the World Bank below showed the turnaround time taken to complete 3 typical business transactions in different countries. Government agencies that employ a combination of simplified business procedures and online transactional capabilities are able to deliver outcomes much more effectively and quickly to businesses. Substantial cost savings can be reaped by both businesses and the government. The Fiji Government can adopt the best practices of these developed countries to achieve significant economic benefits for itself and the business community it serves.
**Starting a Business (Possible G2B service: e-Companies)**

<table>
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**Registering Property (Possible G2B/G2C service: e-Registry)**

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**Trading Across Borders (Possible G2B service: e-Trade)**

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Source: DoingBusiness 2008 by World Bank, IFC

**Figure 2-5:** Business turnaround time between Fiji & developed countries

By e-enabling the right services and making business processes more efficient, effective and customer-centric, thousands if not millions of dollars can potentially be saved by businesses annually. This strategy encourages new businesses to be established, both local and foreign. More jobs can be created in the process and many of the social issues can be alleviated.
2.2 **Critical Success Factors**

To maximize the benefits of e-Government to key stakeholders, i.e. citizens, businesses and government, it is recommended that the ICT initiatives should support Fiji’s national objectives as stipulated in the 20 Year Development Plan (2001 – 2020). The objectives are to:

a) **Raise and sustain GDP growth rate (at least 5% annually)**

b) **Create employment and income generating opportunities and reduce unemployment**

c) **Build competencies**

d) **Alleviate poverty**

e) **Maintain effective law and order**

The following critical success factors or e-Government strategic thrusts are needed to achieve the national objectives:

**Strategic Thrust #1**

Implement financially sustainable service delivery models

**Strategic Thrust #2**

Reinvent services delivery model to provide citizen-centric outcomes

**Strategic Thrust #3**

Enhance operational efficiencies within and across government agencies
2.2.1 Strategic Thrust #1 - Implement financially sustainable service delivery models

Each year, many multi-national corporations spend billions of dollars on customer service to make sure that they are able to attract new customers as well as retain existing ones. Many government organisations are also realising that good customer service does not come free of charge. For example, heavy investments are needed to establish call centres, re-engineer business processes, develop web-enabled ICT applications, build ICT communication infrastructures, re-skill or retrain government employees to take on new roles, etc. As new technology evolves, customer expectations and demands will also change. Additional money is required to fund recurring projects such as those mentioned above. Governments in some countries like Singapore have implemented financially sustainable funding models to cover both investments in and running costs of ICT infrastructure and systems. For example, Singapore’s TradeNet, a nationwide Electronic Data Interchange System which allows public and private sector organisations to exchange structured trade message and information electronically through integration of the import, export and transshipment documentation processing procedures has significantly reduced costs and turnaround time for the preparation, submission and processing of trade and shipping documents and expedite cargo clearance. This System has over the years cost the Singapore Government more than US$50 million to build and operate. Traders are charged a processing fee of only S$3.30 per application. This pricing model makes it very attractive for businesses to use TradeNet (it costs more than S$10 per application for manual processing) and at the same time enables
the government to recover its capital and recurring costs over a long term. In short, good customer service can only be achieved by putting in place financially self-sustainable models.

Over the longer term, financially self-sustainable models will certainly help to reduce the Fiji Government’s dependence on external funding assistance. Attaining financial self-sufficiency will provide Fiji government agencies with the added flexibility to plan and implement programmes within their financial capabilities and respond more quickly to the needs of their constituents.

2.2.2 Strategic Thrust #2 - Reinvent services delivery model to provide citizen-centric outcomes

Government organisations are typically viewed as bureaucratic, slow and inefficient. This perception persists because business processes have traditionally been built around functional outcomes with each agency and department working independently from each other although many services require cross-agency and cross-department inputs. For e-Government to succeed, government departments and agencies must move away from the current practices and reinvent service delivery models that primarily focus on the needs of their major stakeholders, i.e. citizens, businesses and government employees. Enhancing the experience of constituents in their interactions with the government is after all the main motivation for adopting e-Government. This cannot be solved by technology alone. The development of a customer-centric service delivery model requires a more holistic and integrative approach – sound ICT governance and leadership, business process redesign and integration, cooperation amongst government agencies, private-public sector collaboration, adoption of customer-centric mindset on the part of both government leaders and employees in serving their
stakeholders, and a robust ICT communication infrastructure and application systems to support new and future e-Government programmes and initiatives.

2.2.3 Strategic Thrust #3 - Enhance operational efficiencies within and across government agencies

In their eagerness to catch up with the more advanced e-Government nations, government institutions in developing countries tend to rush into developing ICT application systems without proper planning and automating their current business processes which are very often ineffective, inefficient and non-citizen centric. To achieve very high standards of customer service, it is a prerequisite for government agencies to have operationally effective and efficient business processes that are able to facilitate not only inter-departmental but also cross-agency communication and information exchanges. Business processes should be re-engineered to eliminate as much as possible red-tapes caused by multi-level approving layers; reduce the number of physical trips to government agencies and remove duplicate form filling by constituents; eliminate duplication of work by government employees, e.g. data entry into different systems, and redundant checking and verifications; reduce hand-offs by automating processing rules and approving applications that meet the requirements; and facilitate information and document exchange across agencies with appropriate communication infrastructure.

2.2.4 Strategic Thrust #4 - Enhance ICT skills competency of government employees at all levels

As part of this project, a recent survey conducted on government Ministries in Fiji revealed that 75% of agencies do not have an ICT training plan and
budget to take care of staff ICT training needs. It is absolutely necessary to set aside sufficient funds for staff training and skills upgrading across all levels of government on an annual basis. The training programmes should help equip staff with sufficient knowledge and skills to be effective in their appointments. e-Government cannot succeed if the government does not place enough emphasis on training its employees whose roles become increasingly more complex and varied in serving the needs of the public.
3 RECOMMENDED E-SERVICES

3.1 Current State of e-Government Readiness

As mentioned in the previous section, achieving e-Government success requires a holistic approach that must take into account both the technological as well as the non-technological building blocks during the Master Plan formulation phase. The development of Fiji’s e-Government Master Plan is guided by the framework shown in Figure 3-1.

![Diagram of e-Government Master Plan]

Figure 3-1: Framework for developing Fiji’s e-Government Master Plan

Two different surveys were administered to all government Ministries: Government Services Inventory (GSI) Questionnaire and the Information-Communication Technology (ICT) Questionnaire. The objectives of the surveys were to examine the current state of e-Government readiness from the following perspectives:
The findings arising from the surveys are summarised as follows:

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 e-Government Vision &amp;</td>
<td>ICT &amp; Training Plans &amp; Budgets</td>
</tr>
<tr>
<td>Leadership</td>
<td>Almost 50% of agencies surveyed do not plan for ICT</td>
</tr>
<tr>
<td></td>
<td>75% of agencies surveyed do not have ICT training budgets</td>
</tr>
<tr>
<td>2 Processes</td>
<td>Physical Trips</td>
</tr>
<tr>
<td></td>
<td>More than 50% of the government services required its constituents to</td>
</tr>
<tr>
<td></td>
<td>make at least 2 trips</td>
</tr>
<tr>
<td></td>
<td>More than 10% of the government services required its constituents to</td>
</tr>
<tr>
<td></td>
<td>make 3 trips or more</td>
</tr>
<tr>
<td></td>
<td>Long Waiting Time</td>
</tr>
<tr>
<td></td>
<td>62% of the services required constituents to spend more than 2 times the</td>
</tr>
<tr>
<td></td>
<td>actual serve</td>
</tr>
<tr>
<td>Perspective</td>
<td>Findings</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>duration. For example, application for investment approval took more than 1 week vs. the 1 hour spent in serving the customer.</td>
</tr>
<tr>
<td></td>
<td><strong>No. of Approvals Required</strong></td>
</tr>
<tr>
<td></td>
<td>Almost 89% of the services required 2 or more levels of approval</td>
</tr>
<tr>
<td></td>
<td><strong>Staff Support</strong></td>
</tr>
<tr>
<td></td>
<td>73% of the services required 2 or more staff to support</td>
</tr>
<tr>
<td></td>
<td>19% of the services required 3 staff or more to support</td>
</tr>
<tr>
<td></td>
<td><strong>Form Filling</strong></td>
</tr>
<tr>
<td></td>
<td>20% of the services required constituents to fill in 2 or more types of forms</td>
</tr>
<tr>
<td>3 Stakeholders</td>
<td><strong>ICT Usage amongst Government Employees</strong></td>
</tr>
<tr>
<td></td>
<td>In 27% of the agencies surveyed, less than 50% of staff makes use of computers in their work</td>
</tr>
<tr>
<td>4 ICT Governance</td>
<td>No centralised agency with a mandate to enforce good ICT governance. ITCS’ current role is limited to the implementation and</td>
</tr>
<tr>
<td>Perspective</td>
<td>Findings</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>maintenance of systems on behalf of the agencies</td>
</tr>
<tr>
<td></td>
<td>Unclear ICT standards and guidelines and weak enforcement has resulted in the adoption of different practices by various agencies</td>
</tr>
<tr>
<td></td>
<td>An IT Procurement process is in place to take advantage of economies of scale for hardware centrally procured through ITCS</td>
</tr>
<tr>
<td></td>
<td>Centralised services to facilitate inter-Ministry interoperability has yet to be developed</td>
</tr>
<tr>
<td>5 Government Facilities</td>
<td>Data Centre</td>
</tr>
<tr>
<td></td>
<td>Current location of ITCS data centre puts security of government systems and data in a vulnerable position</td>
</tr>
<tr>
<td></td>
<td><strong>Location of Service Centres</strong></td>
</tr>
<tr>
<td></td>
<td>Access to government services are limited to traditional channels – government offices, paper mails, telephone/facsimile</td>
</tr>
<tr>
<td></td>
<td>50% of services have government offices as the only mode of access</td>
</tr>
<tr>
<td>6 ICT Infrastructure and Applications</td>
<td>Web Presence</td>
</tr>
<tr>
<td></td>
<td>80% of the services had no web presence,</td>
</tr>
</tbody>
</table>
In addition to the above-mentioned surveys, the study also took into account feedback from the citizen and business community representatives. Focus group meetings were held to solicit their views about the current level of service, areas for service improvement and their preferred services for online automation.

The table below is a summary of key findings obtained from the participants:

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>i.e. services only delivered in Over the Counter (OTC) mode</td>
</tr>
<tr>
<td></td>
<td>19% of the services provided informational details and forms for downloading</td>
</tr>
<tr>
<td>Level of Automation</td>
<td>35% of the services were totally paper-based</td>
</tr>
<tr>
<td>Communication between Agencies</td>
<td>80% of services adopted manual data exchanges, i.e. through hardcopy documents</td>
</tr>
<tr>
<td></td>
<td>12% of services adopted data exchange using offline medium like CDs</td>
</tr>
<tr>
<td>Vendor Support</td>
<td>Support was no longer available for some systems running on older hardware and software</td>
</tr>
<tr>
<td>Business Community</td>
<td>Citizen Community</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Preferred Services</td>
<td>Preferred Services</td>
</tr>
<tr>
<td>1) Register Business Names</td>
<td>1) Register for Examinations</td>
</tr>
<tr>
<td>2) Register Title Documents</td>
<td>2) Application for Employment</td>
</tr>
<tr>
<td>3) Pay Water Bills</td>
<td>3) Register Birth, Death &amp; Marriages</td>
</tr>
<tr>
<td>4) Search &amp; Photocopy Request for Titles &amp; Deed Documents</td>
<td>4) Application for Passports</td>
</tr>
<tr>
<td>5) Application for Investment Approval</td>
<td>5) Application for Scholarships</td>
</tr>
<tr>
<td>How do we like to access the services?</td>
<td>How do we like to access the services?</td>
</tr>
<tr>
<td>1) Internet</td>
<td>1) Internet</td>
</tr>
<tr>
<td>2) Self-service Kiosks</td>
<td>2) Community Centres</td>
</tr>
<tr>
<td>What are the improvements we would like to have?</td>
<td>What are the improvements we would like to have?</td>
</tr>
<tr>
<td>1) Reduce number of visits to government offices</td>
<td>1) Reduce number of visits to government offices</td>
</tr>
<tr>
<td>2) Reduce queuing time and waiting time</td>
<td>2) Provide other online access channels (e.g. internet, self-service kiosks, mobile)</td>
</tr>
<tr>
<td>How much are we willing to pay for quality services?</td>
<td>How much are we willing to pay for quality services?</td>
</tr>
<tr>
<td>1) Register Business Name - $5</td>
<td>1) Register for Examinations - $20</td>
</tr>
</tbody>
</table>
The results from the focus group meetings with citizens and businesses have provided us with a better perspective and understanding of the needs of the citizen and business community in terms of the services that are most important to them and the improvement areas to focus on.

Based on the results of the findings obtained from these studies, we have summarised Fiji’s e-Government current state of e-Government readiness to be as follows:

<table>
<thead>
<tr>
<th>Business Community</th>
<th>Citizen Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Register Title Documents - $200</td>
<td>2) Application for Employment - $5</td>
</tr>
<tr>
<td>3) Pay Water Bills - $0</td>
<td>3) Register Birth, Death &amp; Marriages - $2</td>
</tr>
<tr>
<td>4) Search &amp; Photocopy Request for Titles &amp; Deed Documents - $5</td>
<td>4) Application for Passports - $50</td>
</tr>
<tr>
<td>5) Application for Investment Approval - $20</td>
<td>5) Application for Scholarships - $5</td>
</tr>
</tbody>
</table>

Figure 3-2: Summary of Fiji’s e-Government Maturity Level
The red line is the assessment of current situation in terms of e-Government readiness versus the ideal situation in the blue line. There is clearly a huge scope for improvement in terms of building the necessary architecture and structures that collectively help to support Fiji’s e-Government initiatives and vision and at the same time ensure their sustainability and alignment to the national objectives. Subsequent sections in this report will cover the following areas:

a) Recommended Applications for Online Automation

b) e-Government Enterprise Architecture (Facilities, Infrastructure and Application Systems)

c) Implementation Plan

Two other important areas that are also in the scope of this study – ICT Governance and ICT Competency - will be covered in separate reports.

Although not in the scope of this study, it is highly recommended that the Fiji Government embark on a Business Process Re-engineering (BPR) study to identify and re-engineer key government business processes which will be supported by short-listed application systems recommended in this project. This is absolutely necessary and critical in order to realise the full benefits of operational efficiency, effectiveness and customer centricity. The BPR studies should be conducted prior to the implementation of the backend systems.

3.2 Prioritisation Framework and Approach

Ideally, all government services that can be put online should be e-enabled. However, given the current budget and timeline for completion, this is not possible. Hence, the prioritisation framework is adopted to identify, prioritise and
select the most important government services for online automation. How we define a service as 'most important' boils down to 2 criteria:

a) impact on stakeholders and national priorities

b) feasibility of implementation

Before we discuss the details of the prioritisation criteria, it is appropriate at this juncture to elaborate on the approach taken to identify the final list of services for online automation.

The diagram in Figure 3-3 summarises the 4-step approach taken to shortlist the most important services.

---

**The e-Services were assessed using a 4-step approach**

1. **Inventorise list of identified services & job functions**
   - Conducted 3 e-Government focal point workshop for Ministries
   - Identified over 300 government services & job functions from survey returns

2. **Screen initial list of services**
   - Screened and identified 173 government services
   - Shortlisted: 96 services for the business community - 65 services for the citizens community - 12 services for the government

3. **Solicit Business & Citizen focus group views**
   - Established the government services that matter to the business/citizen community
   - Incorporated key findings from the 15 business/citizen community representatives for the final validation assessment

4. **Select & validate services**
   - Assessed the top government services in terms of high impact and high feasibility
   - Identified top service clusters: Top 5 G2B clusters, Top 5 G2C clusters, Top 3 G2E clusters

---

**Figure 3-3: Services prioritisation approach**
Step 1 – The aim of this step was to collect an inventory of government services currently offered to citizens, businesses and government employees. This was done through the GSI survey administered to government Ministries. From this list, all job functions were excluded as they did not fall under our definition of a service which must involve direct interaction with citizens, business and non-business enterprises and/or government employees. Over 300 services and job functions were collected, out of which 173 were short-listed for Step 2.

Step 2 – This step categorised the services into 3 clusters: G2B cluster for the business community, G2C cluster for the citizens and G2E cluster for government employees. The prioritisation criteria were applied in this step to further shortlist services with the highest impact and feasibility.

Step 3 – Separate focus group meetings were then conducted with business and citizen representatives based on the list of short-listed services identified in the previous step. Participants invited to the focus group meetings were carefully selected to represent various key stakeholder groups, e.g. teachers, students, professionals, businessmen, government employees.

Step 4 – The services were re-prioritised and further short-listed, taking into account feedback from participants representing the citizen and business communities. This final list was also validated with the Project Sponsor and Permanent Secretaries during the one-on-one interviews with them and at the e-Services Validation Workshop.

As previously mentioned, it was logical to recommend services that create the greatest impact to the community and yet at the same time could be implemented within a reasonable timeframe. These services should score high on both impact and feasibility. The prioritisation criteria were to identify such services for online automation. Services that were of high impact but might take a long time to implement would not be recommended. Similarly, services that
were not considered important to the community were assigned low impact scores and thus not recommended. The prioritisation criteria comprised the following sub-criteria and weightings:

![Prioritisation criteria](image)

*Figure 3-4: Prioritisation criteria*

The weightings assigned to each sub-criterion have been validated with the e-Government Project Committee.

While there were attempts to screen the reasonableness of the submitted data, the prioritisation criterion basically assumed the data obtained from the various Ministries via the GSI survey to be accurate. Scores were assigned to each sub-criterion and weightings applied to obtain a weighted score. For each service, the weighted scores were then aggregated to give the weighted impact and feasibility scores. Services in the red region ranked the highest in terms of impact and feasibility scores. Those in the blue region ranked the lowest.

The output was a preliminary list of ranked services which was presented to both the focal persons and permanent secretaries at the e-Services Validation
Workshop. Adjustments to the scores and rankings were subsequently made after additional information was collected during the business case studies to derive the final list of recommended services and applications clusters for implementation.

3.3 Proposed Flagship Services for Online Automation

We can design a portal of e-Services in the following ways:

a) Clustering of services by life-cycle, i.e. services are categorised according to age category, e.g. clustering all relevant services whose age falls between 0 and 6 (before enrolment into primary education) as Category 1; clustering another set of services for citizens attending primary to tertiary education as Category 2, etc.

b) Clustering of services by Government agencies, i.e. services are categorised according to the agency responsible for delivering those services, and

c) Clustering of services by key industry segments

The third method of clustering services is the most preferred method. Using this method, we have derived the following top service clusters:

**Government-Business (G2B) Service Clusters:**

a) Trade and Investment

b) Agriculture, Forestry and Fishery
c) Land & Property

d) Tourism

e) Business Establishment

The top 20 G2B services are depicted in Figure 3-5. Services highlighted in yellow were recommended for business case study. However, 2 services: ‘Collect Stamp Duty Revenue’ and ‘Issue Fines for Breach of Forest Decree’ were not been selected as they could only work with the implementation of an electronic payment gateway, an essential feature of e-Government. However, the payment gateway was not in the scope of this project. Hence, these services could not be implemented at this stage.
## Figure 3-5: Top 20 G2B Services

### Government-Citizen (G2C) Service Clusters:

a) Birth, Death and Marriages

b) Employment
c) Education & Scholarships

d) Statistics & Publication

e) Land & Property

f) Immigration

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Government Services</th>
<th>Service Cluster</th>
<th>Total Aggregate Score</th>
<th>Weighted Aggregate Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Perform Services for Unemployed Youths</td>
<td>Employment Services</td>
<td>2.26</td>
<td>75.93</td>
</tr>
<tr>
<td>2</td>
<td>Collect Revenue from Births, Deaths &amp; Marriages Services Performed</td>
<td>Birth, Death, Marriages</td>
<td>2.24</td>
<td>74.78</td>
</tr>
<tr>
<td>3</td>
<td>Perform Marriage Services</td>
<td>Birth, Death, Marriages</td>
<td>2.18</td>
<td>72.65</td>
</tr>
<tr>
<td>4</td>
<td>Collection of Examination Results</td>
<td>Education &amp; Scholarships</td>
<td>2.09</td>
<td>69.75</td>
</tr>
<tr>
<td>5</td>
<td>Payment of Water Bills</td>
<td>Utility Services</td>
<td>2.09</td>
<td>69.74</td>
</tr>
<tr>
<td>6</td>
<td>Provide Statistical Reports and Information</td>
<td>Statistics &amp; Publication</td>
<td>2.08</td>
<td>69.19</td>
</tr>
<tr>
<td>7</td>
<td>Provide Land &amp; Geographical Information</td>
<td>Land &amp; Property Services</td>
<td>2.04</td>
<td>68.03</td>
</tr>
<tr>
<td>8</td>
<td>Application for Business Training, Grant Assistance &amp; Capital Funding for employment purpose</td>
<td>Employment Services</td>
<td>2.04</td>
<td>67.96</td>
</tr>
<tr>
<td>9</td>
<td>Scholarship Award</td>
<td>Education &amp; Scholarships</td>
<td>2.04</td>
<td>67.85</td>
</tr>
<tr>
<td>10</td>
<td>Application for Job Vacancies</td>
<td>Employment Services</td>
<td>2.03</td>
<td>67.78</td>
</tr>
<tr>
<td>11</td>
<td>Registration of Students for Examinations</td>
<td>Education &amp; Scholarships</td>
<td>2.03</td>
<td>67.75</td>
</tr>
<tr>
<td>12</td>
<td>Survey and Register Fishing Rights Boundaries</td>
<td>Land &amp; Property Services</td>
<td>2.03</td>
<td>67.66</td>
</tr>
<tr>
<td>13</td>
<td>Issuance of Passports</td>
<td>Immigration Services</td>
<td>2.01</td>
<td>67.11</td>
</tr>
<tr>
<td>14</td>
<td>Collection of Rentals of State Land</td>
<td>Land &amp; Property Services</td>
<td>2.00</td>
<td>66.56</td>
</tr>
<tr>
<td>15</td>
<td>Register of Births, Deaths &amp; Marriages</td>
<td>Birth, Death, Marriages</td>
<td>1.93</td>
<td>64.49</td>
</tr>
<tr>
<td>16</td>
<td>Registration for Rural Training</td>
<td>Communal Services</td>
<td>1.93</td>
<td>64.28</td>
</tr>
<tr>
<td>17</td>
<td>Issuance of Scholarships</td>
<td>Education &amp; Scholarships</td>
<td>1.90</td>
<td>63.29</td>
</tr>
<tr>
<td>18</td>
<td>Issuance of Citizenship</td>
<td>Immigration Services</td>
<td>1.89</td>
<td>62.88</td>
</tr>
<tr>
<td>19</td>
<td>Approval for Family Assistance</td>
<td>Welfare Services</td>
<td>1.88</td>
<td>62.82</td>
</tr>
<tr>
<td>20</td>
<td>Approval for Needy Children Allowance</td>
<td>Welfare Services</td>
<td>1.88</td>
<td>62.82</td>
</tr>
</tbody>
</table>

Figure 3-6: Top 20 G2C Services
Government-Employee (G2E) Service Clusters:

a) Employee Pay & Claims

b) Employee Training

c) Employee Welfare

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Government Services</th>
<th>Service Clusters</th>
<th>TOTAL AGGREGATE SCORE</th>
<th>WEIGHTED AGGREGATE SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Process Payment of Government Pensions</td>
<td>Pay &amp; Claims</td>
<td>1.76</td>
<td>58.78</td>
</tr>
<tr>
<td>2</td>
<td>Process Payment of Leave Allowances, Pas sages and Payroll</td>
<td>Pay &amp; Claims</td>
<td>1.64</td>
<td>54.11</td>
</tr>
<tr>
<td>3</td>
<td>Provide Training for Senior Executives</td>
<td>Training</td>
<td>1.41</td>
<td>47.11</td>
</tr>
<tr>
<td>4</td>
<td>Provide In-Country Training</td>
<td>Training</td>
<td>1.34</td>
<td>44.78</td>
</tr>
<tr>
<td>5</td>
<td>Provide CTD Training</td>
<td>Training</td>
<td>1.34</td>
<td>44.53</td>
</tr>
<tr>
<td>6</td>
<td>Maintain Information on Agencies Staff Movement (Appointment, Promotion etc)</td>
<td>HR Administration</td>
<td>1.30</td>
<td>43.22</td>
</tr>
<tr>
<td>7</td>
<td>Provide PSC Staff Training</td>
<td>Training</td>
<td>1.30</td>
<td>43.22</td>
</tr>
<tr>
<td>8</td>
<td>Provide Staff Transport</td>
<td>Staff Welfare</td>
<td>1.27</td>
<td>42.14</td>
</tr>
<tr>
<td>9</td>
<td>Issue Diplomatic Blue Book</td>
<td>Diplomat</td>
<td>1.20</td>
<td>40.15</td>
</tr>
<tr>
<td>10</td>
<td>Issue Diplomatic Passports</td>
<td>Diplomat</td>
<td>1.17</td>
<td>38.68</td>
</tr>
<tr>
<td>11</td>
<td>Issue Diplomatic ID Cards</td>
<td>Diplomat</td>
<td>1.13</td>
<td>37.51</td>
</tr>
<tr>
<td>12</td>
<td>Issue Diplomatic Driving License</td>
<td>Diplomat</td>
<td>1.13</td>
<td>37.51</td>
</tr>
</tbody>
</table>

Figure 3-7: Top 12 G2E Services

3.4 Proposed Flagship Application Clusters for Online Automation

This section describes how the selected services from the previous Section 3.3 were transformed into application clusters and how the application clusters were selected for implementation.
3.4.1 Services Selected for Business Case Study

Ideally, all the Top 27 services that had been identified using our prioritisation framework and approach should be implemented as they were selected out of over 300 services from all the Ministries. These represent the most important top 10 percent of the total services provided by the Government.

However, due to limited budget, a further selection process was required to cap the total cost. Those services not recommended for this round of implementation should be prioritised to roll out in preference to the others.

During the business case study, we added another 15 more services to the Top 27 services for high-level requirements study.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Service Name</th>
<th>Service Cluster</th>
<th>Type</th>
<th>Ministry</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>Collect Revenue from BDM Services Performed</td>
<td>BDM Services</td>
<td>G2C</td>
<td>Justice</td>
</tr>
<tr>
<td>2*</td>
<td>Collect Stamp Duty Revenue</td>
<td>Stamp Duty Collection</td>
<td>G2B</td>
<td>Justice</td>
</tr>
<tr>
<td>3*</td>
<td>Collection of Rentals of State Land</td>
<td>State Rental Collection</td>
<td>G2C</td>
<td>Lands &amp; Mineral Resources</td>
</tr>
<tr>
<td>4*</td>
<td>Payment of Water Bills</td>
<td>Water Bill Payment</td>
<td>G2C</td>
<td>Local Government &amp; Urban Development &amp; Public Utilities</td>
</tr>
<tr>
<td>5*</td>
<td>Issue Fines for Breach of Forest Decree</td>
<td>Forestry Services</td>
<td>G2B</td>
<td>Fisheries &amp; Forestry</td>
</tr>
<tr>
<td>6!</td>
<td>Application for Hotel Operator License</td>
<td>Licence &amp; Permit</td>
<td>G2B</td>
<td>Tourism</td>
</tr>
<tr>
<td>S/N</td>
<td>Service Name</td>
<td>Service Cluster</td>
<td>Type</td>
<td>Ministry</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------</td>
<td>----------------------</td>
<td>------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Perform Business Name Certificate Search</td>
<td>Companies &amp; Business</td>
<td>G2B</td>
<td>Justice</td>
</tr>
<tr>
<td>8^</td>
<td>Issuance of Citizenships</td>
<td>Immigration</td>
<td>G2C</td>
<td>Home Affairs &amp; Immigration</td>
</tr>
<tr>
<td>9^</td>
<td>Approval for Needy Children Allowance</td>
<td>Welfare Services</td>
<td>G2G</td>
<td>Women, Social Welfare &amp; Housing</td>
</tr>
<tr>
<td>10^</td>
<td>Approval for Family Assistance</td>
<td>Welfare Services</td>
<td>G2G</td>
<td>Women, Social Welfare &amp; Housing</td>
</tr>
<tr>
<td>11#</td>
<td>Issuance of Scholarships</td>
<td>Scholarships</td>
<td>G2C</td>
<td>Multi-ethnic Affairs</td>
</tr>
<tr>
<td>12#</td>
<td>Issue Overseas &amp; Local Scholarships</td>
<td>Scholarships</td>
<td>G2C</td>
<td>Public Service and Public Sector Reform</td>
</tr>
<tr>
<td>13#</td>
<td>Perform Company Name Search</td>
<td>Companies &amp; Business</td>
<td>G2B</td>
<td>Justice</td>
</tr>
<tr>
<td>14#</td>
<td>Perform Company File Search</td>
<td>Companies &amp; Business</td>
<td>G2B</td>
<td>Justice</td>
</tr>
<tr>
<td>15#</td>
<td>Perform Business Name Search</td>
<td>Companies &amp; Business</td>
<td>G2B</td>
<td>Justice</td>
</tr>
</tbody>
</table>

**Figure 3-8: Additional services added**

* Originally put aside because of readiness of payment gateway
  - These 5 services were initially not selected as without the payment gateway, the benefits would diminish

! Added in because they were related and close to the Top 27 Services
- These 2 services were studied as their scores were very close to the selected Top 27 services

^ Added in after scores were reviewed with raw data
- These 3 services were revisited after the impact was clarified with the users and the scores readjusted

# Added in because they were related to the recommended services
- These 5 services were related to the Top 27 services selected and hence the possibilities to form a logical grouping

### 3.4.2 Dropped Services

In the course of the requirements gathering session, it was confirmed that 7 services were not suitable for online automation. The reasons for each of these services were as follows. These 7 services were not included in the costing exercise.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Service Name</th>
<th>Ministry</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Survey and Register Fishing Rights</td>
<td>Fisheries &amp; Forests</td>
<td>Boundaries drawn remained static. Ownership unlikely to change</td>
</tr>
<tr>
<td></td>
<td>Boundaries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Issue Fishing Licenses</td>
<td>Fisheries &amp; Forests</td>
<td>Only 120 cases of offshore licence processed from Sep to Dec per year. In-shore of 6000 licence processing is through the Mataqali and is not done by the Ministry</td>
</tr>
<tr>
<td>3</td>
<td>Issuance of Citizenships</td>
<td>Home Affairs &amp; Immigration</td>
<td>Low volume and required many documents for the application and required to</td>
</tr>
<tr>
<td>S/N</td>
<td>Service Name</td>
<td>Ministry</td>
<td>Reason</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4</td>
<td>Collect Stamp Duty Revenue</td>
<td>Justice</td>
<td>No reduction in physical trip as approval document need to be stamped at Justice Department</td>
</tr>
<tr>
<td>5</td>
<td>Request Information on Land Planning &amp; Development</td>
<td>Local Government &amp; Urban Development &amp; Public Utilities</td>
<td>Very low volume and unlikely to change mode of enquiry through phone</td>
</tr>
<tr>
<td>6</td>
<td>Payment of Water Bills</td>
<td>Local Government &amp; Urban Development &amp; Public Utilities</td>
<td>Payment could be taken up as commercial initiative as similar to payment of electricity available from banks</td>
</tr>
<tr>
<td>7</td>
<td>Collection of Rentals of State Land</td>
<td>Lands &amp; Mineral Resources</td>
<td>Payment could be taken up as commercial initiative</td>
</tr>
</tbody>
</table>

Figure 3-9: Services dropped

3.4.3 Cost Criteria for Implementation of Services

A high-level requirements study through meeting sessions was conducted for the remaining 35 services with the delivering Ministries. The objective was to estimate the cost of each service or group of logical services. The services were grouped into logical and sizeable application systems that could be implemented. We went through with the Ministry key users on the service delivering process, discussed and agreed on the proposed solutions, keeping in mind the benefits to the citizens, business users and government employees.
The followings were the basis on the estimation of our development cost:-

- Number of online forms/screens
- Number of operation/management reports
- Number of interface with internal/external systems
- Number of special features required to support the application
- Any special statutory or data encryption requirements
- Modules to support the application
- Number of users for training cost consideration

Other cost components that made up the total application cost included:-

- Project Management
- Requirements Analysis and Design
- Technical Analysis and Design
- Development
- Application Training (based on the number of users using the application)
- System, System Interface and User Acceptance Testing
- Implementation
- Common Framework and Modules

Assumption
- No data conversion
- Three reports per application cluster

The 35 services were grouped into 15 logical groupings or application clusters as follows.
<table>
<thead>
<tr>
<th>S/No</th>
<th>Government Services</th>
<th>Application Clusters</th>
<th>Ministry/Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Collect Revenue from Births, Deaths &amp; Marriages Services Performed</td>
<td>BDM Services</td>
<td>Ministry of Justice, Electoral Reform &amp; Anti-Corruption</td>
</tr>
<tr>
<td>2</td>
<td>Apply for Marriage Services</td>
<td>BDM Services</td>
<td>Ministry of Justice, Electoral Reform &amp; Anti-Corruption</td>
</tr>
<tr>
<td>3</td>
<td>Register Titles Documents</td>
<td>Titles &amp; Deeds</td>
<td>Ministry of Justice, Electoral Reform &amp; Anti-Corruption</td>
</tr>
<tr>
<td>4</td>
<td>Register Deeds Documents</td>
<td>Titles &amp; Deeds</td>
<td>Ministry of Justice, Electoral Reform &amp; Anti-Corruption</td>
</tr>
<tr>
<td>5</td>
<td>Issue New Certificate of Titles</td>
<td>Titles &amp; Deeds</td>
<td>Ministry of Justice, Electoral Reform &amp; Anti-Corruption</td>
</tr>
<tr>
<td>6</td>
<td>Collection of Examination Results</td>
<td>Examinations &amp; Results</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td>7</td>
<td>Issuance of Passports</td>
<td>Immigration Services</td>
<td>Ministry of Home Affairs &amp; Immigration</td>
</tr>
<tr>
<td>8</td>
<td>Register Companies</td>
<td>Companies &amp; Business</td>
<td>Ministry of Justice, Electoral Reform &amp; Anti-Corruption</td>
</tr>
<tr>
<td>9</td>
<td>Search &amp; Photocopy Request for Titles &amp; Deed Documents</td>
<td>Titles &amp; Deeds</td>
<td>Ministry of Justice, Electoral Reform &amp; Anti-Corruption</td>
</tr>
<tr>
<td>10</td>
<td>Investment Approval</td>
<td>Investment Approval</td>
<td>Ministry of Commerce, Industry, Investment &amp; Communication</td>
</tr>
<tr>
<td>11</td>
<td>Scholarship Award</td>
<td>Scholarships</td>
<td>Ministry of Fijian Affairs, Heritage, Provincial</td>
</tr>
<tr>
<td>S/No</td>
<td>Government Services</td>
<td>Application Clusters</td>
<td>Ministry/Department</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>----------------------------------------------------------------</td>
</tr>
<tr>
<td>12</td>
<td>Register of Births, Deaths &amp; Marriages</td>
<td>BDM Services</td>
<td>Ministry of Justice, Electoral Reform &amp; Anti-Corruption</td>
</tr>
<tr>
<td>13</td>
<td>Application for Hotel Operator License</td>
<td>Hotel Operator License</td>
<td>Ministry of Labour, Industrial Relations &amp; Productivity, Tourism &amp; Environment</td>
</tr>
<tr>
<td>14</td>
<td>Perform Business Name Certificate Search</td>
<td>Companies &amp; Business</td>
<td>Ministry of Justice, Electoral Reform &amp; Anti-Corruption</td>
</tr>
<tr>
<td>15</td>
<td>Provide Land &amp; Geographical Information</td>
<td>Sale of GIS Information</td>
<td>Ministry of Lands &amp; Mineral Resources</td>
</tr>
<tr>
<td>16</td>
<td>Application for Education Job Vacancies</td>
<td>Examinations &amp; Results</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td>17</td>
<td>Registration of Students for Examinations</td>
<td>Examinations &amp; Results</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td>18</td>
<td>Approval for Needy Children Allowance</td>
<td>Welfare Services</td>
<td>Ministry of Women, Social Welfare &amp; Housing</td>
</tr>
<tr>
<td>19</td>
<td>Approval for Family Assistance</td>
<td>Welfare Services</td>
<td>Ministry of Women, Social Welfare &amp; Housing</td>
</tr>
<tr>
<td>20</td>
<td>Application for Business Training, Gov’t Assistance &amp; Capital Funding for Employment Purpose</td>
<td>Employment Services</td>
<td>Ministry of Youth, Sports &amp; Employment Opportunities</td>
</tr>
<tr>
<td>S/No</td>
<td>Government Services</td>
<td>Application Clusters</td>
<td>Ministry/Department</td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>-------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>21</td>
<td>Application for Services for Unemployed Youths</td>
<td>Employment Services</td>
<td>Ministry of Youth, Sports &amp; Employment Opportunities</td>
</tr>
<tr>
<td>22</td>
<td>Provide Tourism related Advisory Services</td>
<td>Tourism Advisory</td>
<td>Ministry of Labour, Industrial Relations &amp; Productivity, Tourism &amp; Environment</td>
</tr>
<tr>
<td>23</td>
<td>Provide Statistical Reports and Information</td>
<td>Sale of Statistical Information</td>
<td>Ministry of Finance, National Planning, Public Enterprise &amp; Sugar Industry</td>
</tr>
<tr>
<td>24</td>
<td>Issuance of Scholarships</td>
<td>Scholarships</td>
<td>Ministry of Fijian Affairs, Heritage, Provincial Development and Multi-Ethnic Affairs</td>
</tr>
<tr>
<td>25</td>
<td>Register Logging Crew</td>
<td>Forestry Services</td>
<td>Ministry of Fisheries &amp; Forestry - Department of Forestry</td>
</tr>
<tr>
<td>26</td>
<td>Issue Logging Plan Maps</td>
<td>Forestry Services</td>
<td>Ministry of Fisheries &amp; Forestry - Department of Forestry</td>
</tr>
<tr>
<td>27</td>
<td>Issue Licenses for Logging</td>
<td>Forestry Services</td>
<td>Ministry of Fisheries &amp; Forestry - Department of Forestry</td>
</tr>
<tr>
<td>28</td>
<td>Issue Fines for Breach of Forest Decree</td>
<td>Forestry Services</td>
<td>Ministry of Fisheries &amp; Forestry - Department of Forestry</td>
</tr>
<tr>
<td>29</td>
<td>Request for Approval on Rezoning (Rural &amp; Municipal Areas)</td>
<td>Land &amp; Property Services</td>
<td>Ministry of Local Government, Urban Development &amp; Public</td>
</tr>
<tr>
<td>S/No</td>
<td>Government Services</td>
<td>Application Clusters</td>
<td>Ministry/Department</td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------</td>
<td>-----------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>30</td>
<td>Issue Overseas &amp; Local Scholarship</td>
<td>Scholarships</td>
<td>Ministry of Public Service and Public Sector Reform</td>
</tr>
<tr>
<td>31</td>
<td>Application for Land Sub-Division</td>
<td>Land &amp; Property Services</td>
<td>Ministry of Local Government, Urban Development &amp; Public Utilities</td>
</tr>
<tr>
<td>32</td>
<td>Application for Sites Development</td>
<td>Land &amp; Property Services</td>
<td>Ministry of Local Government, Urban Development &amp; Public Utilities</td>
</tr>
<tr>
<td>33</td>
<td>Perform Company Name Search</td>
<td>Companies &amp; Business</td>
<td>Ministry of Justice, Electoral Reform &amp; Anti-Corruption</td>
</tr>
<tr>
<td>34</td>
<td>Perform Company File Search</td>
<td>Companies &amp; Business</td>
<td>Ministry of Justice, Electoral Reform &amp; Anti-Corruption</td>
</tr>
<tr>
<td>35</td>
<td>Perform Business Name Search</td>
<td>Companies &amp; Business</td>
<td>Ministry of Justice, Electoral Reform &amp; Anti-Corruption</td>
</tr>
</tbody>
</table>

Figure 3-10: Grouping of 35 Services into 15 Application Clusters

3.4.4 Criteria for Ranking of Application Clusters

In the selection of the application clusters for implementation consideration, we adhered to and enhanced the 2 criteria from the Prioritisation Framework used when selecting services for business case study, namely:

a) Impact on stakeholders and national priorities and
b) Feasibility of implementation
For Impact, we enhanced it by using the Gartner e-Gov Maturity Level (17%), Economic and Social Benefits (33%) and we moderated the e-Service Aggregate Score (50%). The impact criterion constitutes 60% of the selection criteria.

For Feasibility, we enhanced it with Ease of Implementation (50%) and Cost of the Application Cluster (50%). The feasibility criterion constitutes the remaining 40% of the selection criteria.

The assessment of the various selection criteria above was mainly based on the results of the business case study, through which a better understanding was possible into the functions and features, complexity and difficulty, as well as the benefits and costs of the various application clusters. While most of the other criteria are obvious, it is worth explaining the one on Gartner e-Gov Maturity Model.

Gartner e-Gov Maturity Level

According to the Gartner e-Gov Maturity Model, the availability of Web services for governments follows a clear pattern, the steps of which are represented in the following illustration:

1. Web Presence
2. Basic Interaction
3. Transactional Procedures
4. Integration and Standardization
5. Transformation

1) The Web Presence phase is the simplest one. It is usually deployed in governments through the development of simple Web sites containing basic
information for the public. The deployment of this phase is done independently by each agency with no common goals.

2) The next phase, Interaction, is the natural evolution of the Web site: the public can not only look for information, but also can communicate with the authorities, exchanging information and filling out request forms. Requests and forms are then integrated into mainline applications to be duly processed, either manually or electronically.

3) The third phase, Transaction, begins to provide more relevant services and interaction. Users can make their requests totally online and have the systems take care of everything.

4) The Standardization phase integrates the applications among the different agencies. Interoperability becomes more relevant; transactions among citizens and the government become simpler; and there is an overall increase in productivity and data quality.

5) The last stage, Transformation, allows a great variety of transactions to be integrated; new services can be offered; and the overall value of the integration increases.

Based on the definition that higher maturity level services will increase value and productivity, application clusters with a higher maturity level as assigned were given higher priority values in our recommendation.

The charted maturity level for each application cluster is depicted as below:-
3.4.5 Application Clusters Recommended for Staged Implementation

Based on the selection criteria described above, the scores for the 15 application clusters were computed. The application clusters recommended for implementation were highlighted in blue as in Figure 3-12. As the Immigration Department would not be able to process digitised photographs at this moment for passport application, we recommended the Welfare Services application instead. The Welfare Services application would substantially cut down the waiting time by citizens in getting government assistance, though as the only G2G service in the list it was not expected to be widely used by the citizens themselves as a true form of G2C e-Government service.
As ITCS has plans in progress for BDM Services, the BDM Services was replaced by the Sale of GIS Information and the two services related to Tourism, namely Hotel Operator License and Tourism Advisory (highlighted in light green) in the recommendation.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Application Clusters</th>
<th>Ministry(ies)</th>
<th>Score</th>
<th>Implementation Stages</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>e-Citizen Portal</td>
<td>Finance &amp; National Planning (ITCS)</td>
<td>NA</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>Examinations &amp; Results</td>
<td>Education</td>
<td>2.7</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Titles &amp; Deeds</td>
<td>Justice</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Investment Approval</td>
<td>Commerce &amp; Industry</td>
<td>2.2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Companies &amp; Business</td>
<td>Justice</td>
<td>2.2</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Immigration Services</td>
<td>Home Affairs &amp; Immigration</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Scholarships</td>
<td>Fijian Affairs / Public Service / Multi-Ethnic Affairs</td>
<td>2.1</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>BDM Services</td>
<td>Justice</td>
<td>2.1</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Sale of Statistical Information</td>
<td>Finance &amp; National Planning</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Sale of GIS Information</td>
<td>Lands &amp; Mineral Resources</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Hotel Operator License</td>
<td>Tourism</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Tourism Advisory</td>
<td>Tourism</td>
<td>1.9</td>
<td>2</td>
</tr>
<tr>
<td>S/N</td>
<td>Application</td>
<td>Ministry(ies)</td>
<td>Score</td>
<td>Implementation</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------</td>
<td>---------------------------------------------</td>
<td>-------</td>
<td>----------------</td>
</tr>
<tr>
<td>12</td>
<td>Welfare Services</td>
<td>Women, Social Welfare &amp; Housing</td>
<td>1.7</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>Employment Services</td>
<td>Youth, Sports &amp; Employment Opportunities</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Land &amp; Property Services</td>
<td>Local Government, Urban Development &amp; Public Utilities</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Forestry Services</td>
<td>Fisheries &amp; Forestry</td>
<td>1.6</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3-12: e-Citizen Portal & the 15 Application Clusters

e-Citizen Portal

An e-Citizen Portal was also proposed and recommended for implementation together with the other 7 Application Clusters in stages. The e-Citizen Portal is the one-stop website, or “window” application that is necessary to support the access to all the government e-Services. It is organised with the needs of the citizens and customers in mind to achieve the end goal of a leading e-Government Portal, which delivers more convenience and benefits to all individuals who live, work and play in Fiji.
The decision on stages was purely from project management perspective to spread out the applications according to complexity and resource requirements.

It is also recommended that those application clusters not selected for this phase of implementation shall be taken up by ITCS with the respective Ministries for future implementation. The cost for future implementation should be lower as the common services and application framework are in place.
4 GOVERNMENT ENTERPRISE ARCHITECTURE

4.1 Architectural Framework for Fiji

This section aims to present a holistic view of the e-Government framework for Fiji. The Framework provides a comprehensive view of what it takes to establish an e-Government. It serves to guide the Nation embarking on e-Government through the thinking process covering the business, process, information, applications, technology and governance aspects required for a successful e-Government project.

4.1.1 Thinking Process of e-Government Project

The goals of having a master plan is to improve interoperability, achieve cost control, improve security, aid scalability, enable scalability, and reduce technical risk.

Figure 4-1: Different aspects of the Master Plan
Different aspects of an e-Government project have to be covered to achieve the goals. The diagram above depicts these areas and their relationship in the Master Plan.

- **WHAT** actions must be done to achieve its business objectives?
  - Business Architecture specifies the core services that the Fiji government must deploy in order to achieve its business objectives.

- **HOW** to realize the business actions?
  - There are 3 areas of focus, namely Information Architecture, Application Architecture and Technical Architecture. The Information Architecture represents the information needs of Fiji to support business services identified in the Business Architecture. The Application Architecture defines the application systems that are required to deliver and manage the information (given in the Information Architecture). Delivery refers to how the collection of information is best presented / forwarded to the users. The functional or non-functional requirements for the application areas are defined in the Application Architecture. The Technical Architecture specifies the hardware, software platforms, network architecture and standards for the implementation of the potential systems as well as the enabling technologies that are embedded into the application system defined in the Application Architecture.
• **WHEN** should it be implemented?
  o An Implementation Plan is proposed to specify the strategy and approach to be taken to develop the applications.

• **HOW MUCH** investment is required?
  o Costs estimated will be provided for the implementation of the Master Plan.

• **MAINTAIN** the Master Plan in what manner?
  o Governance is the practice and approach of maintaining these architectures. It involves specifying the decision rights and accountability framework needed to encourage the desirable use of the architectures.
  o Competency development will determine the relevant skill sets for Fiji Government IT department(s) to maintain the applications and citizens for accessing and using these e-Services.
  o Technology and Standards are proposed to provide a uniform platform for application development so that the development team can focus more on delivering the business requirements.
4.1.2 Business Architecture

Provides for multiple delivery channels into the government and supports Government to Citizen (G2C), Government to Business (G2B) and Government to Employee (G2E) interactions. It contains a collection of all e-Services for the customers. It also abstracts business logic from the interface to allow different devices to have access to the same business service. One of the key functions of this layer is personalization. To be able to personalize or allow the customer to personalize their own e-Government experience and the ability to serve the customer based on his preferred channels and profile.

Figure 4-2: Architecture Framework for Fiji
4.1.3 Enterprise IT Architecture


Application Architecture

- Translates the e-Services into supporting Application Systems. These can either be Domain Specific Application Systems or Government Wide Common Application Services. Our study have taken this opportunity to streamline the common services and build Government Wide Common Services that will simplify not only the front end processing but will ensure efficiency at the backend.

Technical Architecture

- Looks into the system and network infrastructure needed to support the e-Government project. It includes the platforms and networks with emphasis on the reliability and availability of the infrastructure and heavily supported by a system management layer. It focuses on the system/network and development infrastructure required to set up the e-Government websites, and concurrent and synchronized development of the e-Services. The Nation Wide Infocomm Infrastructure (the details will be covered in the GII Project) ensures that the communications and telecommunications infrastructure in the country is ready for the launch of the e-Government project.

Information Architecture

- Looks into the administration of the information captured in the proposed applications.
- The scope of this study does not cover the administration of the information as well as the metadata with the view of the government as a whole on the process for the acquisitions,
classifications, storage/retrieval, editing, quality control, presentation, distribution and assessment of data being handled.

4.1.4 **Information Bank**

- Identifies the standard schema for each line of business. Standardized data schema can be enforced for the nation to support and ensure interoperability not only intra agencies but also between government departments. These information hubs should be identified and relationships defined in conjunction with the Information Architecture.

The process of building up the knowledge base requires the availability of the source data. The development of the applications and its data will start the collection of data and standardizes its meta-data. These collected data will be the source material for the knowledge base.

![Figure 4-3: Data Sharing using Data Hub concept](image-url)
4.1.5 **Technical Standards**

- Identifies and defines the technical standards associated with each domain and component of the IT architecture. Standards are used to ensure the interoperability among components and reduce support costs. Standards constrain choice at interfaces to ensure interoperability but they should promote flexibility and choice at business application layer and free the organization from product lock. At present, in Fiji, these standards have been translated into IT policies. It is strongly encouraged to maintain, update and communicate them to all Ministries and Departments. The details will be covered in the Governance Framework Report.

4.1.6 **e-Governance Framework**

- Defines a framework for e-Governance required to manage and sustain the implementation e-Government. It defines the organizational structure and the processes of decision making regarding e-Government. The details will be covered in the Governance Framework Report.
4.2 Business Architecture

![Business Architecture Diagram]

Figure 4-4: e-Government Business Architecture

The key to realising the economic and social objectives spelt out in Fiji’s 20 Year Development Plan (2001 – 2020) is to adopt a holistic approach to e-Government. Specifically, the following programmes should be developed:
a) e-Government Applications – implementing informational and transactional services online to provide constituents with an additional channel to interact with the government;

b) Government Infocomm Infrastructure – enhancing the infocomm infrastructure for a connected government to improve the communication between government agencies as well as to facilitate the speed of data and information exchanges among various agencies situated in distant locations to shorten the overall service turnaround time;

c) Data Centre – protecting the government information assets and processing capability by building a safe, reliable and secure data centre to ensure the continuous availability and business continuity in the event of unanticipated disasters.

d) ICT Competency Development – developing a well trained workforce to enable government employees an opportunity to be re-skilled to use ICT to serve their customers. Employees are more motivated to provide better customer service and this will contribute positively to the overall public image of the government;

e) Governance Framework – instituting a good governance framework to ensure a highly sustainable and successful e-Government journey. The establishment of an ICT Authority solely dedicated and empowered to regulate, plan, control, execute and coordinate e-Government initiatives is therefore critical.

To achieve the e-Government objectives, these programmes must be developed by keeping in mind the following Strategic Thrusts:
a) Financially sustainable service models - government agencies must try to reduce their dependency on external funding assistance. e-Government services can be attractively packaged and priced to encourage usage as well as help agencies to be financially more self-sustainable;

b) Citizen-centric orientation – programmes being developed must have a primary focus on the customers’ needs;

c) Operational efficiency and effectiveness – procedures and processes must be redesigned to eliminate bureaucracies, increase productivity, deliver timely and accurate outcomes and enhance customer experience;

d) ICT competency – every government employee must be given an opportunity to be trained to use ICT in their work.

4.3 Application Architecture

While the business architecture serves as a foundation for the development of Enterprise IT Architecture, the Application Architecture defines the major kinds of functionalities or capabilities necessary to manage the data and support the business functions of the government.

4.3.1 Applications

To support the e-Services identified for Fiji, they are being mapped into logical Application Systems. These types of applications include

i) Domain Specific Applications

ii) Government Wide Common Services
4.3.1.2 Domain Specific Applications

Domain Specific Applications are those that directly support the business operations of the users. For instance, the issuing of company license is specific to that of Company Registration Department, i.e. no other business entity will be issuing company license.
For each e-Service that was identified, it could potentially be supported by one or more Domain Specific Application.

4.3.1.3 Government Wide Common Services

Government Wide Common Services refer to the set of services that are uniformly used by different government agencies. Uniformity is one of the key objectives of having Government Wide Common Services. Instead of each government agency having to manage and maintain similar services (or applications), which typically mean higher cost of total ownership, it is proposed to have a common set of these services to be deployed cross all the different agencies in the government. Some good examples are Authentication, User Profile Management, Authorisation, Document Management System, Search, Electronic Mailing System and Content Management.

4.3.1.4 Data Access Layer

The data access layer highlights the broad categories of the data that is maintained in the system. It is largely classified as:

- Structured: This consists of inputs provided by end-users to be saved in a relational database
- File Repository: This consists of documents uploaded by the users, forms submitted over the Internet and reports generated for statistical use.
- User Profiles: This consists of the profile information for the users in the system which consists of their identity (ID and password) for authentication purposes, personal particulars, and contact information like email address or mobile number.
4.4 Technical Architecture

4.4.1 e-Government Supporting Infrastructure

The following main areas are designed for the e-Government Supporting Infrastructure.

- High availability
- Multiple layer of security
- Proactive management of infrastructure

The System Architecture or logical connectivity proposed for the e-Government Supporting Infrastructure:

![System Architecture Diagram]

**Figure 4-6: e-Government Supporting Infrastructure**

The System Architecture above is classified into the various segments:
• ITC LAN - Provides the connectivity to the ITC end-users office workstations as well as manufacturing floors host PCs/workstations within the building. This is the last-mile for the network connectivity. The connectivity to the workstation will be 10Mbps or 100Mbps (usually it is automatically detected).

• DMZ Zone/APPs Zone/DB Zone - Provides connectivity to the DMZ / Application / DB servers hosted within the ITC Data Centre. This connectivity varies from 10mbps to 100mbps to 1000mbps. The medium used is typically UTP copper cable.

• Test and Development Zone - Provides connectivity to the Test / Development Servers hosted within the ITC Data Centre.

• Intranet Zone - Provides the WAN connectivity of the government sites to ITC Data Centre.

• Internet/WAN Zone - The Internet WAN access layer provides the WAN connectivity for ITC Network.

• Management Zone - The management layer provides the monitoring of the devices and the consoles for the security application.

In view of the nature of e-Government Supporting Infrastructure needs, the architecture takes into consideration the following: real-time applications, mission critical usage during working hours and frequent application changes.

To meet those requirements, the architecture makes use of hi-speed/hi-bandwidth gigabit technology as a network backbone. Redundancy/resiliency and product reliability will be important factors, as the ITC Centre will operate in a 7x24 mode, and maintenance will be real time.
The architecture design is modular in architecture, to allow for growth and flexible change of e-Government Supporting Infrastructure.

Modular architecture allows the e-Government Supporting Infrastructure to expand the existing to support future new network services and higher user capacity. This will be done without interruption to the existing network.

Enterprise Management Services (EMS) solution architecture will address the System Monitoring and Management, Network Monitoring and Management, IT Resource Management, Web Infrastructure and Database Management requirements. It provides the optimal use of resources and at the same time ensures central administration and control to the e-Government Supporting Infrastructure that is hosted in the ITC Data Centre.

IT Resource Management includes Software Distribution Services, Asset Management Services and Remote Assistance Tools, and Network Monitoring and Management, Systems Management and Web Infrastructure Management will be supported by Performance and Fault Management Services.

The EMS solution architecture has the appropriate technology to meet the ever-increasing needs for both scale and granular control. The solution architecture is based on the management of all end-to-end resources and a distributed architecture with central management that unites all the management disciplines required by the e-Government Supporting
4.4.2 Nation Wide ICT Infrastructure

While the government is caught up with the planning and implementation of e-Government, the basic ICT infrastructure in the country should also be looked into. This effort has to be synchronized with that of the e-Government implementation to ensure successful adoption of the program.

Following is a high level network connection map and logical connectivity of the proposed nation wide ICT network infrastructure:
Figure 4-7: Fiji Islands

Figure 4-8: Nationwide ICT Infrastructure
The current Govnet will have to be expanded and upgraded. This is done through the Government Info-communications Infrastructure (GII) project.

A broadband infrastructure linking people through the public sector community to each other, to the wider public sector and to the services that support the delivery of e-Government projects to raise the efficiency of the service delivery will be implemented.

This broadband infrastructure will be a major element in the Govnet. As it brings together the public and the government across the public sector through innovative and collaborative applications to enhance the delivery of e-Government services and to provide simple, safe and secure anywhere, anytime access to content and tools that support the particular needs of the individual.

Other Government Info-communications Infrastructure (GII) projects are Voice Over IP, Government One-Stop Public Contact Centre and e-Communities.

4.5 Information Architecture

Information is the core of government business. Therefore, the government has a duty to treat the information collected and produced as a valued resource. It must ensure that the information is secure, accurate and used appropriately. Improving access to information adds value to information. The more the government, the general public or business uses a piece of information, the more cost-effective it becomes for the government to store and distribute it.

A key objective for implementing data architecture is to help the government understand what data assets it owns, where they come from, where they reside, how they are used and what the levels of data quality
are. Inventorying, analyzing and documenting the architecture provide a basis for identifying opportunities for improvement. It also serves as a mechanism for communicating the architecture to all data “constituents” to raise awareness and increase leverage on existing data structures.

Figure 4-9: Information Architecture

4.5.1 Information Management

Information Management describes the measures required for the effective
- collection
- storage
• access
• disposal

of information to support Government business processes. The four activities mentioned are collectively known as the Information Lifecycle.

4.5.2 Information Administration

Information Administration addresses the following issues of the information.

• Definition - explicit identification and consistent classification and description of information holdings
• Ownership - management of the rights and responsibilities of agencies as custodians of Government owned information
• Sensitivity - management of sensitive information to protect privacy and confidentiality
• Confidentiality - management of sensitive information to protect privacy and confidentiality
• Quality - documentation of quality of information and maintenance of its integrity
• Accessibility - management of information to provide affordable access through an open communications networks

4.5.3 Information Analysis

With the information managed and administered in a structured and organized manner, it would be easier for agencies to access to the information for analysis purposes. A knowledge base of information is
thus created. Information Analysis can generally be divided into the following types and levels:

**Data Analysis**

This refers to the information that is captured in the computer systems for operational transactions purposes. With structured data, the following analyses can be performed:

### Operational Reporting

This type of reports generates information for daily operational analysis purposes. It is needed to ensure smooth operation of the system and daily business operation.

### Data Warehousing

For more in-depth, complex analysis of the transactional information, a data warehouse could be set up for each agency or at the higher governmental level. Analytical reports can be generated from the system to enable the management to better monitor conditions, operations or to study the effect of the implementation of certain regulations or processes.

### Data Mining
Unlike Data Warehousing where analytical reports are generated from the data that is available in the database, data mining is a discovery process that allows one to understand the substance of, and the relationships between, data to find the vital information within the data and deploy this new knowledge in areas such as estimation, forecasting, classification, diagnosis and decision support.

**Knowledge Base Analysis**

A Knowledge Management (KM) System can be used to retrieve and analyze the textual data that has been systematically and structurally collected at various agencies. The KM System will support consistent cataloguing and indexing of information. It will also provide a powerful search engine to facilitate the retrieval of textual information in the system. This information can be a useful source for analysis and for research purpose.

### 4.5.4 MetaData Management

Metadata Management looks into the administration of the metadata especially with the view of the Government as a whole. It defines the major types of information needed to support the business, its meaning, and its format.

Common data vocabulary and definitions are especially critical for e-Government solutions that frequently cross traditional organizational, function and system boundaries. This includes not only operational data but also analytical data and web content.

Each line of business and/or cross agency applications has a relevant set of data models and standard that needs to be defined and applied to that function. Putting them together will form the information architecture for the nation.
4.6 Information Bank

Based on our study, ASB-NCS is recommending three data hubs for Fiji e-Government as an example of implementation the information architecture.

4.6.1 People Hub

This Hub houses the bio-data of citizens and permanent residents in Fiji. Some suggested data items (not exhaustive) are:

- identification number
- name
- gender
- race
- nationality
- date of birth
- country of birth
- date of death
- address
- marital status
- religion
- next-of-kin
- highest education qualification
- contact number
- email address

The above-mentioned data items are potential data elements for the government’s consideration. We recommend that the hub keep only
basic personal bio-data because they are static data and commonly used by business applications across government.

A probable source of this bio-data information would be:

a) From the Ministry of Justice where birth, death and marriage registrations are performed;

b) From the Ministry of Education (MOE) where details of an individual’s highest educational qualification are kept. (Note: Although educational qualifications are commonly required by many government agencies, there is a challenge of keeping it up-to-date as there are several means individuals can resort to obtain his/her qualifications without MOE’s knowledge.)

4.6.2 Establishment Hub

This Hub houses basic company information. Some suggested data items are:

- company name
- company registration number
- company commencement date
- company registered address
- nature of business / principal activities
- company representative
- financial information such as capital amount, share information

Having a consolidated database will enable analyses to be performed. In addition, trends and statistical information can be easily obtained to support decision-making.

As these are company related information, a probable source of information would be the Ministry of Commerce and Ministry of Justice.
4.6.3 Land Hub

The Land Hub is the resource centre for land information. The collection of land information can be used for town planning and infrastructure development. The Land Hub can house spatial data, aerial photographs and descriptive information on the land. Some suggested layers are:

- Boundary maps (such as boundary of provincial councils, states, cities etc)
- Cadastral maps (such as drainage, electricity, building, gas, water, telecoms lines etc)

Besides the maps, the scale required for each layer is also essential for data sharing.

The following diagram shows a collection of items that are typically stored in the Land Hub:
Figure 4-11:  Typical data items stored in a Land Hub

The primary source of information will be the Ministry of Land. However, the following Ministries should also contribute to the Hub:

i. Ministry of Land & Mineral Resources

ii. Ministry of Provincial Development & Multiethnic Affairs

iii. Ministry of Transport, Works & Energy
4.6.4 Potential Usage of Hubs

After the data is consolidated, there is a need to know how to use this information. The systems that could benefit from the Hubs are suggested as follows:

a) People Hub

![Diagram showing Potential usage of the People Hub]
Rather than collecting the information from the public repeatedly, application systems requiring such information can access the data collected in this Hub. Examples are:

i. MOE can make use of the information collected at birth to know how many children are due to start schooling.

ii. Ministry of Transport could make use of the information from the People Hub to obtain drivers’ addresses so that they can send revenue license renewal notices to the correct addresses.

iii. Ministry of Health could make use of the information from the People Hub to verify the information collected from the person-of-interest. For instance, the identity of next-of-kin.

iv. Police Department will also need the latest personal information for criminal tracing.

v. During company registration, personal details of owners may be obtained from the People Hub. This information may be used to verify/replace the information collected.

vi. Ministry of Finance (MOF) can make use of the People Hub to obtain the latest particulars of pensioners. E.g. when a pensioner has passed away, the information is registered into the Hub by the Ministry of Justice. MOF can be alerted immediately as it too has access to this piece of information.

vii. When an individual wants to buy a piece of land, his personal information is accessible from the People Hub. Hence, he does not need to furnish his personal particulars at all. This applies to all aspect of services that are rendered by the government.
b) Establishment Hub

Figure 4-13: Potential usage of the Establishment Hub

Information in the Establishment Hub is crucial to businesses as they rely on it to make informed business decisions. Some suggested usages are listed as follows:

i. Businesses may obtain social and demographic information from the Hub to support their business decisions.

ii. Investors use the Hub to verify the authenticity of a company.
iii. Corporate tax is one of the key contributors to government revenue. Hence it is important that the Inland Revenue keep up-to-date information of all business entities that are registered.

iv. For land owned by companies, the Ministry of Land can obtain updated owners’ information from the Hub.

c) Land Hub

Figure 4-14: Potential usage of Land Hub
Land data supports the public infrastructure of the country and there are many potential uses of this data by different Ministries, especially in the area of town planning/development. Some suggested uses of land data are as follows:

1. Fire fighters will need to know the location of the water pipes to decide on the water sources during fire fighting.
2. Building developers use the data for area development planning.
3. Ministry of Land can decide the usage of certain plots of land.
4. Ministry of Southern Region Development and Ministry of Northern Region Development can use the information on transport, utility and environment in town planning.
5. Ministry of Transport can use the boundary information to decide on the best suitable paths when building roads, highways etc.
6. The public may be interested to know the development of the surrounding areas prior to purchasing a plot of land.

4.6.5 Data Sharing Policy

Data sharing policies govern the terms and conditions of how data is shared among government agencies and their systems.

The following factors need to be considered:

a) Data ownership - Refers to the management of the rights and responsibilities of agencies as custodians of Government owned information. Custodianship is the foundation of accountability for the effective management of all the agency’s information holdings. Agencies are the custodians of the Government’s information and need to
designate internal custodians to take responsibility for specific information holdings.

b) Data access rights – This refers to access rights to information. Requesters of information are commonly grouped as internal and external.

- Access rights can be categorized according to internal and external user groups. Internal user groups are Government Ministries / Departments / Agencies; external user groups can be categorized as commercial entities or public.
- Different user groups may have different access rights assigned. Citizens being served and critical Ministries may be assigned preferential rights while external organizations will have only verification rights. E.g. a bank may request verification of the validity of an identification number but will not get auto-updates of change of address of the person of interest.
- When requested, the Data Administrator will determine the accessibility. The same accessibility could be defined for subsequent access.

c) Data security – From the data security perspective, it is not advisable for the Hubs to be made directly accessible by other systems. Enabling direct access would make the Hubs vulnerable to data corruption and virus attacks. Other recommendations for data security are:

- Services are not allowed direct access to the Hub. If processing is required, a copy of the data from the Hub should be made in the user’s system.
- Data Hubs should be hosted in the Government central Data Centre
• Yearly audits should be conducted by a third party on the integrity of data and security of the system.

d) Data collection and distribution - Data should be extracted by the application services provided by the Hubs and transferred to the requesting system electronically. A common means is via File Transfer Protocol (FTP).

• As much as possible, data will be collected at source systems such as People Registry system, ID system, etc.
• Usage and distribution of Hub data will be the responsibility of the identified custodian/committee. A process for requesting data and its usage should be identified and enforced. The same may be applied to receiving updates. The information residing in data Hubs could potentially be consolidated from multiple sources. In this case, a process to undergo extraction, transformation and extraction may be required.

e) Performance of operational system – It is recommended that the Hubs serve as resource centres. It should not directly support the operational systems i.e. the updates of the Hubs should be periodically transmitted to requesting systems. Operational systems should not have direct access to the Hubs. A good justification is that it will be difficult to commit services level agreements with other systems if it opens up the databases to multiple systems.

4.6.6 Sharing Architecture

The sharing architecture defines how the data is shared among various systems. This will cover where the data comes from, how it needs to be
modified and consolidated so that it can be used by other applications, the currency of the information shared as well as the methods of data transfer. At the set up of the data Hubs, the sources of the Hubs should be identified. In addition, the process of requesting data from the Hubs and the criteria for deciding the approval and rejection will need to be established.

Since data Hubs are resource centres, the consolidation of data from multiple sources will be required. There is a possibility that the data definition of the source systems differ from that of the Hubs. In which case, it is inevitable for the Hubs to undergo transformation before data is loaded.

It is likely that the Hubs will not receive immediate updates from source systems. The frequency of updates will depend on the time sensitivity of the data. Since the data hubs are not instantaneously updated, it is then not necessary to provide online updates or even direct access to other requesting systems. Data security and impact to other systems’ performance are other reasons for not providing direct data access to other operational systems.

Data will be received electronically from source systems, transformed and loaded into the Hubs. The common means of electronic transfer is File Transfer Protocol (FTP). The same mode of electronic transmission may be used to provide the extract of updates to requesting systems.

Meta Layer is a very important component of any data Hub. This is where users understand the meaning of each data item. It is likely that the source systems and receiving systems might not necessary be using the same meta data initially, in which case, there is a potential need for transformation.

In future, information in the data hubs can be populated to data marts for data analysis and data modelling.

The following diagram provides a pictorial representation of the potential sharing architecture for the data hub.
Figure 4-15: Potential Sharing Architecture for the Data Hub
5 INDICATIVE COST ESTIMATES

5.1 Application Clusters Development Cost

Contents to this chapter has been removed due to its confidential nature

5.2 Application Clusters Maintenance Cost

The number of full-time staff required to provide ongoing maintenance and support will be covered in the Governance Framework Report.
6 RECOMMENDED IMPLEMENTATION APPROACH

6.1 Implementation Approach

In the consulting phase of the Fiji e-Government project (Fiji e-Government Master Plan Development), the services offered by the various Ministries and Departments were studied and analysed. After much discussion, validation and field work, a list of e-Services was recommended for implementation in the form of e-Applications under the e-Government Programme. Each of these services will bring with it benefits and impacts in its own right. The next step is “How to implement them?”

The following areas shall be addressed:

- Supporting infrastructure
- Solution software
- Service delivery
- Type of e-Services
- Partnership

6.1.1 Supporting Infrastructure

There are many possible approaches in the implementation, one of which is provide sufficient funding for the Ministry/Department involved and allow them to have a free play in the implementation. Each e-Service can be designed and implemented without dependency on others. Under this approach, a probable implementation scenario will be e-Service A will set up its own hardware, software and infrastructure that it requires to support its’ operation. If connectivity to another Ministry/Department is required, the department will then base on the capacity required to get
the link established. The main advantage of this approach is that it is a self-sufficient model. The implementing department is in full control of all activities required to make the implementation successful. On the other hand, this model forgoes the potential of leveraging and collaboration between Ministry/Department and agencies. Each department builds its own services based on needs, if another department requires a similar e-Service, the same will have to be re-built. There is no big picture concept. This approach will result in duplication and substantial integration efforts are required subsequently. Overall, the resources available for delivering e-Services are not optimised.

The other more collaborative approach would be to set up a common supporting infrastructure that could be leveraged on by all the departments, with common services that are required by the majority of the e-Services for sharing. Reusability is the key word for this scenario. The key challenge for this approach is that there is a high level of dependency and the success of service delivery will depend on every component to play its’ part well. For example, if the communication infrastructure is down, all are affected. Hence it is critical to ensure that the infrastructural projects, regardless of whether they are support infrastructure, system infrastructure etc, are all well managed. Non-functional requirements, such as availability, reliability, scalability, are given equal emphasis as the functional requirements. In addition, delivering transactional e-Government services over the Internet is a complex, expensive and risky endeavour. Expectations such as round-the-clock availability, immediate feedback or results, intuitive user-friendliness, one-stop integrated service etc. are the norm.

Recognising the pitfalls of fragmented e-Service development, ASB-NCS is recommending that the Fiji Government adopt a government-wide application architecture to define a single, unified approach to the development of e-Services and e-Applications.
6.1.2 Solution Software

The suite of software chosen to support and implement the short-listed e-Services and the spectrum of common services that will help deliver these e-services must be optimized around the people, resources and the way they work.

![Solution Architecture](image)

**Figure 6-1: Solution Architecture**

The core software uses SharePoint that integrates collaborative, information-centric, and process-oriented activities into a single, extensible platform that fits seamlessly into people's natural work environment. SharePoint can address specific needs related to
collaboration, information access, enterprise content management, capture of information through electronic forms, dissemination of business intelligence data, and enterprise application integration through portal sites. Sharepoint offers several significant benefits:

- **Simplicity** for end users, who can leverage their familiarity with Office-based applications and the browser environment for all their information-work activities, regardless of their role or task

- **Value and governance** for IT, which only needs to support a single set of technologies to enable comprehensive capabilities across the enterprise

- **Speed and flexibility** for the business, which can customize and extend the platform quickly and easily at a variety of levels from personalization to enterprise application development

- The **security and scalability** of a platform built for the enterprise
6.1.3 **Service Delivery**

The current access channels should still be available to serve the public who wishes to continue with the current mode of engagement with the Government. The additional access options should provide alternative means for those who wish to “upgrade” or “progress” with the nation. In this study, one of the key alternative options is via the web using a browser. The users can use Microsoft Internet Explorer to access the services made available via GII.

![Figure 6-2: Current Access Options](image)

**Figure 6-2:** Current Access Options

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Figure 6-3: Consolidated Access Options provides the consolidated view of different user groups that can potentially access via different modes to obtain the services provided by the Government.

Overtime, the access options can be expanded to cater for other means, such as mobile phones, PDAs etc. As there is no change to the business rules, only the front tier needs to be enhanced to cater for the additional access options. For instance, enquiry service can be performed using the mobile phone on top of a browser application.
Figure 6-3: Consolidated Access Options

6.1.4 Type of e-Services

The list of short-listed e-Services and the spectrum of shared services that will help deliver these services can be presented in the architecture diagram as in Figure 6-4: Proposed e-Services Architecture below.
The authentication and interface requirements are described below:-

a. Authentication/Security

The security services provide authentication and encryption services to an e-Service. Authentication is achieved by means of ID/Password.

i. For public users, the users registered with their own choice of ID and password. A unique identifier (e.g. Birth Certificate Number) is required for services that shall not be duplicated. E.g. Registration for Examination.
ii. For business users, the users registered with their own choice of ID and password. A unique identifier (e.g. Company Registration Number) is required for services that shall not be duplicated. E.g. Registration for Company. A pre-registration option is also available for business users.

Once registered, the information is stored in a registry to be used for authentication when the user login.

b. Interfaces

Data to be exchanged across Ministries/Agencies will adhere to using Web Services. The e-Citizen Portal will provide a set of standard web services for Agencies to consume. It will also consume other Agency web services to retrieve or validate the necessary data.

The web services that would be implemented would not be disruptive to the existing IT system. Rather it would be an additional means of communication to the IT system and to provide services for retrieval and update on request for data from any Government data store. Hence, classes and objects used would be an extension of the existing framework.

6.1.5 Partnership

ITCS shall carry out joint development work with ASB-NCS in developing part of the e-Applications, joint testing and rollout activities. This is to ensure that ITCS is trained to take over the maintenance support and new development work after the e-Applications are handed over to ITCS.
For the development of new e-Applications, ITCS could partner with local vendors so as to build up the competencies of the local IT industry.

It is important to note that whenever external partners are involved in the development of the e-Applications and/or any other projects in the e-Government programme, there should be in place a comprehensive and detailed skills and technology transfer plan to ensure that ITCS would be able to continue to support the existing projects and/or carry out similar new projects.

6.2 Pilot Implementation

A pilot application together with the common services and framework should be selected and implemented before the rest of the applications are rolled out. This is to gauge the readiness of Ministries acceptance, requirements verification and preparing the ITCS staffs in all phases of the application development cycle for their contribution in the other applications. We recommend that the Common Services, the e-Citizen Portal and the Investment Approval Tracking System (with as many as 22 agencies required for the process) to be included in the scope of the pilot implementation.

6.3 Other Considerations

a. It is envisioned that the volume of email use for notification is not large initially, it will leverage on the existing email exchange to minimise cost.
b. To promote interoperability, there shall be a minimum dataset (demographic data) standardisation across Ministries.

c. The e-Citizen Portal will provide hyperlink to those Ministries that already have an existing website.

d. Minstry users should be prepared to make changes to existing workflow to harness the benefits of IT solutions.

e. Forms should be standardised if they are having the same type of functions. E.g. Scholarship application forms for different Ministries.

f. Data items should be collected upfront for downstream approving Ministries to facility one-stop application processes.

g. Ministries have to be prepared to change their existing systems to interface with external Ministries and the new e-Gov applications.

h. C# shall be the programming language used for development as it is similar to Java and fully supports Object Oriented Programming and it is also the language preferred by ITCS.
6.4 Proposed e-Application Implementation Project Organisation Structure

![Figure 6-5: Proposed e-Application implementation project organisation structure](image)

Roles and Responsibilities

The following are roles and responsibilities of the project team from Fiji and ASB-NCS.

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<tr>
<th>Role</th>
<th>Responsibilities</th>
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<td>Business Champions</td>
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<td>(Ministry Owners)</td>
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<td>• PFI Director</td>
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<td>Project Steering</td>
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<td>Committee</td>
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<td>• FPI (Finance)</td>
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<td>• ITCS Programme</td>
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<tr>
<td>• Project Director</td>
<td></td>
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<tr>
<td>• Project Manager</td>
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<tr>
<td>Users Project</td>
<td></td>
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<tr>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>• User Project Manager</td>
<td></td>
</tr>
<tr>
<td>• Key User Representatives</td>
<td></td>
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<tr>
<td>• II representatives</td>
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</table>
### Role

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Steering Committee</td>
<td>• Provision of overall guidance and direction to the project, ensuring it remains within any specified constraints</td>
</tr>
<tr>
<td></td>
<td>• Review and endorse major deliverables</td>
</tr>
<tr>
<td></td>
<td>• Review of each completed stage and approval of progress to the next stage</td>
</tr>
<tr>
<td></td>
<td>• Review and approval of Plans and any Exception Report</td>
</tr>
<tr>
<td></td>
<td>• Approval of changes</td>
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<tr>
<td></td>
<td>• Compliance with Government and user management directives</td>
</tr>
<tr>
<td></td>
<td>• Assurance that all products have been delivered satisfactorily</td>
</tr>
<tr>
<td></td>
<td>• Assurance that all Acceptance Criteria have been met</td>
</tr>
<tr>
<td></td>
<td>• Arrangements, where appropriate, for a Post Implementation Review</td>
</tr>
<tr>
<td></td>
<td>• Project closure notification to contractor and user management</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
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</thead>
<tbody>
<tr>
<td>Project Working Committee</td>
<td>• Be the communication channel between the project team and the user community</td>
</tr>
<tr>
<td></td>
<td>• Manage project scope, quality of deliverables and ensure delivery of commitment within schedule</td>
</tr>
<tr>
<td></td>
<td>• Work closely with users to monitor the progress of project and establish detailed action plan or procedure</td>
</tr>
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<td></td>
<td>• Set priority for the project activities and make timely decisions on changes to specifications, project allocations, user and project priorities</td>
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<tr>
<td></td>
<td>• Ensure that the system and user-defined requirements are met</td>
</tr>
<tr>
<td></td>
<td>• Assist user in user acceptance test planning</td>
</tr>
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<td></td>
<td>• Notify management on the requirements of resources in order to give sufficient lead times for the resource to be made available</td>
</tr>
<tr>
<td></td>
<td>• Provide input, escalate critical issues and make recommendation</td>
</tr>
<tr>
<td></td>
<td>• Administer the change control procedures to ensure all changes are properly controlled, planned and implemented without adverse effect to the project schedule</td>
</tr>
<tr>
<td>Role</td>
<td>Responsibilities</td>
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</tr>
<tr>
<td>Users Project Management</td>
<td>• Provide business requirements to the project</td>
</tr>
<tr>
<td></td>
<td>• Users' roles:-</td>
</tr>
<tr>
<td></td>
<td>- requirement studies</td>
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<tr>
<td></td>
<td>- review functional specification</td>
</tr>
<tr>
<td></td>
<td>- user acceptance test</td>
</tr>
<tr>
<td></td>
<td>- review and accept system, deliverables documents</td>
</tr>
<tr>
<td></td>
<td>• Provide resources to:</td>
</tr>
<tr>
<td></td>
<td>- act as User Project Manager</td>
</tr>
<tr>
<td></td>
<td>- provide liaison with vendors of existing application systems for necessary</td>
</tr>
<tr>
<td></td>
<td>interfaces needed to support the system</td>
</tr>
<tr>
<td>Role</td>
<td>Responsibilities</td>
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<tr>
<td>-----------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>ASB-NCS Project Management</td>
<td>• Manage project scope, quality of deliverables and ensure delivery of commitment within schedule</td>
</tr>
<tr>
<td></td>
<td>• Set priority for the project activities and make timely decisions on changes to specifications, project allocations, user and project priorities</td>
</tr>
<tr>
<td></td>
<td>• Ensure that the system and user-defined requirements are met</td>
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<tr>
<td></td>
<td>• Assist user in user acceptance test planning</td>
</tr>
<tr>
<td></td>
<td>• Conduct user training</td>
</tr>
<tr>
<td></td>
<td>• Notify management on the requirements of resources in order to give sufficient lead times for the resource to be made available</td>
</tr>
<tr>
<td></td>
<td>• Provide input, escalate critical issues and make recommendation</td>
</tr>
<tr>
<td></td>
<td>• Administer the change control procedures to ensure all changes are properly controlled, planned and implemented without adverse effect to the project schedule</td>
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</table>
6.5 Project Schedule

![Application development project schedule](image)

Figure 6-6: Application development project schedule

6.6 New Data Center Installation & Migration

With the e-Application schedule in the previous section, it is necessary to have the new Data Center ready for System Integration Test (SIT) and User Acceptance Test (UAT) of the e-Applications by May 08.

In the event that the new Data Center could not be ready for the testing of the pilot e-Applications in May 08, the alternative plan would be to install the new IT platform in the existing ITCS Data Center. The new e-Applications will then be implemented in ITCS Data Center from May 08 onwards. When the new Data Center is ready, there will be a need
to do a migration of the new IT platform, together with all the new e-
Applications implemented, as well as the existing ITCS applications, to
the new Data Center. Details of the installation and migration activities
will be covered in the Data Center Report.

6.7 Disaster Recovery Center

With the migration of information assets from the current ITCS Data
Center to the new Data Center, the threats of tsunami and hurricane
would be greatly reduced. However, there could always be
unanticipated acts of god or other natural or man-made disasters. To
tackle the risks of total destruction of government information assets
and for the effective continuation of critical government services, it is
necessary and important to plan and design for the availability of a
Disaster Recovery Center and a good and well tested backup and
recovery procedure. This will be covered in the Data Center Report.

6.8 Critical Success Factors

ASB-NCS identifies the critical success factors (CSFs) for the
successful implementation of the recommended e-Applications and
other e-Government components within the next 18 months as:

- Top management support
- Active participation and commitment from domain-specific users
- Prepared to make changes to existing workflow to harness the
  benefits of IT solutions
7 TRANSITION MANAGEMENT

7.1 Context of e-Government

e-Government is a natural step in a nation’s progress and growth and will bring about change for many stakeholders. Fiji e-Government’s stakeholders include: its citizens (G2C), businesses (G2B), civil servants (G2E), and other governments (G2G). It is a crucial project as it aims to propel Fiji into the next stage of development and is a key catalyst to meet its national objectives of enabling increased efficiency, accessibility and transparency.

ICT is the tool to enable e-Government. However, ICT alone will not make e-Government a reality without people in the equation. The stakeholders have to want and able to utilise the e-Services. Therefore, the e-Services must bring value to its stakeholders and make them better and more efficient alternatives to current methods.

This section focuses on how to transition stakeholders to e-Government.

7.2 Transition Continuum

A key aspect in every project implementation is the introduction of change and consequently, the management of transitioning stakeholders to the desired future state.

Stakeholders undergoing change will typically go through 4 stages of the Transition Continuum – Awareness, Understanding, Acceptance and Commitment. Each stage presents different reactions from stakeholders and it is an indication of how they are adapting to the change through the Programme. An understanding of which stage key stakeholders are
at the critical junctures of the Programme enables proactive management of change and making key decisions.

![Figure 7-1: Transition Continuum](image)

**Stage 1 – Awareness**

Stakeholders have no knowledge of the changes to come, are unclear of the scope, depth and full impact of change; unsure of extent of their involvement.

**Stage 2 – Understanding**

Stakeholders begin to understand the nature and scope of the e-Government project; but tend to make judgments about how the change impacts them.

**Stage 3 – Acceptance**
Stakeholders are willing to continue the change processes and “try it out”; they begin to show signs of acceptance.

**Stage 4 – Commitment**

Stakeholders commit from personal conviction and endorse change.

### 7.3 Transition Strategies

A key strategy adopted by all the change initiative is to “communicate, communicate, and communicate”. However, in addition to communications, it is important to start by identifying “who” these communications are for. Stakeholders are identified and grouped logically so that communications can be tailored to them and to effect the desired results.

The Fiji e-Government project is a nationwide programme and transition planning and management goes beyond communications. It demands a holistic view of the change, the impact of change, stakeholders’ readiness to change and the change journey. In view of the magnitude and impact of the e-Government project, we propose the following strategies to guide the transition management:

**Transition Strategy 1 – Defining e-Government Strategic Value Network**

The impact of Fiji’s e-Government project is far-reaching and will impact many stakeholders. As such, it is important to identify these stakeholders, understand their needs, manage their expectations and help them transition to the desired future state that e-Government brings.
Transition Strategy 2 – Communicating the Need and Benefits of e-Government

e-Government represents a new way the government, business and citizens interact. This necessitates a sustainable branding and marketing campaign to build awareness, enable understanding of the need for e-Government and cultivate usage of the e-Government services.

Transition Strategy 3 – Enabling Stakeholders to Maximise e-Government

ICT plays a major part in an e-Government initiative. Stakeholders’ ICT skills and comfort level in interacting and transacting via the IT medium must be relatively high in order to maximise the use of the e-Services provided. Therefore, an ICT Competency Development Plan is essential to improve the ICT competency level in Fiji.

Transition Strategy 4 – Managing e-Government through e-Governance

To enable Fiji’s e-Government programme and progress, it is necessary to put in place a governance structure to oversee and manage the current and potential e-Services for better transparency and accountability. This will build trust among business communities and citizens thereby laying the foundation for more sophisticated e-Services in the future.

7.3.1 Transition Strategy 1 - Defining e-Government Strategic Value Network

Many stakeholders have a stake in the Fiji e-Government Programme and their support and commitment are essential for the progress and success of Fiji’s e-Government initiative. Stakeholders are defined as...
parties or groups of people impacted directly or indirectly by the change, have a vested interest in the outcomes or can influence the Programme’s performance in one way or another.

Therefore, it is a logical step to identify and group these stakeholders in order to understand their needs and concerns and plan how to progressively transition them to e-Government. Obtaining their support and endorsement is necessary as the Programme progresses.

Stakeholders can be categorised into the following groups:

<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Category</th>
</tr>
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</table>
| Civil servants    | • Leader [L] : PS Grade  
                   | • Strategic Business Planner [SBP] : Grades 1 – 2  
                   | • Project Manager/Leader [PML] : Grades 3 – 4  
                   | • Business User [BU] : Grades 5, 6, 7 – 8  
                   | • General Civil Service User [GCSU] : Indirectly impacted; cross various grades |
| Businesses        | • Small-Medium Sized Enterprises (SMEs)  
                   | • Multinational Corporations (MNCs)  
                   | • Foreign Investments  
                   | • Business Associations |
| Citizens          | • Urban  
                   | • Rural |
| Enablers*         | • Policy and Decision Makers  
                   | • Vendors  
<pre><code>               | • Telco Companies/ ISPs |
</code></pre>
<table>
<thead>
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<tbody>
<tr>
<td><strong>Banks</strong></td>
<td>•</td>
<td></td>
</tr>
<tr>
<td><strong>Etc.</strong></td>
<td>•</td>
<td></td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>•</td>
<td><strong>Governments of Other Nations</strong></td>
</tr>
<tr>
<td></td>
<td>•</td>
<td><strong>NGOs</strong></td>
</tr>
</tbody>
</table>

(*Refers to those whose involvement is necessary in order to enable the realisation of the Programme. For example, telco companies/ ISPs need to be able to provide internet connection.)*

The various stakeholder groups form Fiji e-Government’s Strategic Value Network (SVN). In the SVN, there are stakeholder/ stakeholder groups that will be more impacted by the e-Government Programme than the others. These stakeholders groups are civil servants, businesses and citizens. Therefore, Transition Management will focus on these stakeholder groups.

**7.3.2 Transition Strategy 2 – Communicating the need and benefits of e-Government**

e-Government is about being more stakeholder oriented and business friendly. Thus, governments must be more agile, flexible and innovative in order to meet stakeholders’ needs. The other dimension is communications, i.e., communicating the benefits of e-Government constantly and consistently.

Communications management is an essential component of any e-Government Programme. The eServices are redundant if stakeholders are unaware of them and not using them.
e-Government is more than just a Portal. The Portal is merely a medium for stakeholders to access the e-Services. There must be commitment from the government to woo the public and businesses. These initiatives can be in the form of educational initiatives, public development programmes, business and investment grants and active partnerships with different stakeholder groups. The involvement of the press and media, and clear communications will also be key to the success of e-Government programmes.

Essentially, the principles of communications management for e-Government are:

- Build trust and instil confidence
- Maximise experiences by engaging all senses
- Communicate clear and consistent messages
- Deliver promises

The above can be achieved by having a comprehensive marketing and communications programme to accompany the e-Government Programme. This will help to raise awareness and facilitate the adoption of the e-Services as they are being introduced. The users’ trust in the e-Government vision must be built from the beginning so that they would understand the commitment made by the government to improve the relationship between the citizens and the public sector through enhanced, cost-effective and efficient delivery of services, information and knowledge.

Refer to Section 7.4 for the proposed Marketing and Communications Programme.
7.3.3 Transition Strategy 3 – Enabling stakeholders to maximise e-Government

Transition Strategy 2 addresses the cognitive aspect of e-Government, i.e., to be aware, to understand, to accept and to commit. Transition Strategy 3 addresses the “hands-on” aspect of e-Government. It builds on the cognitive aspect by adding the dimension of training and interaction.

Stakeholders are “e-enabled” – equipped with the relevant skills to use the e-Services, and provide them with opportunities to use and interact with the e-Services. With this as a foundation, more sophisticated e-Services can be introduced as the level of ICT maturity improves.

This area will be covered in the ICT Competency Development Report.

7.3.4 Transition Strategy 4 – Managing e-Government through e-Governance

e-Government and e-Governance are complementary and the existence of both is necessary as the latter defines, guides and governs the former so as to promote transparency, accountability and openness.

In addition to the technology aspect of e-Government, there is a need to review and set in place the governance processes to administer the current and new e-Services to be developed and launched. This includes structure, ownership, decision making, roles and responsibilities.

This will be further expounded in the e-Governance Framework Report.
7.4 Fiji e-Government Marketing and Communications Programme

7.4.1 Central Organisation for Branding and Marketing

The Fiji e-Government Programme necessitates the formation or assignment of a central organisation to be responsible for the branding and marketing of the Fiji e-Government Programme. This organisation is responsible for:

a) Branding of Fiji e-Government Programme
   - Develop Fiji e-Government Programme’s brand identity
   - Be the brand guardian of Fiji e-Government Programme

b) Marketing of Fiji e-Government Programme
   - Plan, organise and execute all marketing activities, including its soft launch, official launch and subsequent marketing requirements for the e-Services
   - Work and coordinate with relevant Ministries and agencies for marketing activities and programmes

c) Public relations for Fiji e-Government Programme
   - Plan, organise and execute all public relations related activities such as press conferences, press releases and stakeholder feedback and handling

d) Coordination with 3rd Parties
   - Assign and coordinate with 3rd party vendors on any branding, marketing and PR related activities
7.4.2 Objectives of Fiji e-Government Marketing and Communications Programme

Fundamentally, the Marketing and Communications Programme aims to support the strategic thrusts:

Strategic Thrust #1 – Implement financially sustainable service delivery models

Strategic Thrust #2 – Reinvent services delivery model to provide citizen-centric outcomes

Strategic Thrust #3 – Enhance operational efficiencies within and across government agencies

Strategic Thrust #4 – Enhance ICT skills competency of government employees at all levels

The key goals of designing a Marketing and Communications Programme are thus to achieve the following:

- Find out the e-Government citizen’s needs
- Create user awareness of Fiji e-Government initiative
- Articulate the vision of Fiji e-Government to other Ministries and citizens
- Communicate the brand values/ propositions of the e-Government Programme
- Deliver consistent messages
- Promote adoption of Fiji e-Government e-Services

7.4.3 Branding of Fiji e-Government Programme

First and foremost, the Programme must have an identity and this identity is created by branding. Branding has been used in the
commercial and corporate sectors and it is equally relevant to countries and the public sector.

A strong brand will drive affinity, loyalty and trust and promote support and commitment among stakeholders. It attracts and inspires employees, stakeholders and business partners. The brand can build support for an organisation and can sometimes provide credibility in times of crisis. Corporate branding provides a long-term strategic focus (as opposed to short-term tactical focus) for brand development.

In addition, it provides the foundation for new launches and brand extensions by making it more economical and efficient in terms of implementation, rollout and acceptance. Corporate brands connect up all the goodwill generated by the operations. Also, value creation can be enhanced for all stakeholders of the brand.

7.4.4 Communications to Fiji e-Government’s Strategic Value Network

Section 7.3.1 outlines the Fiji e-Government Strategic Value Network. Essentially, the target audience, i.e., the identified stakeholder groups, of the Marketing and Communications Programme are:

- Internal – civil servants
- External – businesses and citizens

The Marketing and Communications Programme is tailored to reach out to the stakeholder groups in order to:

- Explain e-Government projects and carry consistent messages to all
- Promote better awareness of availability and benefits of the e-Services
- Encourage usage of the e-Services
- Establish confidence in privacy, security and confidentiality of information
• Devise long and short term goals for Government to Government (G2G), Government to Citizens to (G2C), Government to Business (G2B) and Government to Employees (G2E) relationships
• Communicate the Fiji’s desire to improve government service (e-Government) for citizens by securing executive sponsorship

Communications are divided into:
• Communications to all stakeholder groups
• Communications to civil servants
• Communications to businesses and citizens

7.4.4.1 Communications to All Stakeholder Groups

There are some common communication platforms which can be used to raise the awareness of Fiji e-Government Programme for all stakeholder groups. These include verbal, written and electronic mediums where each will contribute to the dissemination process.

Verbal

This refers to face-to-face communications where there are opportunities to interact and gather feedback from stakeholders. Such activities are crucial especially during Stage 1 (Awareness) and key launches to communicate the desired messages and benefits and, at the same time, gather feedback.

The following are the proposed face-to-face activities:
• Public Seminars on the e-Government Master Plan, goals and projects
• Press conference/ press briefings
• Interviews with key sponsors of Fiji e-Government
• Media luncheons
• Meetings/ discussions with the individual groups of audiences such as businesses
• Nationwide interest group forums, moderated by the Government

**Written**

The use of written media will provide the targeted audience with reference points on the vision, mission and progress of Fiji e-Government.

• Generic brochure on Fiji e-Government
• A white paper on Fiji e-Government, and make this accessible via print and online copies
• Regular progress reports of Fiji e-Government via the media
• Frequently Asked Questions (FAQ) at agencies and online
• Backgrounders and topical brochures on Fiji government and the various agencies to be made available at strategic government agencies
• Media Kit
• Press releases and press updates to be issued to local and regional media
• Editorial opportunities for local & foreign publications

**Broadcast**

This is a powerful medium which key Fiji e-Government sponsors should address stakeholders via television or radio broadcasts through news, documentaries, special features or lifestyle interviews. Where possible
(and ready), they can address the audiences’ concerns via broadcast forums as well.

**Multimedia**

Interactive CD-ROMs can be distributed to allow the audiences to have a preview of the e-Services. In addition to the Fiji e-Government framework and the e-Services that they can expect, mock-ups or screen-shorts of the e-Services can be provided as well.

**Electronic**

This must be another key communication interface since Fiji e-Government is about going online. It will be timely to get stakeholders to go online to retrieve information, get updates and give their feedback. Some incentives can be provided for online participation such as lucky draw prizes given with online feedback.

- Project website <URL> allows continual access to Fiji e-Government progress and activities
- e-Newsletter to keep stakeholders updated on the progress of the Programme
- Conferences and videoconferences through the media and internet
- Online feedback (such as online poll, feedback channels)
- Online forums

**7.4.4.2 Communication Process to Civil Servants**

In the early period of Stage 1, more attention must be given to civil servants. In addition to promoting awareness and availability of the e-
Services, they must also be educated on the impact of the new e-Services on their agencies and on their work. This is also the time to promote the use of online communications. (Refer to report on ICT Capability Development for more information on training civil servants.)

**Verbal**

- Executive level briefings to secure executive support from the various agencies
- Team briefings at agency level
- Agency and/or cross-agency committees to encourage participation and early involvement in the e-Government Programme
- Assign a central agency to be responsible for the public relations (PR) aspect of the e-Government Programme so as to ensure that consistent messages are disseminated to the media and the public
- Media training for key owners of Fiji e-Government Programme
- Special training for Fiji e-Government customer service or front-line staff to handle any public queries/address any public concerns
- Internal educational and awareness campaigns across government agencies on the importance of Fiji e-Government Programme
- Co-branding exercises such as logo certification, inter-Ministry forums, and best e-ideas contests

**Written**

- Fiji e-Government newsletter (monthly or bimonthly progress update)
- Brochure/booklet on Fiji e-Government focusing on how e-Government will impact civil servants
- Progress reports
- FAQ sheets
• Departmental newsletters
• Employee paycheck stubs

**Electronic**

• Fiji e-Government Intranet which consists information, status reports, online forums, online feedback, etc.
• Preview website
• Regular email updates
• Conferences and videoconferences through the Intranet
• Cyber Communication via the Intranet

### 7.4.4.3 Communication Process for Citizens and Businesses

In addition to the various communications mediums to raise the awareness of Fiji e-Government to the citizens and business, the Fijian Government must put in place a programme to bridge the digital divide, especially the key popular segments – senior citizens, homemakers, workers and the disabled. Free training or training at a minimal cost on using the Internet must be introduced. For the businesses, some form of infrastructure and incentives (monetary or non-monetary) and support must be provided for businesses see the value in investing in computers and going online.

**Media**

• Use of media coverage and public service announcements to keep the businesses and citizens informed of any decisions and progress
of Fiji e-Government Programme. Share how this will impact on them, and if any form of programmes or incentives will be put in place to help them adjust to the e-Services framework

- Media relations plan to ensure visibility of all campaign events. Human interest stories will be pitched to inspire people to take action. In addition, success stories will also be featured to profile innovations and “innopreneurs”.
- Evaluations conducted to conceptualise, plan and review campaign strategies and messages. Can be done in collaboration with partners.
- Publicity like media channels deployed to heighten awareness of events & attract participation in campaign events.
- Production of TV programmes/videos

**Verbal**

- Hold briefings with the Chief Information or Chief Executive Officers of key businesses to communicate Fiji e-Government Programme, goals and plans to them. Also a platform to address any business concerns. Mediums include breakfast talks or seminars.
- Public talks and briefings

**Written**

- Printed information specific to businesses and citizens
- Progress reports
- FAQ sheets
- Topical brochures
- The “How-to make Fiji e-Government part of my life” guide (or a checklist of online readiness) to both the businesses and the citizens
Electronic

- Project website <URL> allows continual access to the progress and activities will be continually updated
- Online forum/discussions
- Regular e-newsletters

7.4.5 Marketing of Fiji e-Government Programme

Communication tools and mediums can be used to promote awareness of Fiji e-Government and e-Services. To improve the effectiveness and reach, other marketing tools such as events and advertising should be integrated into the overall plan to improve the adoption rate of the e-Services.

Events

Events such as trade and community events during the launches will allow citizens and businesses to experience the benefits of infocomm and be motivated to become connected.

Each activity must cater to the specific needs and interests of its target participants. For example, for businesses, activities such as conferences, seminars, networking sessions, competitions, awards, can be organised. Events for citizens can include IT literacy training, outreach programme, thematic online fairs, contests and workshops. For civil servants, in addition to training, events such road shows will also help to promote the benefits of and the need for e-Government.

To increase public awareness, a month-long multi-sectorial campaign can be held annually for the citizens to fully embrace an e-lifestyle and understand its boundless possibilities.
To move citizens from awareness to adoption of an e-lifestyle, a series of thematic online fairs can also be held to boost consumer confidence in online services.

The sharing of how other Governments in the world have gone online, and how their businesses and citizens have benefited will also raise the profile of Fiji e-Government Programme. This can be done via carnivals, exhibitions, broadcast programmes or interviews. Exchange programs between countries for Government employees and businesses can also be arranged and organised.

**Advertising**

Both above-the-line (ATL) and below-the-line (BTL) advertising mediums can be used to promote awareness and sustain stakeholders’ interest and usage of the e-Services. ATL refers to high profile mediums that reach out to mass audiences such as television, national newspapers and radio. BTL refers to print media such as brochures, posters and direct mail.

ATL and BTL advertising are complementary. While ATL broadcasts the generic messages regarding e-Government to all audiences, BTL directs detailed and specific messages to desired audiences.

To promote the Government-to-Government links and raising the awareness of Fiji e-Government, advertising should also cover international/ regional publications such as Times or Fortune magazines.
7.4.6 Launch of Fiji e-Government Programme

The launch of the Fiji e-Government Programme is highly crucial in creating awareness and encouraging stakeholders in using and engaging with the e-Services. It is important to encourage stakeholders to use the e-Services instead of the using the counter systems or services.

The following outlines the launch, marketing and PR activities for Fiji e-Government Programme. Its overall objective is to raise awareness of Fiji e-Government benefits and to encourage them to switch from counter to the e-Services.

7.4.6.1 Part I: Launch Programme

It is recommended to have soft-launches of the e-Services to the media and civil service before introducing Fiji e-Government Programme on a large scale to the businesses or the public. This can be done via the above discussed communications and marketing programmes.

The official launch of Fiji e-Government Programme must have pre activities leading to the launch, and post activities to sustain the interest. Pre-launch activities can be a month before the official launch to heighten the interest and excitement of the official launch.

Pre-launch events can include:

- Advertisements to highlight the customer centric information flow
- Previews of Fiji e-Government Programme via various mediums
- Freebies given to citizens
- Media pitch
The official launch can include the following activities:

- Launch ceremony attended by key Government officers to show the commitment and importance of Fiji e-Government Programme
- A business lunch or network session to secure commitment and support from the business community
- Carnivals in government agencies
- Public exhibitions held to raise awareness of Fiji e-Government Programme, also to allow the citizens a first hand in going online with the Government, to give their feedback and comments
- Secure congratulatory advertisements in key publications and newspapers from key Government around the world, as well as major business investors in Fiji
- A newspaper supplement to showcase Fiji e-Government Programme
- Press launch, followed by extensive media coverage
- Freebies or contests to encourage the citizens to go online to attend the launch events

7.4.6.2 Part II: Marketing Programme

The launch has to be accompanied by a marketing programme. The following are recommended marketing activities:

- Advertise in the newspapers to raise awareness of the availability and uses of Fiji e-Government Programme. This is the best method to raise awareness of the Programme
- Employee Pride Programme – let Government employees be the Ambassadors of Fiji e-Government Programme
- By word of mouth, potential users can also get to hear of Fiji e-Government Programme. Leverage on the network of the Fiji e-Government Programme Ambassadors
• Develop brochures on Fiji e-Government Programme, highlighting the features and e-Services and the benefits of using them
• Direct mailers to key stakeholders to introduce Fiji e-Government Programme
• Develop a CD, such as a start-up kit, to show stakeholders the step-by-step way to use the e-Services
• Provide a demo system at all major Government agencies or business district areas for users to try out the e-Services, and receive assistance from Government staff when required
• Provide links from various government and businesses’ web-sites to Fiji e-Government Programme

7.4.6.3 Part III: Public Relations Campaign

A public relations campaign will also boost the awareness of the Fiji e-Government Programme:

• Coverage of Fiji e-Government Programme features and benefits in local and possibly international newspapers
• Review of Fiji e-Government Programme in leading magazines/publications
• Review of Fiji e-Government Programme on popular news-related web-sites or search engines
• Coverage of Fiji e-Government Programme on key lifestyle or business programme
• Speaking and interview opportunities for Fiji e-Government Programme owners
• Participation in e-Government Seminars held overseas to gain greater exposure and promote exchanges of ideas
7.5 Conclusion

Managing the transition from the current state to e-Services has to be carefully timed, planned and executed. The four transition strategies have to work together to realise the desired impact and results. The ICT Competency Development and Governance Framework reports will complement this section in providing a holistic approach to enable stakeholders in transitioning to Fiji e-Government.
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