



**“The modern economy is powered by data and technology. That’s why we strive to find innovative paths to lower Government cost, engage citizens and institute radical transparency to bring them closer to their Government and to help move us all forward, together.”**

*Vivek Kundra, Chief Information Officer, United States of America. Winner of Data Hero Visionary Award 2011*

## Acknowledgement

The Central Informatics Bureau wishes to express its sincere gratitude to the Hon. Tassarajen Pillay Chedumbrum, Minister of the Information and Communication Technology for giving us the opportunity to shape the e-Government vision through this document.

We are grateful to the citizens, private sector and Government Agencies for their keen interest and inputs provided through the e-Government Needs Survey.

In particular, we would like to thank

- Mr. V. Gondeea, Permanent Secretary and the Management of the Ministry of the Information and Communication Technology for their support in guiding the CIB Team;
- Mr. V. Mulloo, Manager of the Government Online Centre for his valuable suggestions;
- Ms. L. F. Cheung Kai Suet, Director and her team of the Statistics Mauritius for their contribution in connection with the e-Government Needs Survey;
- Mrs. I. Seeburn, Managing Director of the Small and Medium Enterprises Development Authority for extending her kind collaboration and support;
- Mr. R. Jadoo, Secretary-General Designate of the Mauritius Chamber of Commerce and Industry for providing valuable inputs for the G2B component;
- Anthony Ming, Adviser (Informatics), Governance & Institutional Development Division, Commonwealth Secretariat for providing valuable comments on the strategy; and
- Dr Tim Kelly, Lead ICT Policy Specialist at the World Bank and infoDev for facilitating the validation workshop on e-Government Strategy.

The CIB wishes to place on record its sincere appreciation to all those, who, in one way or another, have been crucially involved in the formulation of this e-Government Strategy 2013 – 2017 report.

## Executive Summary

The Government of Mauritius started its computerisation journey in the 1990s. The main focus of computerization has remained steady over the years with the need to use ICTs for managing revenue collection, maintaining Government's accounts, ensuring that payment of pensions and other benefits are made to the right beneficiaries, securing the identity of citizens and borders. Lately, e-services have been added to the e-Government agenda.

This Ministry/Department centric approach to e-Government has served the country well over these past decades. However, in today's world where citizens are given pride of place at the centre of development, there is an urgent need to adopt a more citizen and business centric approach to e-Government as also advocated by the NICTSP 2011 – 2014.

In order to re-engineer the e-Government agenda, a methodology based on needs surveys of citizens, businesses and Government, research in trends in e-Government around the world and application of a framework for e-Government in Mauritius has been used.

The needs survey of citizens has been carried out through questionnaires with the assistance of Statistics Mauritius and targeted 880 households spread out across the island. Citizens were also surveyed online through appropriate questionnaires. Similarly, businesses and Government officials were surveyed using online questionnaires.

In addition, environmental scanning and research in e-Government trends around the world has been conducted.

After analysis of the needs surveys of citizens, Government Officials and businesses and incorporating the research in e-Government trends, the Strategy makes the following recommendations:

### **I. Government to Citizens Interactions: Empowering Citizens**

#### ***Awareness of e-Services***

##### **C1: Market and create awareness of Government Portal and e-services**

The survey of citizens shows a lack of visibility and awareness of the Government Portal and e-services. In order to give visibility to and create awareness of e-services, a well thought out marketing strategy using billboards, video clips on the public television station and audio clips on public and private radios will be implemented. Additionally, citizens calling at Post Offices to avail of the Public Access Points to surf the Internet will be also targeted as part of the marketing and awareness programme. All these

measures will assist in improving the take up of e-services, reduce the pressure on counter services and bring about savings.

**C2: Set up a Help Desk to help citizens facing problems in the use of the Government Portal, e-services and m-services**

A help desk will be made available to the citizens to assist and support them in the usage of e-services and m-services. This is expected to render e-services and m-services more attractive resulting in higher take ups for these services, and reducing pressure on counter services and yielding savings.

**New e-Services as per Citizens' Needs**

**C3: Implement new e-Services as per Citizen's needs in order of priority**

Citizens have prioritized the new e-services that they would like to avail of. This list was inspired from the European Union's 20 basic e-services for public service delivery and localized in the Mauritian context. Therefore, the 13 new e-services will be prioritized and discussions held with service owners to

|   |   |    |   |
|---|---|----|---|
| 1 | Application for driver's license (excluding learner's license)    | 8  | Application for admission to schools/colleges                 |
| 2 | Application for Mauritian passport                                | 9  | Facility to effect electronic payment for Government services |
| 3 | Application for obtaining a copy of birth or marriage certificate | 10 | Facility to enrol as elector                                  |
| 4 | Online publication of examination results                         | 11 | Application for building permit e.g. Residential              |
| 5 | Registration of motor vehicles                                    | 12 | Facility to request for transfer of students                  |
| 6 | Application for an appointment at a public hospital               | 13 | Facility to make declaration of theft to the police           |
| 7 | Application for obtaining a Certificate of Character              |    |   |

chart out an action plan for development of the e-service in the coming year and come to complement the existing 65 e-services.

The direct benefits are: increased convenience of citizens through 24x7 accessibility to prioritised services; potential for reducing the provision of counter services; and yielding savings.

**Mobile Services**

**C4: Design services that are usable on mobile devices as well as desktop and laptop computers**

Public services will be designed to be made available anywhere and anytime through mobile devices and laptops. People will use the services on the go and reduce the need to commute to Government offices or to queue up for accessing services. This is expected to bring about a reduction in the provision of public counters for the re-designed services, increased convenience for citizens through 24x7 accessibility to service and yielding savings.

### **C5: Implement SMS-based Disaster Alerting System**

For the safety of citizens and to avoid or mitigate danger related to impending disasters, issuance of alerts is a must. SMS messages were issued to citizens to warn of the danger represented by cyclone Imelda in April 2013. Lessons learnt from this pilot test will be used for developing a more robust public warning system that contributes to reducing loss of lives.

### **Service Delivery**

#### **C6: Operate a One-Stop Shop for Government Services using the network of Mauritius Post**

A "One Stop Shop" for Government services will be set up through the network of (114) Post Offices operated by the Mauritius Post Ltd across Mauritius, Rodrigues and Agalega. This will widen the options available for citizens to benefit from Government Services. Citizens may wish to apply for a service from a Government office or call at the Post Office nearest to their residence. The Post Office will therefore dispense a One-Stop Shop service, which would provide for home delivery of the official document requested by the citizen, if required. The concept of One-Stop Shop is intended to be piloted with the issuance of birth certificates.

The One Stop Shop service will increase the ease and convenience of the citizens, reduce the provision of counter services, increase the efficiency of public service delivery and yielding savings.

#### **C7: Set up a Government Call Centre to provide information on Government Services**

Government will set up a Call Centre for its services. This will provide a means for: assisting citizens wishing to obtain a public service, provision of information to citizens about the progress of their requests for service and handle citizen complaints.

#### **C8: Provide e-services with e-payment and m-payment facilities**

The set of new e-services requested by citizens will be developed with e-payment and m-payment facilities where appropriate. Existing e-services will also be considered in a phased manner. Convenience of citizens ranks high in this measure, which is expected to also impact positively on the take up of e-services, reducing pressure on counter services and yielding savings.

#### **C9: Promote use of online transactions using Digital Signatures**

In order to increase the trust in online transactions, marketing and awareness of digital signatures will be carried out. Additionally, ways and means to make digital signatures affordable will be sought. Thus, increasing the use of digital signatures, ushering in the era of less paper in line with the Maurice Ile Durable Concept and yielding savings.

### **E-Participation**

**C10: Formulate and implement a Social Media Policy**

**C11: Promote e-participation initiatives such as online consultation on draft bills, regulations, etc.**

**C12: Democratise access to Government information**

The needs survey shows that two out of three respondents are on Facebook and Twitter. Government will formulate and implement a Social Media Policy to provide the appropriate framework for Government to interact with citizens through social media sites. Such initiatives enhance the participation of citizens in shaping up issues of national importance – e-participation in action. This will also serve to expand the transparency and accountability in public administration.

## **II. Government to Government Interactions: Networked Government**

### **Effectiveness and efficiency of Government Services**

**G1: Implement the recommendations of existing e-Government Master Plans in the following areas: e-Health, e-Education, e-Agriculture, e-Work Permit, Social Security, Government Wide Area Network, and operations of the Traffic Branch**

Implementation of the existing plans needs to be fast tracked to yield simplified procedures in the delivery of services. Improvements in the effectiveness and efficiency of these operations (e.g. work permit applications and so on) will also be experienced.

**G2: Implement new e-Government projects as per Government agencies' needs**

The list of priority projects cut across Ministries and Departments and will bring about standardization in the cross cutting areas of operation whilst generating economies of scale.

|   |  |
|---|--|
| 1 | Disaster Assistance and Crisis Response System |
| 2 | Project/Tasks Monitoring System                |
| 3 | Document Management and Workflow System        |
| 4 | Integrated HR Management System                |
| 5 | Inventory Management System                    |
| 6 | Physical Asset Management System               |
| 7 | Transport/Fleet Management System              |

**G3: Implement end-to-end e-services (Integration of back end processes with e-services application system to include e-payment, m-payment and Digital Signatures) so as to facilitate transactions**

E-services should be integrated with the back end processes to improve public service delivery. This is an opportunity to modernize the backend services and integrate with e-payment, m-payment platforms and digital signatures, where required. By going for end-to-end e-services, Ministries and

Departments will generate increased citizen satisfaction, higher efficiency and transparency, cost savings, faster delivery of service as they are fully integrated.

### **Data Sharing**

#### **G4: Formulate and Implement Data Sharing Policy**

#### **G5: Set up Government Service Platform and sharing of citizens' data with Government Agencies**

Government holds huge quantities of data on citizens, businesses and land, which will benefit from being organized centrally and shared among Government Agencies. As an example, citizen data will be captured once at the Civil Status Division and shared among Government systems. The sharing of data will be governed by a policy that ensures compliance with Data Protection Act and appropriate IT security requirements. One of the instruments of the Policy is the Government Service Platform that will specifically address sharing of citizen data.

The Policy together with the appropriate platforms will generate gains in effectiveness and efficiency in public service delivery, bring about cost savings in terms of reduction in the infrastructure required for data storage, leaner system administration and reduction in data inconsistencies. Eventually, the policy may be revisited to address the manner in which data may be shared with bodies outside Government (including private sector) with necessary safeguards in place. Data captured once may be shared among several agencies for convenience of citizens and speeding up processes and service delivery.

### **Standardisation**

#### **G6: Prepare guidelines and standards for the procurement of ICT systems in Government**

Guidelines and standards for the procurement of ICT systems will be simplified and streamlined for the benefit of Government officials and potential bidders. This will result in cost and time savings in procurement processes.

### **Government Cloud**

#### **G7: Consolidate Government Cloud initiatives**

#### **G8: Extend Government Cloud to parastatal bodies**

Government Cloud initiatives around the GOC will be consolidated to enhance the governance dimension whilst expanding the GOC to continue to support the ICT systems in Government and to increase the resiliency in the infrastructure with the setting up of a Disaster Recovery Site. This measure will cater for the safeguarding of the investment in ICT at the level of Government.



The possibility of extending the Government Cloud to parastatal bodies, including infrastructure sharing, will be explored as the economies of scale that can result are far reaching and produce high worth cost savings.

### ***Business Continuity Management***

#### **G9: Implement Business Continuity Management Plans for critical systems**

The e-Government Strategy recommends the development of Business Continuity Management Plans for critical systems in order to enhance the preparedness of organisations in the face of cyber-attacks and natural disasters. This will ensure that citizens can continue to avail of services in spite of cyber-attacks.

### ***Open Source***

#### **G10: Formulate and Implement Open Source Software Policy**

The Open Source movement has over the years grown in strength and capabilities and can nowadays rival the big players of the Software Industry. The Strategy therefore recommends that an Open Source Software Policy be formulated so that Government can provide the right framework for open source applications to interoperate with existing applications and that the maintenance and support is catered for. Such policy directions will impact positively on the growth of the open source segment of the software industry and will instill more competition in the software application market. The Open Government Data Portal has been identified as a pilot open source project for Government. Strengthening the open source segment generates opportunities for employment in the ICT sector.

### ***Green ICT and Paperless Government***

#### **G11: Develop and implement Green ICT guidelines**

The National Computer Board is developing a comprehensive Green ICT Policy due by end of 2013. Also, budget 2013 advocates a paperless Government using technology. In this context, Government will develop and implement guidelines for the procurement of sustainable ICT resources and paperless operations. These will be revisited following the completion of Green ICT Policy.

### ***Legal and Regulatory***

#### **G12: Set up legal and Regulatory committee to review existing Legal and Regulatory framework to sustain various e-Government initiatives**

The existing legal and regulatory framework in the ICT sector in general dates back to the early 2000. Thus there is a need to have a fresh look at the legal instruments in place in the light of the changes that have happened in the technological world. The suitability of having a specific Act dealing with "Public Delivery of Electronic Services" to formalize the relationship between Government and citizens in the electronic world needs to be considered.

### ***Training and HR***

**G13: Leverage ICT adoption: ICT training to drive e-Government Projects to be delivered by the Civil Service College, Mauritius**

**G14: Leverage ICT adoption: Provision of Incentives**

**G15: Leverage ICT adoption: Ministries/Departments to procure notebooks instead of Personal Computers for Senior Officers**

In order to drive through the e-Government Projects, there is a need to equip Government officers with the necessary ICT skills. Using the Civil Service College as a vehicle, adequate and appropriate training can be imparted to the officers to support implementation of e-Government Projects. This should be coupled with appropriate incentives.

Additionally, Senior Officials are required to work at and outside the office and at home. This calls for devices that support mobility. In a first instance, the Strategy advocates that Senior Officers be equipped with notebooks rather than personal computers. Such initiatives will bring cost savings and improve the effectiveness and efficiency of the officers resulting in improved delivery of public services.

### ***Organisational Structure and Funding***

**G16: Carry out in-depth study for the creation of an ICT directorate with new specialised posts in ICT for successful implementation of e-Government initiatives**

**G17: Reforms Steering Council to facilitate approval and funding of e-Government Projects**

The MICT has made a proposal for the creation of an ICT directorate to regroup all its services. This needs to be studied in depth by the PSRB. However, pending the study, there is a need to review the human resource requirements of the e-Government Sector to support the implementation of the e-Government Strategy.

In addition, a mechanism for facilitating the approval and funding of e-Government projects needs to be put in place. As such, the mechanism will ensure coordination in e-Government efforts and keep the holistic vision developed as part of the e-Government Strategy on track. In view of the importance of the mechanism, the Strategy backs the view that the mandate of the RSC be expanded to cover approval and funding of e-Government projects.

### ***Monitoring and Evaluation***

**G18: Develop and establish an e-Government measurement framework**

With the implementation of the e-Government Strategy, there is a need to monitor the take up of e-services and citizen satisfaction. These measurements will make possible improvements in public delivery of services thus ensuring that citizen expectations are being appropriately addressed.

Hence, a measurement framework will have to be developed and operationalised.

### **III. Government to Business Interactions: Collaborating with Business**

#### ***Awareness of Government Services targeted to businesses***

##### **B1: Develop marketing and awareness strategies for Government Portal and e-Services targeting businesses**

Similar action will be taken as in Recommendation C1, however targeted to businesses.

#### ***Open Government Data***

##### **B2: Formulate and implement an Open Government Data Policy**

Through the formulation and implementation of an Open Government Data Policy, Government will make available datasets (budget, trade and other data) for businesses. This action will increase the transparency in Government operations and is expected to trigger innovation through the development of mobile apps by businesses.

#### ***E-payment facility***

##### **B2: Integrate e-payment and m-payment facilities in existing e-Government applications**

Similar action will be taken as Recommendation G3, however targeted to businesses.

#### ***Electronic Authentication and Digital Signatures***

##### **B4: Promote the Card Validation Service and fingerprint readers by businesses to validate the identity of citizens**

##### **B5: Implement measures to make digital certificates affordable**

With the forthcoming issuance of smart card based identity cards to citizens, new opportunities open up for businesses to tap the card validation service that will be set up to ensure that the cards are indeed valid. Additionally, as the cards will hold addresses of citizens on top of their other basic information like name, gender, etc, businesses can use fingerprint readers to validate the citizen's data including address information. Thus the "Know Your Client" (KYC) Concept will be transformed for the convenience of citizens and businesses.

#### ***Business Facilitation***

##### **B6: Assess the current state and re-engineer e-Services to a highly transactional mode**

##### **B7: Promote the use of online Building and Land Permit with e-Payment facility**

##### **B8: Accelerate the implementation of the e-Work Permit Plan**

##### **B9: Assess the effectiveness of the LMIS and chart the way forward to further improve the system**

**B10: Implement online submission of company data to Statistics Mauritius**

Under business facilitation, the objective is to implement/ fast track applications that may need to be end to end integrated with e-services and the e-payment facility. Hence, by re-engineering the applications and bringing them online, it is expected that procedures will be simplified, reducing the turnaround time, and increasing the convenience of businesses.

**E-Procurement**

**B11: Implement e-Procurement so as to enable sustainable procurement in Government**

E-Procurement will create an environment where bidding procedures can be shortened and be more transparent and accountable for businesses and Government. Cost savings will accrue to both parties.

**Single Window**

**B12: Implement Single Window for trade facilitation**

Single Window will provide a platform for all checks and permits will be handled together to fulfill all the trade requirements.

**Online Filing**

**B13: Promote the use of online filing of commercial court cases**

**B14: Implement online filing of objection to Assessment Review Committee for tax issues**

The use of the online filing of commercial court cases will be promoted. This is expected to trigger more adoption of the system by the business and legal communities and reduce the time for filing such cases.

The time to file objections to the Assessment Review Committee for tax issues will be reduced, through online means, to further ease the doing business environment.

**Conclusion**

The concept of e-Government being more of a “government transformation programme” will be integrated in the fabric of the e-Government Strategy 2013-2017. The strategy aims at increasing: the participation of citizens in decision making processes, the convenience of citizens and businesses in their interactions with the Authorities and transparency and accountability in Government operations. It is through the right mix of policies and information systems/e-services that the e-Government Strategy ambitions to attain its aims. Policies in the area of social media, data sharing, Open Source Software, Open Government Data have to be pursued diligently coupled with the adoption of e-payment, m-payment and digital signatures for a more transparent and accountable delivery of public services.

The budgetary requirements together with funding mechanisms for a successful implementation of the Strategy have been worked out.

By bringing together the right policies, IT systems/e-services and supported by appropriate funding, it is projected that the Strategy will thrust Mauritius in the Top 50 leading countries as measured by the UN e-Government Index by 2017 and lay the groundwork for the countries transformation into a High Income Country by 2022.

## List of Abbreviations

|        |  |
|--------|--|
| AGO    | Attorney General's Office  |
| ARC    | Assessment Review Committee                                      |
| BCM    | Business Continuity Management                                   |
| CA     | Certification Authority  |
| CKAN   | Comprehensive Knowledge Archive Network                          |
| EOAC   | Errors, Omissions & Anomalies Committee                          |
| EPEAT  | Electronic Product Environmental Assessment Tool                 |
| EU     | European Union   |
| G2B    | Government-to-Business   |
| G2C    | Government-to-Citizen  |
| G2E    | Government-to-Employee   |
| G2G    | Government-to-Government   |
| GOC    | Government Online Centre   |
| GSP    | Government Service Platform                                      |
| GWS-X  | Government Web Services Exchange                                 |
| HRMIS  | Human Resource Management Information System                     |
| ICTA   | Information and Communication Technology Authority               |
| KS     | Knowledge Society  |
| LMIS   | Labour Market Information System                                 |
| MCCI   | Mauritius Chamber of Commerce and Industry                       |
| MCSAR  | Ministry of Civil Service and Administrative Reforms             |
| MICT   | Ministry of Information and Communication Technology             |
| MLIRE  | Ministry of Labour and Industry Relations                        |
| MNIS   | Mauritius National Identity System                               |
| MOA    | Ministry of Agro Industry and Food Security                      |
| MOEHR  | Ministry of Education and Human Resources                        |
| MOFED  | Ministry of Finance and Economic Development                     |
| MOHQL  | Ministry of Health and Quality of Life                           |
| MPF    | Mauritius Police Force   |
| MRA    | Mauritius Revenue Authority                                      |
| MSS    | Ministry of Social Security                                      |
| NCB    | National Computer Board  |
| NDSAP  | National Data Sharing and Accessibility Policy                   |
| NICTSP | National Information and Communication Technology Strategic Plan |
| OECD   | Organisation for Economic Co-operation and Development           |
| OGD    | Open Government Data   |
| OGDP   | Open Government Data Policy                                      |

|           |  |
|-----------|--|
| OPSG      | Office of Public Sector Governance                                   |
| OSS       | Open Source Software   |
| PIAP      | Public Internet Access Point   |
| PKI       | Public Key Infrastructure  |
| PMO       | Prime Minister's Office  |
| PPC       | Project Plan Committee   |
| PSC       | Public Service Commission  |
| PSI       | Public Sector Information  |
| PSRB      | Public Sector Re-engineering Bureau                                  |
| RSC       | Reforms Steering Council   |
| SMEDA     | Small and Medium Enterprises Development Authority                   |
| SMS-DAS   | SMS-based Disaster Alerting System                                   |
| UN/CEFACT | United Nations Centre for Trade Facilitation and Electronic Business |
| UNESCO    | United Nations Educational, Scientific and Cultural Organization     |
| UNPAN     | United Nations Public Administration Network                         |

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# 1 Introduction

The 1990s saw the introduction of ICT in Government with emphasis laid on the computerisation of revenue collection departments, social security contributions and benefits and identity and border control. These forerunners of computerisation brought in a cultural change in public administration which paved the way for the development of e-Government systems across the Civil Service.

Today, almost all Ministries and Departments are equipped with ICT systems that assist them in the delivery of their services. Ministries and Departments have been charting their way forward in e-Government on the basis of their priorities. While recognising this fact, the National Information and Communication Technology Strategic Plan 2011 – 2014 (NICTSP 2011) highlights the need to have a paradigm shift in the country's e-Government outlook and change the focus from a Ministry/Department to a citizen and business centric approach.

This realignment to citizen and business needs will ensure that the beneficiaries obtain maximum convenience and facilitation in their dealings with Government.

In order to give a new orientation and impetus to the e-Government agenda, e-Government needs surveys with respect to ICT usage targeting citizens, businesses and Government agencies have been conducted through the active participation of Statistics Mauritius.

On the basis of the findings of the needs surveys and worldwide trends in e-Government, priority areas have emerged. Policies have to be defined and appropriate ICT systems have to be identified as part of the e-Government Strategy.

Policy directions incorporating issues of transparency, accountability and efficiency have been worked out. The cornerstones of these policy initiatives include *inter-alia*: "Open Government Data" to empower citizens and businesses with data building blocks for data analysis and development of mobile apps, the "Data Sharing Policy" which makes it possible for Government agencies to capture data once and share among themselves for ensuring optimal efficiency in delivery of public services and the "Open Source Software Policy" which outlines the country's willingness to develop an

open source software industry to support ICTs in Government and in the nation.

Moreover, ICT will be introduced in priority areas like the health and agriculture sectors. The e-Government Strategy 2013 – 2017 also recommends that recent breakthroughs made through the introduction of ICT tools in specific sectors like education with interactive projectors at primary school level be reinforced and extended to other sectors.

The e-Government Strategy comes at the right time when Mauritius is getting ready to ride the wave of economic and social transformation that ushers in a Knowledge Society. This economic and social transformation as advocated by the Economic and Social Transformation Plan, currently under preparation, projects to push the country into a High Income Country bracket through the use of appropriate technology (Government of Mauritius, 2012).

Through optimal employment of ICTs in the machinery of Government, it is expected that public service delivery will be enhanced reaping much warranted efficiency gains for Mauritius and enhancing the convenience of citizens as well as facilitating businesses.

## 1.1 Purpose

The National ICT Strategic Plan (NICTSP) 2011 – 2014: Towards i-Mauritius has called for a paradigm shift in our e-Government Strategy that advocates placing citizens at the centre of public service delivery.

The purpose of this assignment is to carry out an assessment of e-Government needs and adequacy of existing infrastructures, and prepare an e-Government strategy. This report will take stock of gaps between needs and availability of services and make appropriate recommendations for a more effective, secured and efficient delivery of Government services to citizens and businesses.

## 1.2 Vision

The vision of MICT is *“to make Mauritius a Cyber Island and the ICT leader in the Region”*. In line with this vision it is aimed to provide Government services available round-the-clock to better serve the citizens in the digital age.

### 1.3 Objectives

The prime objective of the e-Government strategy is to formulate policies, which would aim at improving effectiveness and efficiency of Ministries and Departments, with emphasis on improving productivity, quality and service delivery. The strategy should be in line with the vision, mission and e-Government objectives of the MICT.

Moreover, the concept of e-Government, being more of a “*government transformation programme*”, will be integrated in the fabric of the e-Government Strategy 2013-2017 to meet some of the national goals and objectives.

### 1.4 Benefits of the e-Government Strategy 2013-2017

The benefits of the implementation of the e-Government initiatives contained in the e-Government Strategy 2013-2017 are numerous, namely:

- Improvement in the quality of life of our citizens;
- Increased convenience for citizens through 24x7 accessibility to prioritised services;
- Reduction in the provision of counter services;
- Increased public participation in Government processes and in civic engagements at all levels;
- Increased access to public information and Government data;
- Embrace technology to strengthen the public services and improve the efficiency of Government; and
- Simplified procedures, in line with business facilitation, to reduce the turnaround time and increase the convenience of businesses.

## 1.5 E-Government Strategies around the world

Countries are elaborating e-Government Strategies so as to reap the benefits associated with e-Government initiatives. Some e-Government Strategies around the World:

| Country   | e-Government Strategy   |
|-----------|---|
| UK        | <p>The <i>Government ICT Strategy (March 2011)</i> describes how the government ICT landscape would change over the current spending review period and includes 30 actions which form the foundation activities for achieving its core objectives of:</p> <ul style="list-style-type: none"> <li>- Reducing waste and project failure, and stimulating economic growth;</li> <li>- Creating a common ICT infrastructure;</li> <li>- Using ICT to enable and deliver change; and</li> <li>- Strengthening governance.</li> </ul> |
| USA       | <p>Digital Government: Building A 21st Century Platform To Better Serve The American People, May 2012</p>   |
| Ireland   | <p>The e-Government Strategy of Ireland (<i>eGovernment 2012 – 2015, Supporting Public Service Reform</i>) places the user at the centre of e-Government policy and introduces a new approach which aims to transform the way citizens and businesses engage with the State, and reduce the costs of public service delivery and its uptake.</p>  |
| Singapore | <p>The goal of the <i>e-Government Masterplan 2011 – 2015 (eGov2015)</i> of Singapore is to facilitate more co-creation and interaction between the Government, the people and the private sector to bring about greater value creation for Singapore and its people.</p>   |
| Botswana  | <p>The <i>National e-Government Strategy 2011-2016</i> of Botswana outlines five major programmes and approximately twenty five interrelated projects that would, collectively, move all appropriate Government services online, significantly improve public sector service delivery, and accelerate the uptake and usage of Information and Communications Technology (ICT) across all segments of society</p>  |

## 1.6 e-Government Development Index

According to the UN e-Government Survey 2012, the e-Government Development Index (EGDI) is a weighted average of three normalized scores on the most important dimensions of e-government, namely:

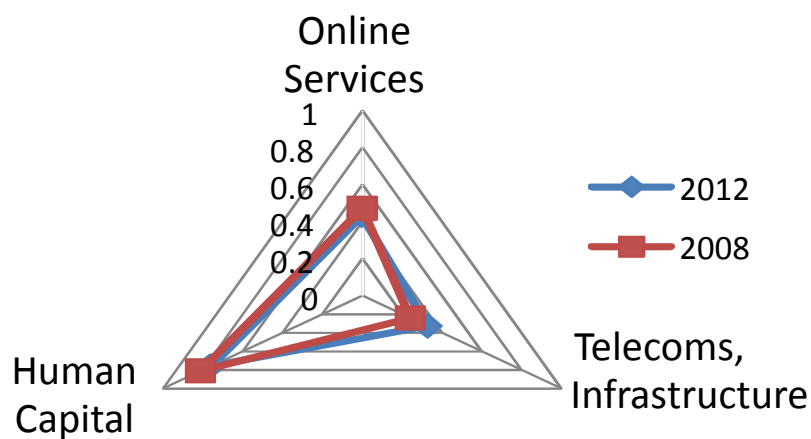
- scope and quality of online services;
- development status of telecommunication infrastructure; and
- inherent human capital.

$$\text{EGDI} = (1/3 * \text{onlineserviceindex}) + (1/3 * \text{telecommunicationindex}) + (1/3 * \text{humancapitalindex})$$

EGDI of Mauritius in 2012 is:

$$0.5066 = 1/3 * (0.4314) + 1/3 * (0.3296) + 1/3 * (0.7588)$$

In 2012, Mauritius ranked 93 with an EGDI of 0.5066 as shown in Figure 1-1.



**Figure 1-1: EGDI of Mauritius**



## 1.7 Scope of the Assignment

The scope of the e-Government strategy consists of:

- Developing a methodology for undertaking needs assessment for e-Government services which would identify criteria for selection of e-Government services to be implemented as a matter of priority;
- Assessing and prioritizing demand for G2C and G2B e-Government Services: An e-Government needs survey to be conducted to identify needs for e-Government services and information from different groups (citizens, businesses and Government);
- Assessing and prioritizing demand for G2G services. An e-Government needs survey to be conducted that would identify Government to Government (G2G) services necessary to ensure efficient service delivery across the Government;
- Assessing and prioritizing business process efficiency for high demand e-services; identify the duplication of business processes across, and within relevant Departments, and its effects on the costs to Government and the quality of service delivery; and
- Preparation of a four year strategic plan integrating findings, recommendations, implementation plan and budgetary requirements for projects identified.

## 2 E-Government

This chapter addresses the subject of e-Government, its applications, dimensions as well as benefits.

### 2.1 What is e-Government?



Electronic Government or “e-Government” is defined as the use of information and communication technologies in Government to provide public services, to improve managerial effectiveness and to promote democratic values; as well as a regulatory framework that facilitates information intensive initiatives and fosters the Knowledge Society (International Telecommunication

Union, 2008). Often, the introduction of e-Government services goes along with a change towards a more customer friendly culture. Thus Governments use ICT for the exchange of information with citizens and businesses on topics such as tax compliance, public utility services, as well as voting registration.

Key Principles for e-Government are as follows:

- Needs of citizens and businesses are at the centre of e-Government.
- Public services delivered through the most appropriate channels.
- Reduction of administrative burden to citizens and businesses.
- Projects should reflect business process improvements, demonstrable efficiency, effectiveness and value for money.
- The online channel to be the most attractive option for transacting with Government.

### 2.2 Applications and e-Services

e-Government is often associated with Government web portals because most Governments, national or local, have created web sites and umbrella portals, operating as gateways to information and services. Some Governments have moved forward by introducing personalized e-Government services that go beyond the provision of general information to allow interaction with citizens / businesses.

The introduction of e-Government applications has been beneficial to Governments and also provides for a valuable development tool. By introducing e-Government services, Governments can dramatically reduce transaction costs and improve internal planning mechanisms. Moreover, the introduction of e-Government and the integration of services usually require Governments to streamline their administrative processes. Streamlining improves efficiency, reduces costs and generates savings, lowering the cost of Government services. In some cases, generated revenues may be used to reduce or abolish service fees, or can be reinvested into more sophisticated e-Government applications and services (International Telecommunication Union, 2009).

## 2.3 Category of e-Services

E-Government services are categorized according to targeted audiences and their respective needs. The usual categories are:

- 1) e-Government services to citizens (G2C);
- 2) e-Government services to businesses (G2B); and
- 3) Interagency e-Government services (G2G).

Each of these categories varies on the type of needs they respond to and the e-Government services used to satisfy them.

### 2.3.1 e-Government services to citizens - Empowering Citizens

G2C services refer to provision of bundled services to provide value to different groups of citizens who find themselves in life-events cycle. Examples include persons who are looking for jobs, newly married couples or people receiving social benefits. G2C services allow citizens to keep abreast on Government information, ask questions, request services, complete transactions, submit comments, report problems, request emergency assistance and access data.

### 2.3.2 e-Government services to business - Collaborating with Business

G2B services cover service interactions between Government and the private sector. Typical areas include customs, tax and revenues, procurement and company registration. G2B services might be easier to implement than G2C services because the private sector tends to have access to a wider range of advanced technological infrastructure than the average citizen.

### 2.3.3 Inter-agency e-Government services - Networked Government

ICT can be used as an enabler for a connected Government. G2G services are those that a public institution offers to other public institutions. A good example is the Treasury Department, which has regular process interactions with other departments. Some of these processes, such as the compilation of financial reports with respect to expenditure and or revenues, are better supported by or executed through online systems. These processes also include less interactive ones, such as the provision of information concerning human resource matters regarding civil servants, union activities or other topics of common interest, which could be shared through G2G services.

## 2.4 Benefits

e-Government brings about better delivery of Government services to citizens and contribute to their empowerment (G2C), improved interactions with business (G2B), efficient relations with other Government agencies (G2G), enhanced performance of employees (G2E) (Lanvin, 2008). The resulting benefit of e-Government success is numerous. For example higher productivity, improved efficiency and transparency, citizen satisfaction, economic growth, cost saving, enhanced access to information, creation of Knowledge Society, better access to Government services, eradication of poverty and many more as shown in Figure 2-1.



**Figure 2-1: Benefits of e-Government**

### 3 Common e-Government trends Worldwide

The models and trends affecting e-Government around the world are examined in this chapter. The elements gathered in this section will serve as basis for charting out appropriate recommendations for the e-Government Strategy of Mauritius.

#### 3.1 Push and Pull model

Molnár (2007) calls for a paradigm shift in how Governments devise their e-Government initiatives from a model where Government bodies are at the centre of development programmes to a model where citizens are placed at the centre of efforts for development and that services are shaped according to their expectations, needs and opportunities. In this user-centric approach, user-friendly applications and services must be implemented in a model where there is more “push” rather than “pull”. In the Push model, the Government anticipates citizen needs and provides them information before they make the request.

SMS-based e-Government (Susanto and Goodwin, 2012) is one such push technology, which allows for providing public services to citizens in a cheaper, easier and faster manner such as the following:

- The Australian Government reminds citizens via SMS about tax refunds, sends Emergency situation warnings and sends notifications of public transportation timetable changes via SMS.
- Malaysia installed 313 automated measuring devices in critical areas to warn of flooding. These devices send a message to the central monitoring station which then warns citizens in crisis areas by SMS (Chete et al., 2012).

## 3.2 Improving Service Delivery

Countries have moved towards rethinking not just their Internet-based service delivery, but their service delivery in general irrespective of the delivery channel in order to meet the needs of its people. The goal is to provide services that fit each individual user, whether the user is a citizen or a business (OECD, 2009).

Some approaches for improving service delivery witnessed in other countries are introduced below.

### 3.2.1 One-Stop Shop

In the United States, the Federal Government is using the US Postal Service to help citizens avail of Government services. Agencies that require front office personal contact could utilize the post offices for applications, status changes, and in-person witness certifications. The postal service is seen as a one-stop, shared, multi-channel service platform to help all levels of Government address accessibility, ease of use, and security gaps (U.S. Postal Service Office of Inspector General, 2013).

Moreover, the postal service could also support the successful implementation of e-Government services via its network of post offices.

### 3.2.2 No wrong door approach

Services must be accessible from multiple points of entry and be perceived as welcoming, caring and acceptable by the citizen. For example in the health care system, a no wrong door approach provides people with, or links them to, appropriate service regardless of where they enter the health system. It is based on the premise that every door in the health care system should be the right door. The experience for patients should be one of being welcomed, feeling hopeful, and being heard (Queensland Government, 2008).

### 3.2.3 Contact centre

A contact centre can transform a citizen's experience of interacting with the Government by offering a simple and clear point of access for information. The contact centre is not only a means to address the concerns of citizens but also a platform where the public can contribute to achieving quality public service.

As such, in the Philippines, six Government agencies have collaborated to launch a Government Call Centre, which aims to serve as a place where citizens can gain access to information and voice their queries, complaints, concerns and recommendations on various public services.

Jordan has established, as part of its e-Government programme, a National Contact Centre for Government Services as a focal contact centre to provide support to citizens, businesses and Government institutions through various channels. The centre provides appropriate responses to all inquiries, complaints, and suggestions raised by the public and users of e-Government transactions (Government of Jordan, 2012).

### 3.2.4 Single window

The United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) Recommendation Number 33 addresses the issue of trade facilitation by recommending to Governments and traders the establishment of a "Single Window", whereby trade-related information and/or documents need only be submitted once at a single entry point to fulfil all import, export, and transit-related regulatory requirements (UN/CEFACT, 2005).

The recommendation also suggests that participating authorities and agencies should co-ordinate their respective controls through the Single Window and should consider providing facilities for payment of relevant duties, taxes and fees. The recommendation is complemented by a detailed set of guidelines designed to assist countries in implementation.

For example, PortNet is the single window for Finland. PortNet is a true one-stop-shop for those involved in maritime trade and it caters to the varying needs of private operators and local authorities by maintaining ship time tables, cargo information, statistical data on ships that have visited Finnish ports, service orders information, fairway payment data and other various drop-down tables and statistics. Since its launch PortNet has drastically

reduced the need to fill and process paper forms. Today over 99% of the overall maritime traffic from and to Finland is now been processed electronically through the single window (Bäckström, 2006).

### 3.3 E-Payment and m-Payment

For some time now, online banking has been very popular in many countries. People can pay bills either paying by credit card or debiting their personal or business checking accounts. They can also look up balances and move funds from one account to another. For Governments, mobile device can be a potential means for paying fines, taxes, fees, and other service charges.

M-PESA implemented in Kenya is one such successful project where 15 million people are using mobile phones for paying electricity bills and school fees (The Economist, 2013).

### 3.4 M-Government

M-Government is a subset of e-Government and is based on the use of mobile technology in support of public services and information delivery. M-Government can help make public information and Government services available "anytime, anywhere" (Lallana, 2008).

Services offered via cellular phones have shown very promising results over the last few years in regions with high mobile teledensity. Mobile technology requires less investment in infrastructure and its cost models, including cheap prepaid cards, have made telephony and data transfer via SMS affordable to people with lower income (Bertolini et al., 2006).



Some examples of mobile applications used by Governments:

| Application           | M-Government Applications   |
|-----------------------|---|
| Law enforcement       | Police officers are as likely to use a mobile device connected to the Internet to spot a suspicious vehicle they can directly search databases that provide information on who owns the vehicle, if it has been reported stolen or has been reported at a crime scene, and if the owner is wanted by police or has jumped bail. |
| Health and safety     | Inspectors can file their reports from the field in real time using mobile terminals, eliminating paper forms and the need to re-enter the data collected when they get back to the office.   |
| Voting                | Citizens can verify their voting information using SMS.   |
| Notification Services | The California state Government has established a Web page where citizens can register to receive notification services on their mobile devices for alerts, lottery results, traffic updates and articles from the Government's press office.   |
| Citizen Activism      | M-Government is not only about efficiency but it also allows for citizen activism. In the Philippines, citizens are able to help enforce anti-pollution laws by reporting smoke-belching public buses and other vehicles via SMS.   |
| Drugs                 | SMS is also being used to get citizens involved in the fight against crime and illegal drugs.   |
| Disaster Alerting     | An SMS broadcasting system used in Mexico City sends alert messages to citizens in the district regarding meteorological and high-rain risks, potential disasters, and emergency locations, as well as contact numbers.   |

### 3.5 Awareness and Incentives

e-Government strategies of different countries foresee a mix of measures to increase the use of public services online. Many countries are exploring new avenues and multiple channels for delivering online services, e.g. post offices in the United Kingdom and public libraries in the United States.

Furthermore, the use of online services can be enhanced by the provision of incentives for citizens and businesses to embrace more e-Government services and the development of a marketing strategy to raise awareness of services and information digitally provided by Governments (OECD, 2011b).

Examples of incentives being used to increase take up of e-Services include:

- Extension of closing date to fill and submit tax returns;
- Reduction or refund of processing fees; and
- Award of prizes through lotteries.

### 3.6 E-Participation

E-Participation is the usage of ICT, regulated by law, in order to enhance and deepen the participation of citizens in Government's decision-making process (Medimorec et al., 2011).

The European Union has created e-Participation channels to foster transparency and legitimacy of European policy making (European Union, 2009).

***“It has been said, and with good reason, that while society has entered the digital era politics has remained analog. If democratic institutions used the new communication technologies as instruments of dialogue, and not for mere propaganda, they would breathe fresh air into their operations. And that would more effectively bring them in tune with all parts of society.”***

- Luiz Inácio Lula da Silva, Former President of Brazil (2003 – 2011), *New York Times* (2013).

### 3.7 Social Media

Social Media offers new opportunities for better communication and knowledge transfer among Government officers, policy makers, service delivery units and the public at large (Government of India, 2012). Across the world, Government agencies from countries such as the United States of America, Australia and India, are using social media platforms to interact with their stakeholders.

### 3.8 Data Sharing

Many countries are implementing data sharing initiatives and interoperability frameworks for an effective and efficient networked Government. Some examples are highlighted below:

| Country   | Data Sharing Initiatives and Interoperability Frameworks  |
|-----------|---|
| India     | Government of India has introduced a National Data Sharing and Accessibility Policy (NDSAP) in 2012 to promote data sharing and facilitate access to Government of India owned data for national planning and development   |
| Singapore | Government of Singapore has implemented a Government Web Services Exchange (GWS-X) which is a central platform that enables the real time sharing of information and services among Government agencies via web services. It also opens up the possibility of similar collaboration with the private sector in a secured environment. |
| Hong Kong | To enable effective and efficient systems integration and information flow in the provision of cross-departmental e-Government services, the Hong Kong Government has specified the adoption of open standards and generally available technology to assure application and data interoperability.                                    |

### 3.9 Open Government Data (OGD)

The 21st century is witnessing the emergence of the Knowledge Society (KS) (Baguant et al., 2012) whereby knowledge is created and shared and used for the prosperity and well-being of its people (UNESCO, 2005). Knowledge is regarded as a source of competitive advantage in the information age (European Commission, 2013).

Public sector bodies such as Ministries and Departments, Statistical Offices, National Archives, Registrars, Courts, among others produce and hold a wide array of content in the form of data and documents, also referred to as public sector information (PSI).

PSI, ranging from demographic, economic and meteorological data to art works, historical documents and books, is an increasingly valuable resource for the production of innovative value-added goods and services. PSI is also a major source of educational and cultural knowledge for the wider

population. It is therefore economically important that PSI be widely diffused and reused (European Commission, 2013).

When PSI is made available for everyone to freely access, reuse and redistribute for any purpose subject to personal privacy and security considerations, the data is considered as Open Government Data (World Bank, 2012).



Open Government Data plays a major role in helping Governments aiming for good governance by laying the foundations for a new relationship between Government and citizens where all stakeholders work together for the common good and well-being of society [UN].

Opening up Government data promotes:

- **Transparency** – citizens being able to freely access information about what their Government is doing
- **Public Service Improvement** – giving citizens the raw material to engage and contribute to making public services better as well as improve the quality of decision-making
- **Innovation** – public data, and their re-use, are key resources for social innovation and economic growth where businesses and individuals can develop new tools and value-added services in order to work with, analyse, and make sense of the data.
- **Efficiency** – Governments can come up with smarter and more efficient public services and applications by allowing information to be

more easily reused within Government and enabling citizens to help improve data quality.

There is growing evidence that OGD is saving Government money and stimulating economic growth.

According to a recent study conducted for the European Commission, economic impacts from PSI applications and use across the whole EU are estimated to be of the order of EUR 140 billion annually (Vickery, 2011).

The benefits as listed clearly explain why OGD is gathering such a huge momentum worldwide. The table below presents some of the Open Data initiatives in countries of the 5 continents.

| <b>Continent</b> | <b>Examples of Open Data Initiatives</b>  |
|------------------|---|
| <b>Europe</b>    | Many countries in Europe have undertaken initiatives to open as much data to the public as possible. For instance, UK has the most datasets (approximately 9000) opened than any other European country in its data.gov.uk portal. Moreover, the European Union Open Data Portal is aiming to build a larger data repository by collaborating with institutions and other bodies of the European Union. |
| <b>Americas</b>  | USA tops the list in the Open Data Index 2012 published by the World Wide Web Foundation. Moreover, in its Digital Government Strategy of 2012, Barack Obama's administration has emphasised on the importance of developing information-centric systems whereby Open Data, Content, and Web APIs will be the new defaults.   |
| <b>Asia</b>      | Singapore leads among the Asian countries and comes 3 <sup>rd</sup> in the Open Data Index 2012. Data.gov.sg is the Open Government Data portal which provides over 5000 datasets from 50 Government ministries and agencies and also offers a listing of applications developed (mobile and windows apps) using Government data, as well as a resource page for developers.                            |
| <b>Africa</b>    | In 2011, Kenya was the first to launch its Open Government Data portal in Africa with hundreds of searchable datasets and views of public Government data accessible to the people. Similar initiatives are being undertaken by South Africa, Ghana, and Tunisia among others.  |
| <b>Australia</b> | Australia and New Zealand are among the top 10 countries featuring in the Open Data Index 2012.   |

For those countries which are envisaging to opening up their data, the United Nations and the World Bank (World Bank, 2012) have developed Open Government Data Toolkits specifically designed to provide Governments with a basic set of resources for initiating and developing an open data programme. Both toolkits aim to address a number of issues such as the kind of data which should be opened, technical and legal requirements as well as potential benefits and costs of open data initiatives among others.

### 3.10 Government Cloud

Cloud computing can be understood as the storing, processing and use of data on remotely located computers accessed over the Internet. This means that users can command almost unlimited computing power on demand, that they do not have to make major capital investments to fulfil their needs and that they can get their data from anywhere with an Internet connection.

Many countries are implementing Government Cloud (G-cloud) as a solution to address low asset utilization, a fragmented demand for resources, duplicative systems and long procurement lead times. In the United States, as part of the new Cloud First Initiative, Government agencies are required to consider cloud options before making new IT investments (Kundra, 2011).

UK aims at 50% of Central Government Departments new ICT spending to be transitioned to public cloud computing services by December 2015 (UK Cabinet Office, 2011).

### 3.11 Smart Identity Cards and Digital Certificates

Smart Identity cards can provide identification, authentication, data storage and application processing. A smart ID card allows citizens authenticate themselves to different applications through the use of fingerprints.

Furthermore, the use of digital certificates is being widely adopted to reinforce the trust of online business transactions with Government.

### 3.12 Green ICT

Improving environmental performance, tackling global warming and improving resource management are high on the list of global challenges that need to be addressed urgently. The ICT industry needs to further improve its environmental performance. ICT applications have very large potential to enhance environmental performance across the economy and society.

OECD countries like Denmark, Japan, United Kingdom, Norway and the United States have established policies and programmes on ICT and the environment.

Moreover, many organisations are adopting the EU Code of Conduct on Data Centres to minimize energy consumption of data centres.

### 3.13 Legal and Regulatory Framework

OECD country experiences (Ubaldi 2009) and studies (Bellantoni 2009) show that a proper legal and regulatory framework that enables rather than impedes e-Government is critical to the success of e-Government initiatives.

Bellantoni (2009) also advocates that:

- Archaic laws, old regulatory regimes, and overlapping and conflicting responsibilities complicate the implementation of e-Government projects.
- The development of an e-friendly regulatory framework should be seen as a priority.
- The legal and regulatory framework for e-Government should preferably be technology-independent because technology changes rapidly and may make the laws obsolete.
- A Whole-of-Government approach for the development of a cohesive legislative framework for e-Government (e.g. Denmark and Norway) or passing of laws supporting e-Government goals on an as-needed basis (e.g. The Netherlands, Hungary and Portugal) may be adopted.

Additionally, OECD (Bellantoni, 2009) recommends that regulatory framework conducive for successful implementation of e-Government initiatives should primarily include the following areas:

- (i) equitable and universal access to public services;
- (ii) e-procurement legislation;
- (iii) identity and digital signatures;
- (iv) online payments;
- (v) ownership of information and data; and
- (vi) ICT security and privacy.

### 3.14 Information Security

e-Government systems are exposed to security vulnerabilities as well as unintentional threats such as environmental hazards including cyclones, floods, tsunamis, power failures, and fires. It is imperative to provide a secure

ICT infrastructure and make investments to address cyber security for e-Government systems. ITU thus recommends that Governments should develop an e-Government Security Strategy and a Disaster Recovery Plan (International Telecommunication Union, 2008).

In line with the above, the Government ICT Strategy of UK has recommended the development of a risk management regime for information and cyber-security risks for its major ICT projects, common infrastructure components and services.

### 3.15 Business Continuity Management (BCM)

Business Continuity Management is a management process that identifies potential impacts that threaten an organisation and provides a framework for building resilience and the capability for an effective response which safeguards the interests of its key stake holders, reputation, brand and value creating activities.

BCM is therefore inclusive of disaster recovery, business recovery, crisis management, incident management, emergency management and contingency planning.

BCM must thus be regarded as an integral part of an organisation's normal on-going management processes. To achieve this, top-level buy-in is vital as it disseminates the importance of BCM throughout the organisation.

The UK Government has developed a standards-based BCM toolkit to help agencies to implement BCM through a step-by-step guide (UK Cabinet Office, 2013)

### 3.16 Open Source

Governments are adopting Open Source Software (OSS) as a means of reducing licensing costs and of promoting indigenous technological development by having access to the source code of these products.

As per Camara and Fonseca (2007), the UK recommends that developing countries and their donor partners should review policies for procurement of computer software, to ensure that options for using low-cost and/or open-source software products are properly considered and their costs and benefits carefully evaluated. Moreover, reasons for adopting OSS in developing countries include:



- Avoiding being hostage to proprietary software;
- Advancing knowledge more quickly; and
- Helping to set up an information economy.

Additionally, the US Government has re-launched its data portal (Data.gov) using an Open Source data management system called Comprehensive Knowledge Archive Network (CKAN).

### 3.17 Standards

Standardisation in e-Government covers a number of areas as outlined in the table below:

| Area of Standardisation                                     | Examples   |
|---|--|
| <b>Software interoperability, data and document formats</b> | UK, Singapore, Hong Kong are countries which have defined proper interoperability frameworks with the aim to make it easier for data publishers to release data in standardised, open formats and thus improve public service information and transactions across Government bodies.   |
| <b>Procurement of IT Systems</b>                            | Japan, Sweden and the European Commission among others are applying uniformed rules of Governmental procurement which emphasises on how to make best use of ICT standards in tender specifications to assist Government bodies in purchasing ICT goods and services that is based on standards. This allows for: <ul style="list-style-type: none"> <li>- Consolidation of transparency</li> <li>- Promotion of cost reductions by encouraging more competition, etc.</li> <li>- Open choices in technological evolution and</li> <li>- Reduction of the risk of lock-in.</li> </ul> |
| <b>Open Standards and Open Source Software</b>              | The Netherlands have a programme which promotes the use of Open Standards and Open Source Software in the Government in view of: <ul style="list-style-type: none"> <li>- Reducing dependence on external software suppliers and increasing the range of choices;</li> <li>- Combating monopolies in the software</li> </ul>   |

|  |  |
|--|--|
|  | <p>market in order to prevent abuse of dominant market positions;</p> <ul style="list-style-type: none"> <li>- Enhancing the quality of Government information systems in terms of accessibility of information, transparency of action, security and future-proofness;</li> <li>- Reducing the cost of software implementations;</li> <li>- Improving exchange of data between Government domains.</li> </ul>   |
| <p><b>User Interface and Accessibility</b></p> | <p>Countries like Singapore and Switzerland have devised user interface guidelines to be followed during the implementation of e-Government projects so as to:</p> <ul style="list-style-type: none"> <li>- Make Government electronic services available to all including people living with disabilities</li> <li>- Ensure harmonisation of user screens and interfaces so as to provide users with smooth and user-friendly experience dealing with the Government online.</li> </ul> |

### 3.18 Training

According to Heeks (2008), one of the main ideas to avoid failure in e-Government projects is to address the whole range of competencies needed. Competencies required for an e-Government project cover three dimensions - skills, knowledge and attitudes. All three must be addressed in planning e-Government projects.

Furthermore, the International Telecommunication Union (2008) emphasizes that the success of e-Government projects depends on:

- Creation of a culture where lessons learned from one project are shared with a new e-Government project;
- Development of technical skills of officers;
- ICT staff with technical backgrounds to have managerial knowledge so they would understand the context of the system and business process they are supporting;
- Cross-trained non-technical employees to understand e-Government with an intensive management training programme for employees, including the subjects of managing organizational change, customer

service practices, leadership, organizational culture, communication skills, and creating excellent workplace quality.

### 3.19 Effective e-Government Structure

Governments need to create an effective national institutional framework to lead the e-Government agenda and fulfil the key functions of strategy and policy making, governance and coordination, and facilitation of implementation.

Institutions play a decisive role in the formulation and implementation of e-Government strategies and programs. However, they are often treated as an afterthought. Some countries have ignored the need to create umbrella agencies to coordinate highly interdependent e-Government activities.

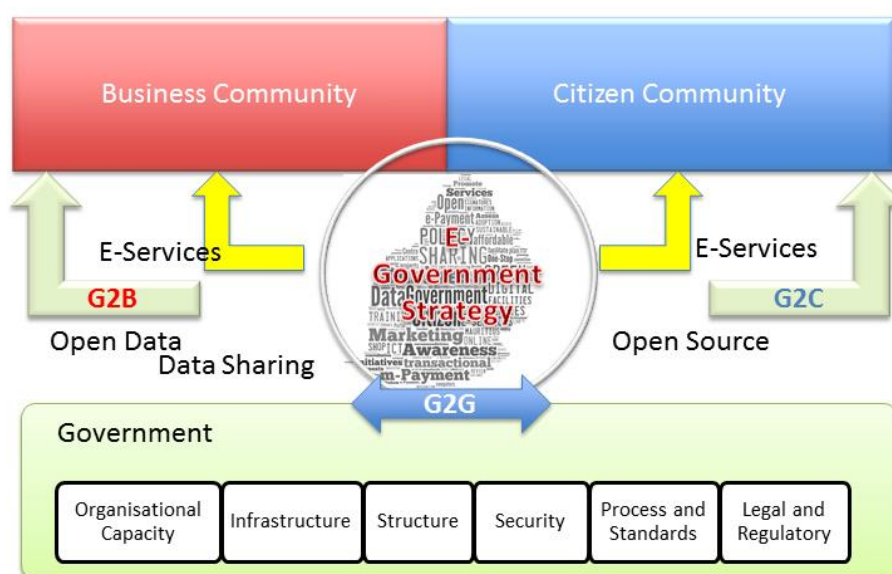
Thus, institutional changes and innovations are needed to manage the cross-cutting nature of e-Government activities. Strong leadership, governance, and organization make it possible for economic and social systems to function effectively during periods of change and transformation. They provide the strategies, implementation methods, coordination tools, and monitoring and evaluation mechanisms that enable innovative efforts to be undertaken and scaled-up programmes to be successful. Specialized institutions and new competencies are required to create, acquire, adapt, and diffuse technologies and to synchronize them with associated policy reforms, intangible investments, managerial innovations, and organizational changes (Hanna et al., 2009).

## 4 Overall Approach and Methodology

Following the discussions in the previous chapter regarding e-Government trends, this section will examine the overall approach, framework, methodology and data collection instrument. The methodology of the e-Government strategy is outlined below.

### 4.1 E-Government Framework for Mauritius

Based on the research and worldwide trends on e-Government, an e-Government framework for Mauritius is proposed as per figure below.



**Figure 4-1: e-Government Framework for Mauritius**

The framework highlights the importance of going across the three identified dimensions of e-Government, i.e. G2C, G2B and G2G. The framework also takes into consideration internal and external elements that constitute building blocks for a successful e-Government Strategy.

This framework serves as a lens through which results of e-Government Needs Survey, existing gaps and issues pertaining to e-Government have been analysed and recommendations charted out.

## 4.2 Questionnaires

An e-Government Needs Survey was carried out with the citizens, Government agencies and businesses.

Questionnaires, workshop and interviews were used for data collection and elicitation of stakeholders' needs.

Three types of questionnaires were prepared for G2C, G2G and G2B. The questions were adapted from, *inter alia*:

- (i) The Measurement and Evaluation Tool for E-Government Readiness developed by United Nations Public Administration Network;
- (ii) Web Based Survey on Electronic Public Services whereby 20 basic e-Services (G2C and G2B) had been identified for implementation by the European Commission (2006); and
- (iii) E-Government Survey 2012 by the United Nations.

A pilot study was carried out to ensure that respondents had no problems in understanding or answering questions.

For G2C, the e-Government Needs Survey was carried out in collaboration with Statistics Mauritius with a population of 880 households spread around the island.

## 4.3 Online Survey

Moreover, an online survey was conducted for G2C, G2G, and G2B respectively. To encourage people to respond to the survey, the following actions were taken:

- (i) Online Surveys were advertised in the press;
- (ii) Government agencies were also informed through mass emailing;
- (iii) Ministry of ICT also issued a circular to Ministries and Departments about the survey; and
- (iv) Small and medium enterprises were invited to participate through mass emailing.

## 4.4 Consultation

Consultations were held with stakeholders through various workshops namely:

- (i) Microsoft e-Government Conference (March 2013)

- (ii) Oracle on e-Government in collaboration with State Informatics Limited (June 2013)
- (iii) Samsung on Smart Government (June 2013)
- (iv) Mauritius Export Association (MEXA) on New E-Government Services (June 2013)

Moreover, the business community was also consulted through interview sessions with the Mauritius Chamber of Commerce and Industry (MCCI) as well as the Small and Medium Enterprises Development Authority (SMEDA).

Comments, which were also received from stakeholders through email (egovstrategy@mail.gov.mu), were considered for the e-Government Strategy.

## 4.5 Analysis and Findings

After data collection from the needs survey, quantitative analysis were performed.

Recommendations were then drawn based on:

- Findings from the needs survey;
- Research carried out on e-Government trends worldwide;
- Current state of e-Government in Mauritius. An e-readiness assessment of e-Government in Mauritius using the template of the Commonwealth Secretariat (version June 2013) has been carried out; and
- Inputs received from various stakeholders through consultations and workshops.

A validation workshop was carried out with stakeholders prior to finalising the report.

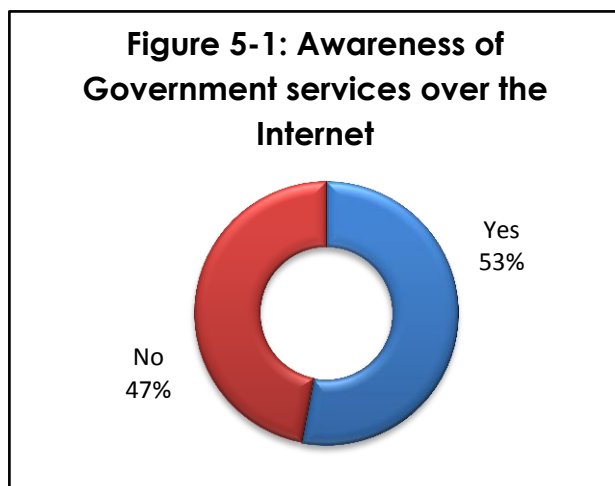
The e-Government Strategy also encompasses an implementation plan and related budgetary requirements.

## 5 Data Analysis and Recommendations

This chapter presents the findings and recommendations for the G2C, G2B and G2G dimensions.

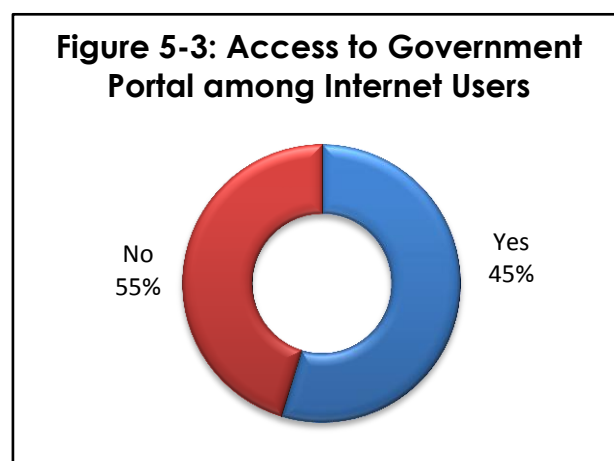
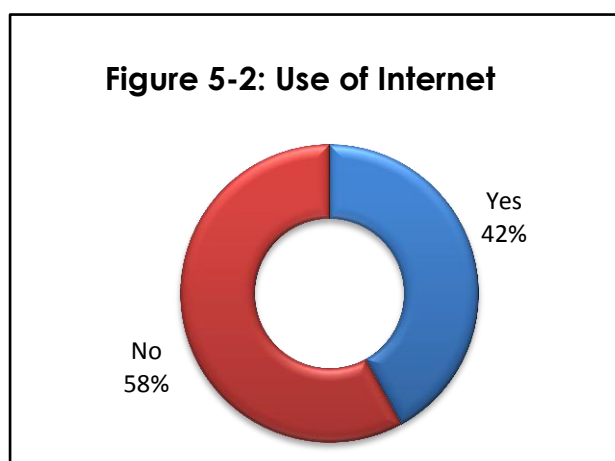
### 5.1 Government-to-Citizen

#### 5.1.1 Awareness of e-Services

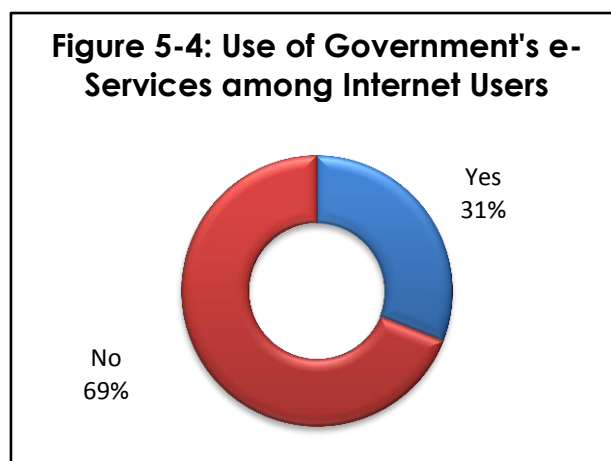


As per Figure 5-1, 47% of respondents of the e-Government needs survey are not aware that Government offers its services over the Internet.

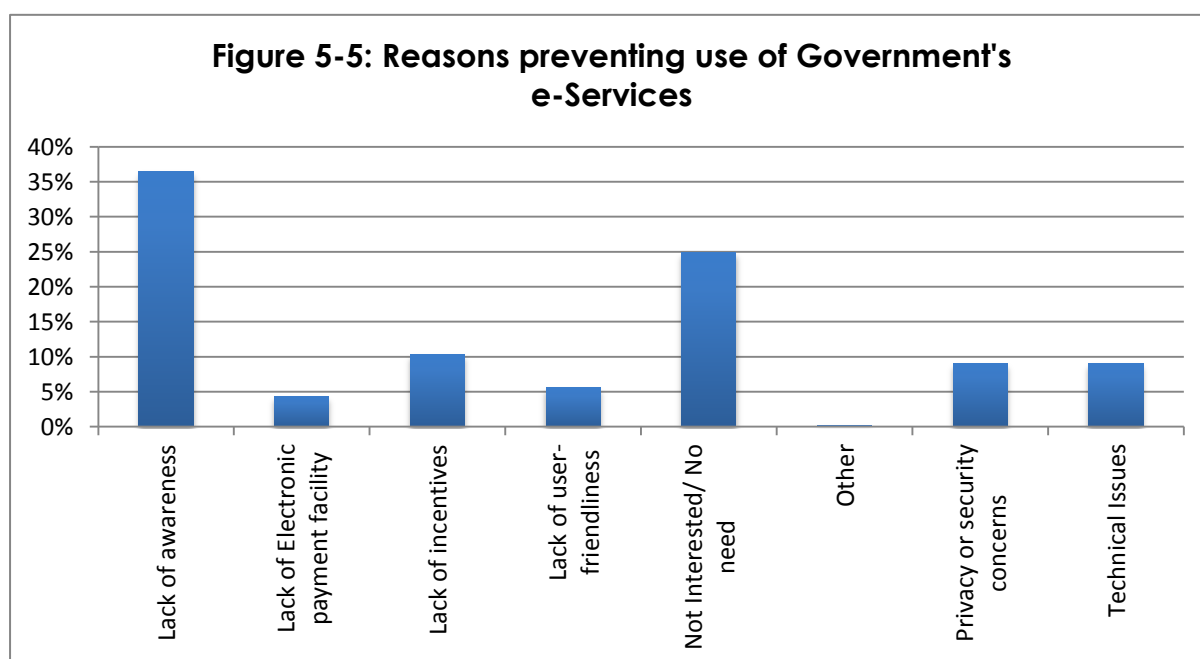
Moreover, out of 42% of people who use the Internet (Figure 5-2), 55% do not access the Government portal (Figure 5-3) and 69% do not use e-Services (Figure 5-4).



From Figure 5-2, the low usage of Internet is a factor in calculating the e-Government Development Index (EGDI) of Mauritius, which is 0.5066 and ranked 93 in 2012 (as per section 1.6). Stakeholders should engage to provide better Internet facilities so as to increase the telecommunication index (0.3296).



These figures clearly confirm that Government should increase the number of people who use the Government portal and e-Services. The survey also revealed the main reasons, which prevent the use of Government's e-Services *inter-alia*, lack of awareness, no need, etc. (Figure 5-5).



It is therefore recommended to implement measures to raise awareness about and to market the Government portal and e-Services. The following initiatives could be considered for the marketing and awareness campaign for the Government Portal and e-Services:

- Use of TV, radios, billboards, etc.;
- Posters in public places such as post offices, schools, hospitals, airport, social welfare centres and other Government agencies;



- Use of the Cyber Caravan programme as a vehicle through which awareness about e-Government services could be ventilated through appropriate ICT modules; and
- Leveraging on the network of women's associations for awareness, marketing and training for using e-services.

Moreover, Ministries/Department should look at ways and means to provide incentives for the adoption of e-Services and highlight the resulting benefits of using e-Services in terms of time and money, better access to information and Government services (Lanvin, 2008).

#### **G2C Recommendation 1**

**Market and create awareness of Government Portal and e-Services**

#### **G2C Recommendation 2**

**Set up a Help Desk to help citizens facing problems in the use of the Government Portal, e-services and m-services**

### 5.1.2 New e-Services as per citizens' needs

Citizens were requested to rate proposed e-Services in terms of priority. The list of proposed e-Services was adapted from the list of basic e-Services identified via a Web Based Survey on Electronic Public Services by the European Commission (2006).

Based on the findings, a priority list of proposed e-Services is illustrated at Table 5-1.

**Table 5-1: List of Preferred e-Services in order of Priority**

|    |   |
|----|---|
| 1  | Application for driver's license (excluding learner's license)    |
| 2  | Application for Mauritian passport                                |
| 3  | Application for obtaining a copy of birth or marriage certificate |
| 4  | Online publication of examination results                         |
| 5  | Registration of motor vehicles                                    |
| 6  | Application for an appointment at a public hospital               |
| 7  | Application for obtaining a Certificate of Character              |
| 8  | Application for admission to schools/colleges                     |
| 9  | Facility to effect electronic payment for Government services     |
| 10 | Facility to enrol as elector                                      |
| 11 | Application for building permit e.g. Residential                  |
| 12 | Facility to request for transfer of students                      |
| 13 | Facility to make declaration of theft to the police               |

### G2C Recommendation 3

#### Implement new e-Services as per Citizen's needs

##### 5.1.3 Mobile Services

Mobile-based e-Government interaction (m-Government) is a very relevant area to be considered for the e-Government Strategy. Advances in technology have changed the way users access the Internet. Mobile phone penetration in Mauritius has exceeded 100 % as per the latest statistics (National Computer Board, 2012). The Government should therefore adapt its model of service delivery to meet the needs of mobile Internet users by making its services available through the use of a mobile device.

Moreover, in many countries such as Malaysia, Mexico, etc., Governments have implemented SMS broadcasting systems to alert their citizens of risks in times of crisis (flood, emergency locations, disasters, etc.).

Mauritius has piloted for the first time an SMS service to alert citizens of the impending danger associated with the recent cyclone Imelda in April 2013. This initiative has to be consolidated for alerting of natural disasters.

Similarly, Government agencies should provide services to citizens to receive notification on their mobile devices for alerts, lottery results, traffic updates, articles from Government Gazette, vacancies at PSC, weather information, etc. Weather updates on mobile devices will be beneficial to fishermen in receiving updates on weather and fishing locations.

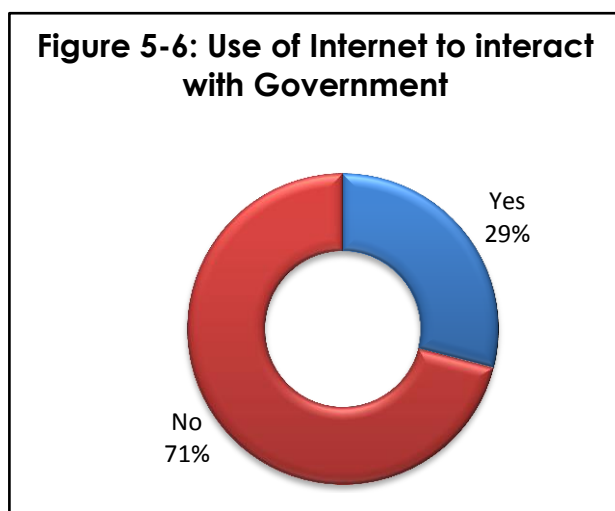
#### G2C Recommendation 4

**Design services that are usable on mobile devices as well as desktop and laptop computers**

#### G2C Recommendation 5

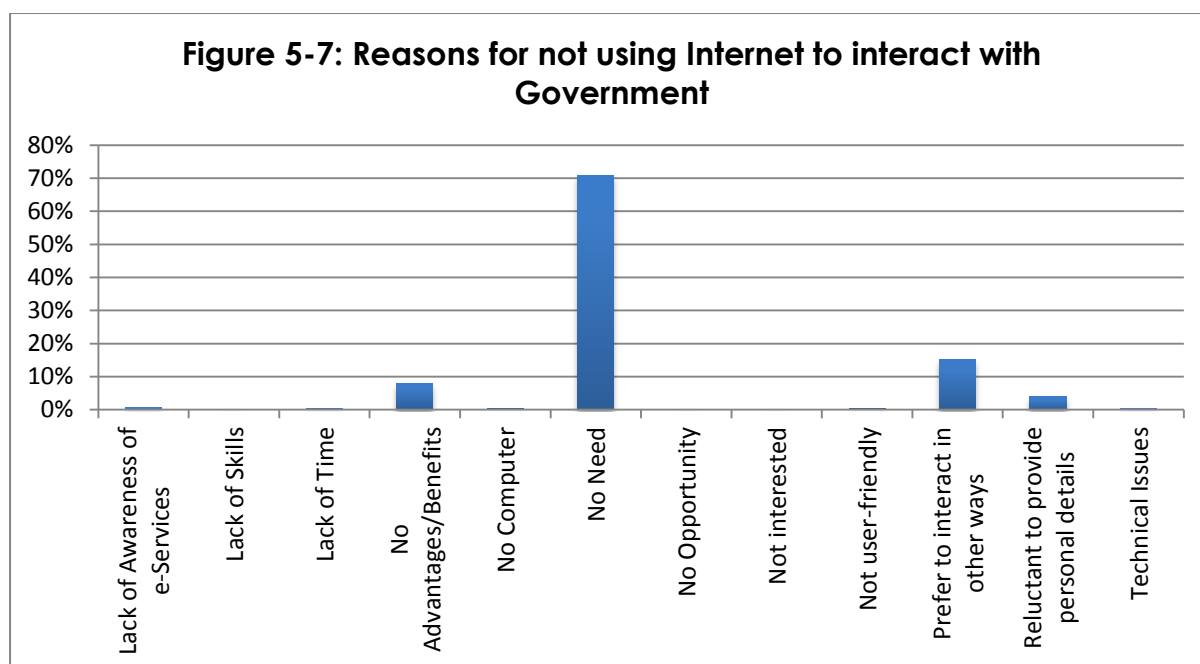
**Implement SMS-based Disaster Alerting System**

### 5.1.4 Service Delivery



As per Figure 5-6 and Figure 5-7, it is observed that citizens prefer to interact with Government in other ways rather than via the Internet. Some services require identity authentication, validation of certificates, and payment among others at the counters. Moreover, as observed at Figure 5-2, more than 50% of respondents do not use the Internet and have to interact with the Government through front-line counters. Additionally, due to security

concerns and trust, citizens are reluctant to provide details over the Internet (Figure 5-7).



It is important that people who have rarely or never been online are not left behind. Alternative ways have to be provided to people who need to access vital services. For improved service delivery and an inclusive society, Government should introduce one stop shops/common counters, call centre facilities, no wrong door policy among others.

Using the example set by the U.S. Postal Service Office of Inspector General (2013), the network of Post Offices in Mauritius could be utilized as a one stop shop/common counters for delivering Government services.

The Government of Bahrain has setup a National toll free contact centre to service its citizens.

#### **G2C Recommendation 6**

**Operate an One-Stop Shop for Government Services using network of Mauritius Post**

#### **G2C Recommendation 7**

**Set up a Government Call Centre to provide information on Government Services**

#### **G2C Recommendation 8**

**Provide e-Services with e-Payment and m-Payment facilities**

#### **G2C Recommendation 9**

**Promote use of online transactions using Digital Signatures**

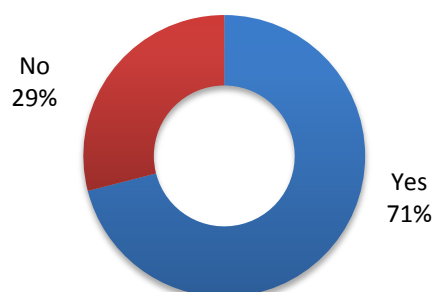
### 5.1.5 E-Participation

The e-Government needs survey also revealed (Figure 5-8) that people using Internet have a presence on social media such as Facebook and Twitter. Government agencies should therefore leverage on social media platforms to interact with public and improve the quality of Government services.

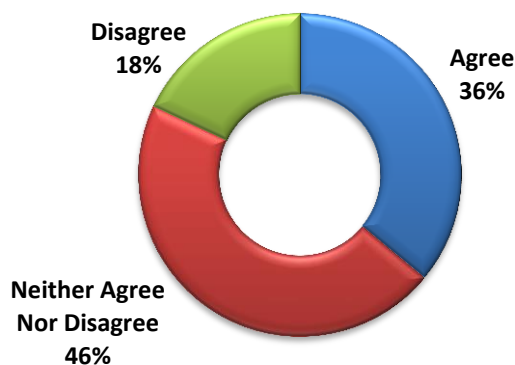
Moreover, as per Figure 5-9 and Figure 5-10, it is observed that a low percentage of respondents agree that Government seeks online feedback from citizens for decision-making. Therefore, Government should have more online consultations with stakeholders on national decisions (draft bills, regulations, etc.).

Additionally, information on decisions taken by Government should be readily available. As such, Regulations, Acts, Government Gazette, etc. should be announced and published on websites.

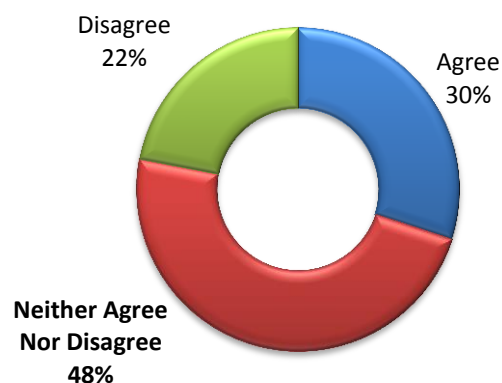
**Figure 5-8: Use of social networking sites such as Facebook & Twitter among Internet users**



**Figure 5-9: Government seeks online feedback from citizens on national decisions**



**Figure 5-10: Government takes online feedback into account in decision-making**



**G2C Recommendation 10**

**Formulate and implement a Social Media Policy**

**G2C Recommendation 11**

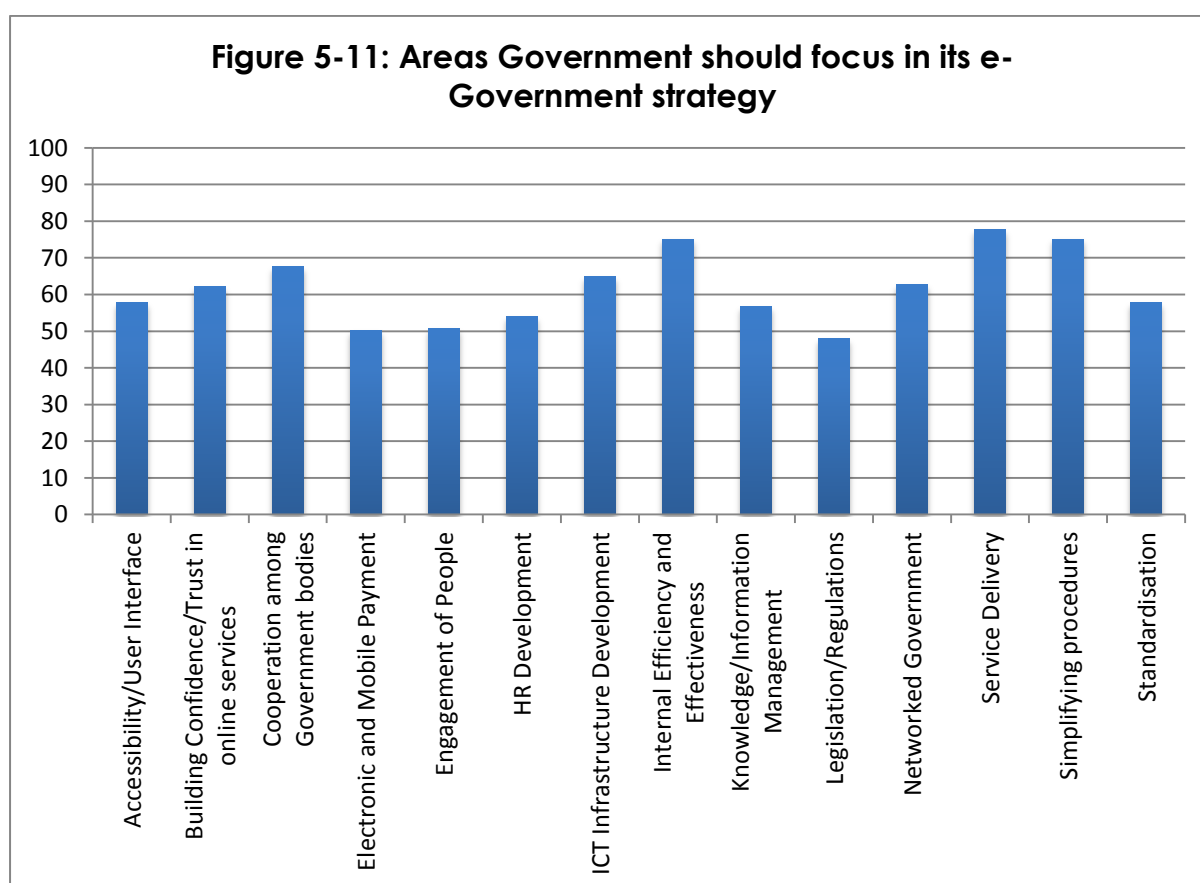
**Promote e-Participation initiatives such as online consultation on draft bills, regulations, etc.**

**G2C Recommendation 12**

**Democratise access to Government information**

## 5.2 Government to Government

### 5.2.1 Effectiveness and Efficiency of Government Services



The above figure shows that Government should mainly focus on:

- Improving its internal effectiveness and efficiency;
- Simplifying its procedures; and
- Service delivery.

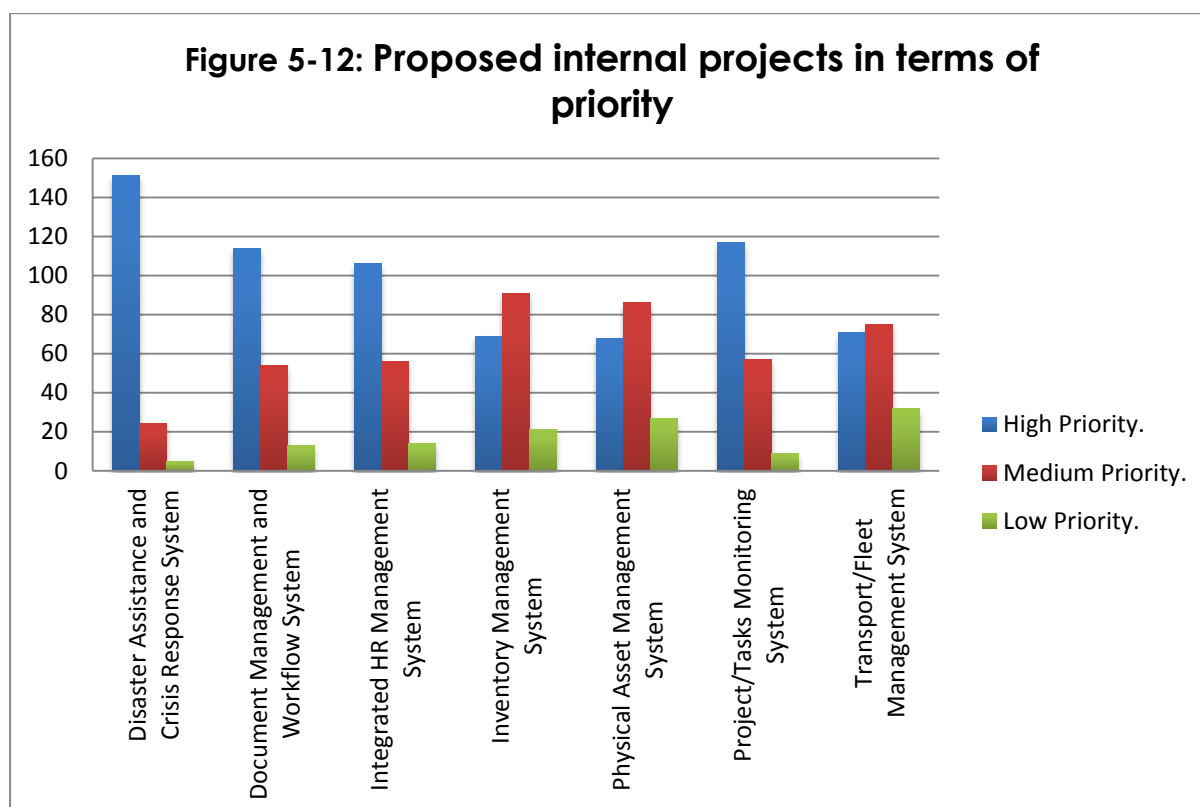
Government should use ICT as an enabler to achieve the above focus areas. Government should accelerate its modernisation process through e-Government initiatives. A number of e-Government Master Plans have already been elaborated by Ministries concerned. It is proposed that recommendations of these plans be executed by relevant Ministries so as to reap the benefits of re-engineering their business processes.

### G2G Recommendation 1

#### Implement the recommendations of existing e-Government Master plans

- (i) e-Health plan (prepared in 2008)
- (ii) e-Business Plan for Traffic Branch (prepared in 2009)
- (iii) e-Agriculture plan (prepared in 2011)
- (iv) e-Education plan (prepared in 2012)
- (v) e-Work Permit Plan (prepared in 2012)
- (vi) SkyGovNet Plan (currently under preparation)
- (vii) e-Government Master Plan for Ministry of Social Security (currently under preparation)

Government agencies were requested to rate proposed projects in terms of priority. The responses are shown in Figure 5-12. Based on the responses, a priority list of proposed projects is illustrated at Table 5-2.



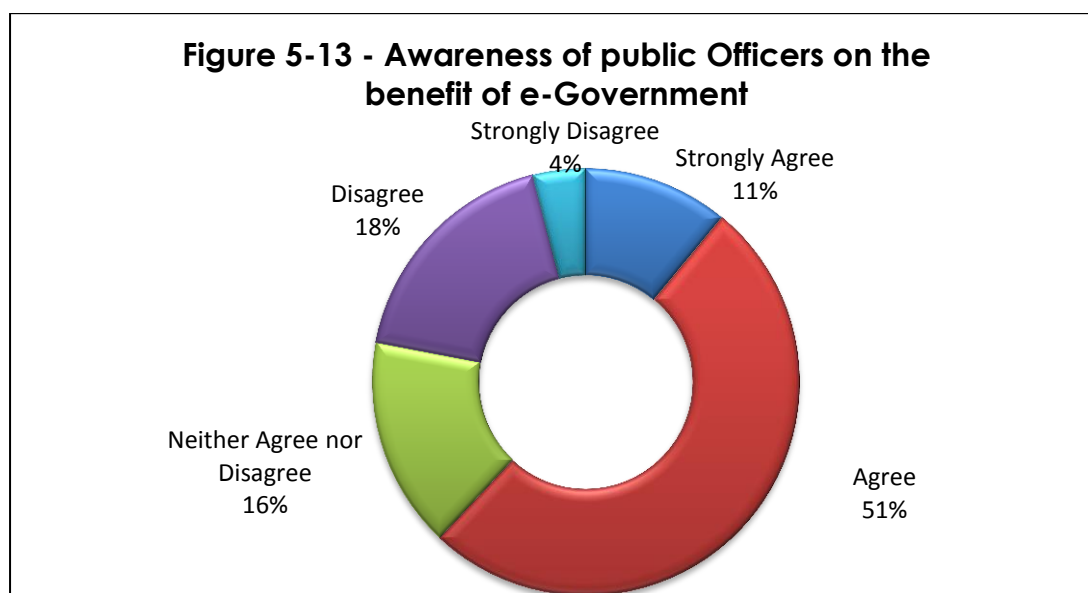


**Table 5-2: List of preferred projects in order of priority for citizens**

|   |  |
|---|--|
| 1 | Disaster Assistance and Crisis Response System |
| 2 | Project/Tasks Monitoring System                |
| 3 | Document Management and Workflow System        |
| 4 | Integrated HR Management System                |
| 5 | Inventory Management System                    |
| 6 | Physical Asset Management System               |
| 7 | Transport/Fleet Management System              |

**G2G Recommendation 2****Implement new e-Government projects as per Government agencies' needs**

Along with provision of e-Services, Government agencies should also modernize their back-end processes so as to improve the quality of service delivery. Government services should shift from a traditional mode of processing requests (downloadable forms, etc.) to a transactional mode with the inclusion of e-Payment, m-Payment and Digital Signatures. These measures will bring about citizen satisfaction, efficiency and transparency, and cost savings (Lanvin 2008). Moreover, the figure below shows that a majority of public officers are already aware of the benefits of e-Government.

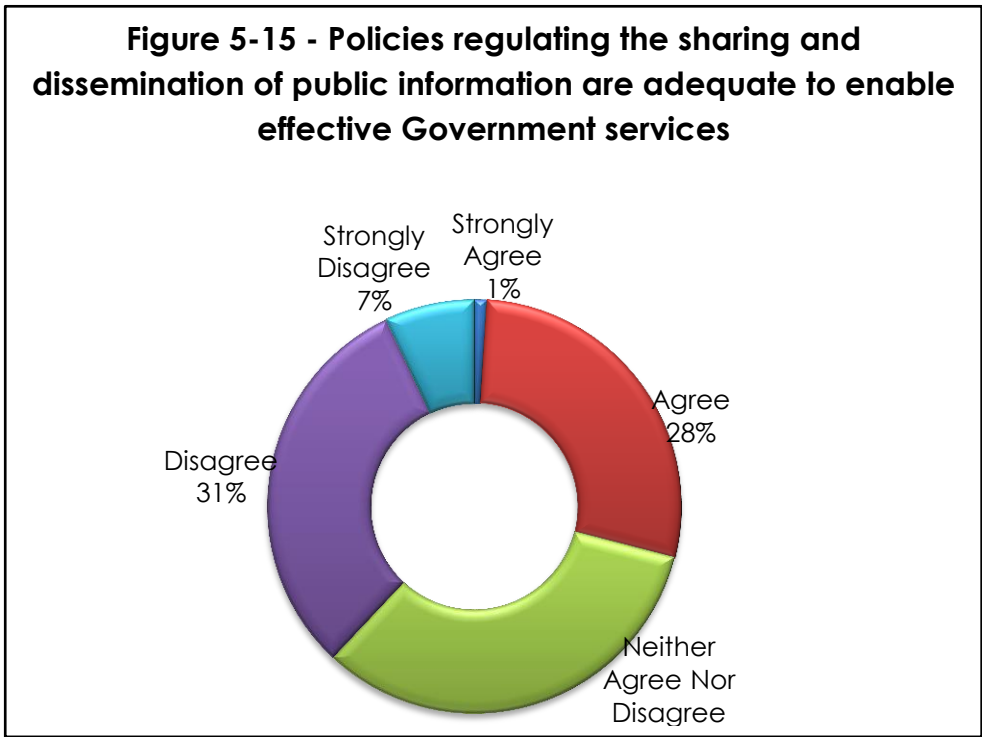
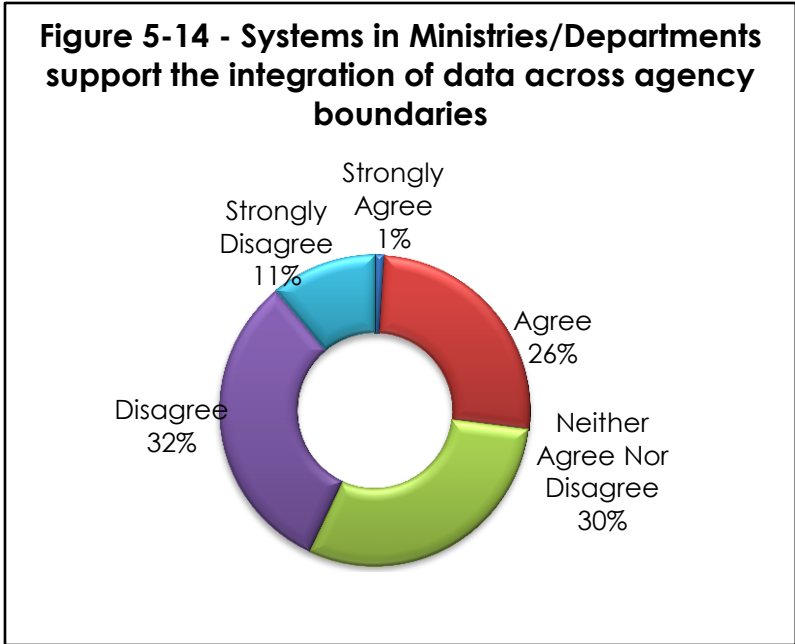


**G2G Recommendation 3**

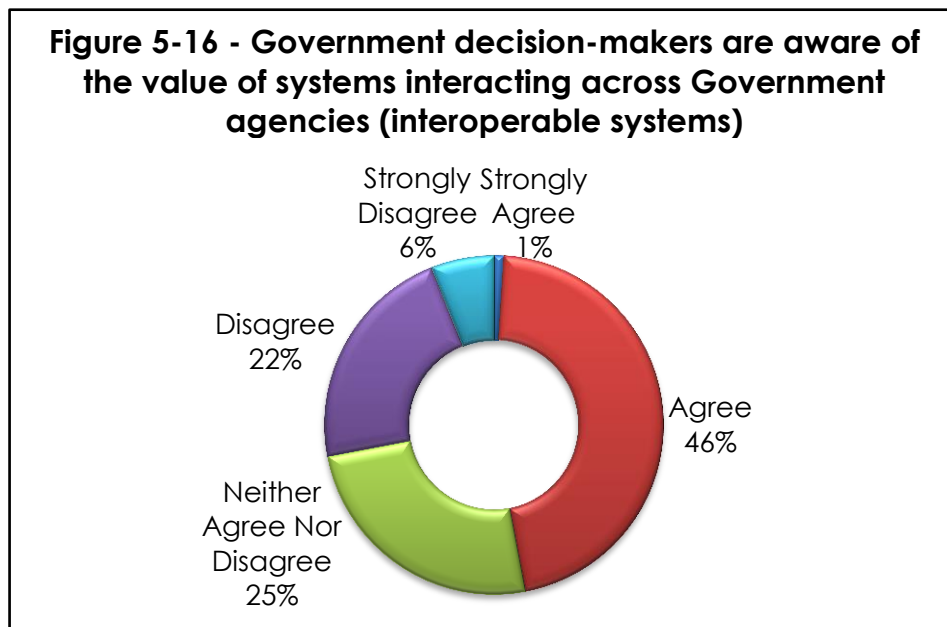
**Implement end-to-end e-Services (Integration of back-end processes with e-services application system to include e-Payment, m-Payment and Digital Signatures) so as to facilitate transactions**

5.2.2 Data Sharing

The Figure 5-14 shows that majority of Government agencies concur that there is very low sharing of data among systems of Government agencies. Moreover, Figure 5-15 also establishes a lack of policies to regulate sharing and dissemination of data among Government agencies.



The data sharing policy should address three main datasets, namely, citizen data, business data and land data. Moreover, a national spatial data infrastructure should be set up for data sharing from geographical information systems (GIS).



To encourage data consistency and avoid data duplication across Government organisations, Ministries and Departments should mandatorily request that their new systems have the possibility to interoperate with existing and/or new Government systems. The Figure 5-16 demonstrates that Government decision-makers are already aware of the value of interoperable systems.

#### G2G Recommendation 4

##### Formulate and implement Data Sharing Policy

The phase 2 of the Mauritius National Identity System (MNIS) project will see the implementation of a Government Service Platform (GSP). The GSP will allow systems to share citizens' data through Web Services. Therefore, systems requiring data authentication and identification should interface with the GSP.

#### G2G Recommendation 5

##### Set up Government Service Platform and sharing of citizens' data with Government agencies

### 5.2.3 Standardisation

Countries and international organisations such as Japan, Sweden and the European Commission among others are applying uniformed rules of procurement with emphasis on how to make best use of ICT standards in bidding documents to assist Government bodies in purchasing ICT goods and services.

#### **G2G Recommendation 6**

**Prepare guidelines and standards for the procurement of ICT Systems in Government**

### 5.2.4 Government Cloud

Ministries/Departments are connected to the Government cloud through the Government Online Centre. Although the GOC located at Ebene is the data centre for Government, there is a high demand to extend the existing data centre and also consider the setting up of a new data centre in another location. The new data centre will cater for the increasing demand for hosting services of upcoming e-Government projects e.g. e-Health. Moreover, parastatal bodies can leverage on the new infrastructure to join the Government Cloud.

#### **G2G Recommendation 7**

**Consolidate Government Data Centre initiatives**

#### **G2G Recommendation 8**

**Extend Government Cloud to parastatal bodies**

### 5.2.5 Business Continuity Management

In order to mitigate risks of security attacks as well as natural disasters, Government agencies having critical systems should implement Business Continuity Management (BCM) Plans.

#### **G2G Recommendation 9**

**Implement Business Continuity Management Plans for critical systems**

## 5.2.6 Open Source

The NICTSP 2007-2011 recommended the introduction of Open Source as one of the initiatives that would promote visibility of e-Government efforts. Government agencies must work together to arrive at joint decisions to introduce open standards, which is essential if greater competition is to be established, with the application of open source as one of the options.

As such, Open Government Data portal has been identified as one of the pilot projects to be implemented using OSS e.g. CKAN software.

### **G2G Recommendation 10**

#### **Formulate and Implement Open Source Software Policy**

## 5.2.7 Green ICT and Paperless Government

The Budget 2013 laid down a vision of a technology enabled Government that uses less and less paper. Each Ministry's annual stationery budget has been reduced by 25 %, saving 43 million rupees annually.

In the light of the above, Government should procure sustainable ICT resources and use Green ICT as an enabler for paperless environment.

By end of 2013, the MICT/NCB will also formulate a National Green ICT Policy.

### **G2G Recommendation 11**

#### **Develop and Implement Green ICT Guidelines to cover among others:**

- (i) Procurement of sustainable ICT resources e.g. EnergyStar and EPEAT compliant peripherals**
- (ii) Reduce power consumptions of data centres and server rooms**
- (iii) Implement Document Management Systems, e-Registry, e-Gazette, etc.**
- (iv) Use of Duplex printing, eco-fonts, etc.**
- (v) Use of ICT tools to communicate and work together effectively at a distance. E.g. Email, Video Conferencing facilities**

### 5.2.8 Legal and Regulatory

It is important to assess existing legal and regulatory framework, identify gaps and make recommendations for implementing adequate Policy, Legal and Regulatory framework adequate for sustaining a comprehensive e-Government programme.

Some areas to be looked into regarding policy, legal and regulatory framework are:

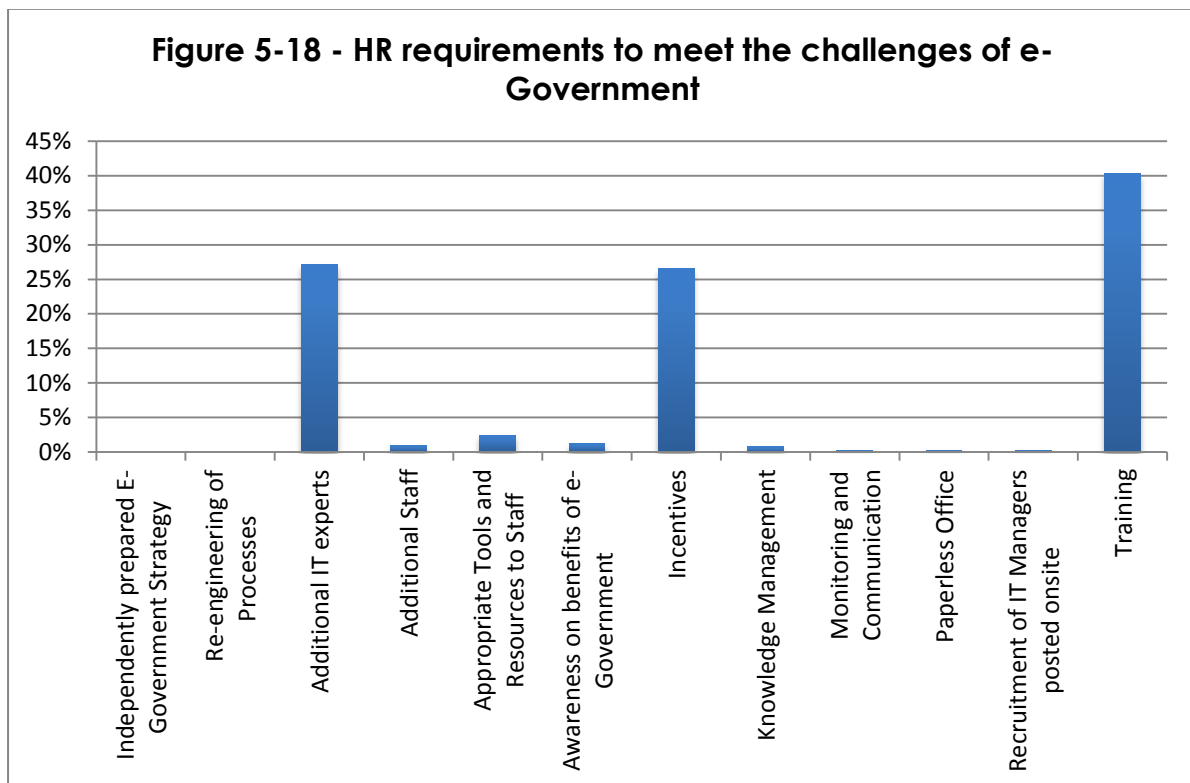
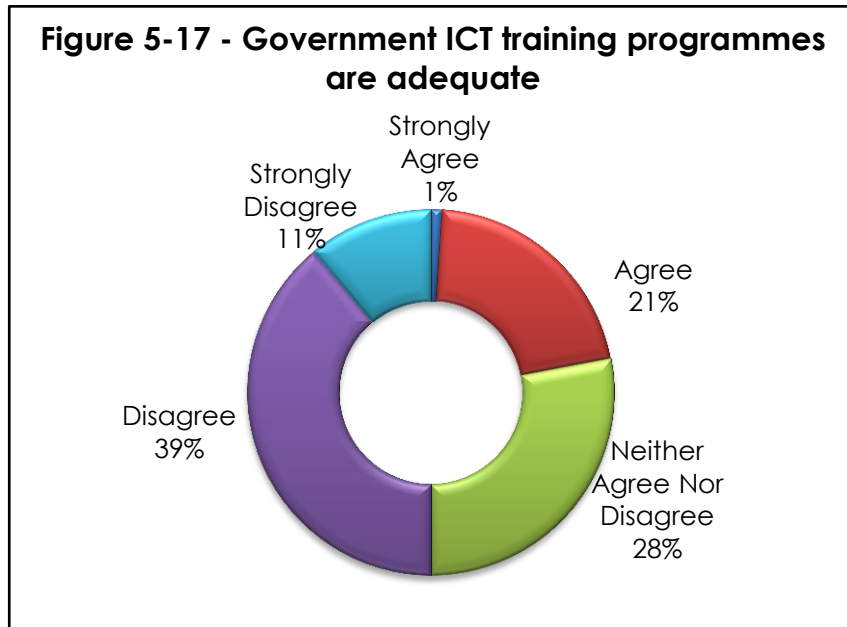
- Data sharing policy
- Open Government Data Policy
- Privacy policy for e-services
- New e-services as per citizen needs, e.g.
  - Online application for Mauritian passport
  - Online application for obtaining a copy of birth or marriage certificate
  - Online publication of examination results
  - Registration of motor vehicles
  - Online application for obtaining a Certificate of Character
  - Application for admission to schools/colleges
  - Facility to enrol as elector
  - Facility to request for transfer of students
  - Facility to make declaration of theft to the police
- To have a Public Electronic Service Delivery Bill (similar to that of India)
- e-Gazette
- Online submission of company data to Statistics Mauritius
- Review of the Public Procurement Act (PPA) to accelerate procurement of ICT solutions by Government agencies. Possibilities of providing more opportunities for local ICT companies in the bidding process to be considered in the context of review of PPA.

#### **G2G Recommendation 12**

**Setup a Legal and Regulatory committee to review existing Legal and Regulatory framework to sustain various e-Government initiatives**

### 5.2.9 Training and HR

In line with the dimensions of people, process and technology, this survey considered the HR requirements for successful implementation of e-Government initiatives. Figure 5-17 shows a large percentage of public officers require training in ICT.



Public officers also identified the following HR requirements to meet the challenges of e-Government (Figure 5-18):

- Additional IT Experts
- Incentives
- Appropriate tools and resources to staff

#### **G2G Recommendation 13**

**Leverage ICT Adoption: ICT training to drive e-Government Projects to be delivered by the Civil Service College, Mauritius**

#### **G2G Recommendation 14**

**Leverage ICT adoption: Provision of Incentives**

#### **G2G Recommendation 15**

**Leverage ICT Adoption: Ministries/Departments to replace existing Personal Computers with notebooks for Senior Officers**

### 5.2.10 Organisational Structure and Funding

The Errors, Omissions & Anomalies Committee (EOAC) Report of PRB 2013 has recommended the setting up of a Reforms Steering Council (RSC) with the active participation of MICT to drive e-Government initiatives.

The report also recommended the creation of Public Sector Re-engineering Bureau (PSRB) at the level of the Ministry of Civil Service and Administrative Reforms. The PSRB in collaboration with RSC will work in tandem with the MICT and the relevant Ministry/Department to drive implement and monitor e-Government strategies.

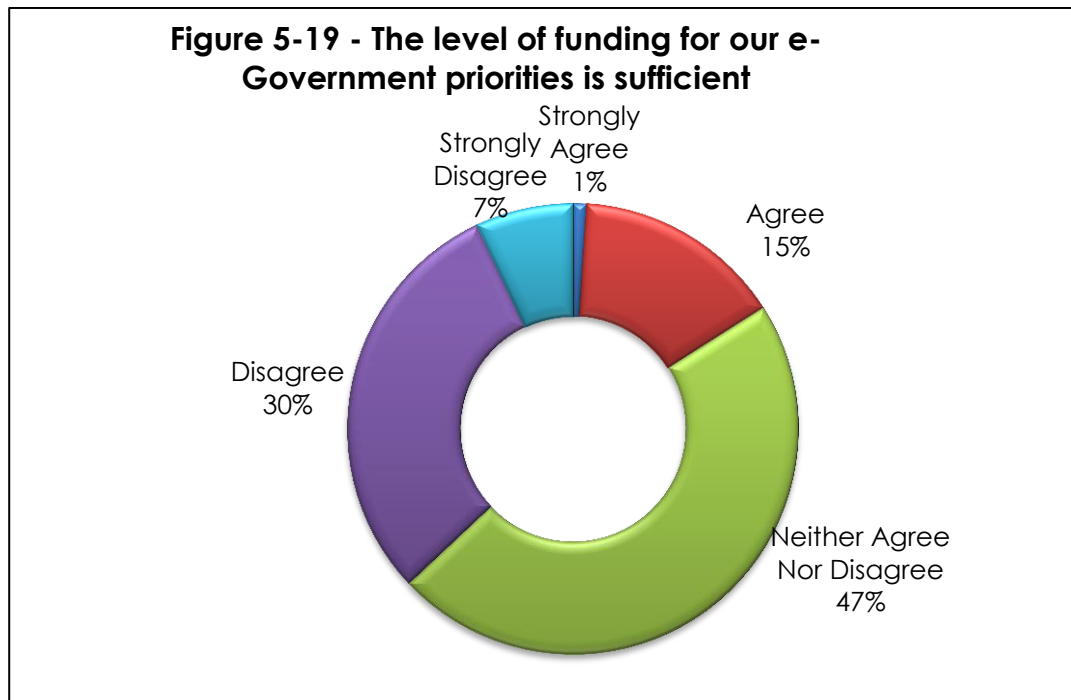
The proposal of MICT to create an ICT Directorate, which includes an E-Government Planning and Projects Department, will be studied in-depth by the PSRB. Moreover, the demand for additional ICT experts in the Civil Service as illustrated in Figure 5-18 should be addressed.

#### **G2G Recommendation 16**

**Carry out in-depth study for the creation of an ICT directorate with new specialised posts in ICT for successful implementation of e-Government initiatives**



The Figure 5-19 indicates an inadequate level of funding for e-Government priorities. Given that the MOFED also forms part of the RSC, the issue regarding inadequate funding of e-Government projects should be addressed by RSC. Additionally, for major e-Government projects, the MICT should also be a member of the Project Plan Committee (PPC) to facilitate approval of those projects.



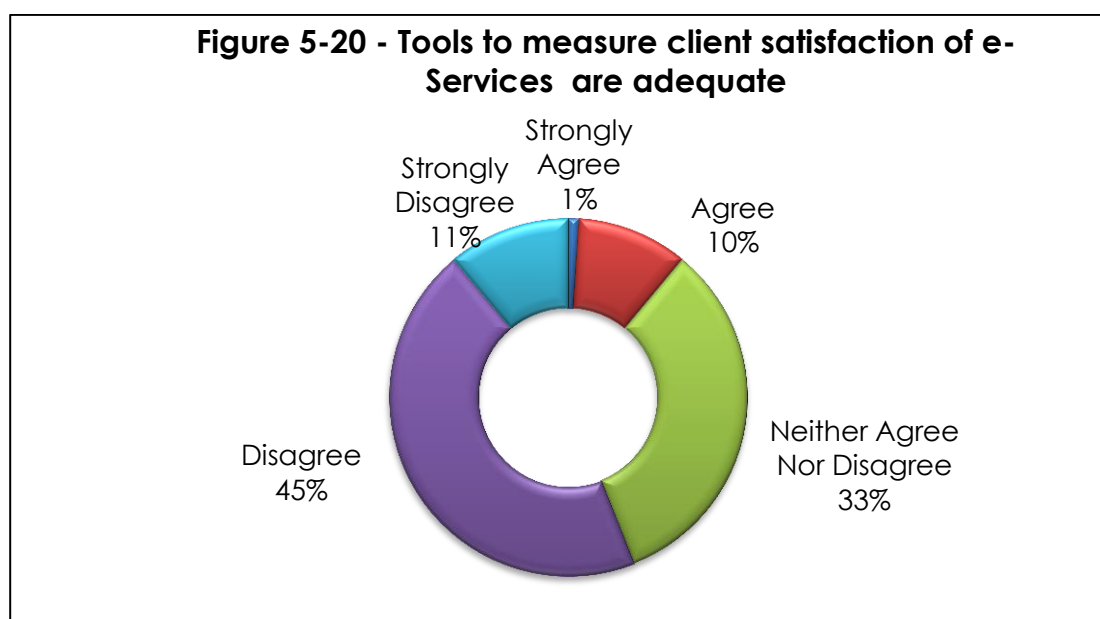
**G2G Recommendation 17**

**Reforms Steering Council to facilitate approval and funding of e-Government projects**

### 5.2.11 Monitoring and Evaluation

Monitoring and evaluating user take-up are prerequisites for understanding user preferences and needs. By understanding user preferences and needs, Governments become better equipped to effectively combat lagging user take-up of e-Government services. Continuous feedback on usage and satisfaction can improve service quality, development and delivery so that services better match user expectations (OECD, 2009).

Figure 5-20 depicts the high need to measure client satisfaction of e-Services.



It is recommended that appropriate measurement framework for e-Government projects and e-services be implemented. Moreover, technical assistance for monitoring of major e-Government projects should be ensured.

#### **G2G Recommendation 18**

**Develop and establish an e-Government measurement framework**

## 5.3 Government to Business

The survey revealed the priority projects to be implemented according to the needs of business community.

**Table 5-3: List of preferred projects in order of priority for business**

|   |   |
|---|---|
| 1 | e-Payment and m-Payment for Government services                               |
| 2 | Online Registration of documents/deeds  |
| 3 | Electronic Authentication   |
| 4 | Disaster Assistance and Crisis Response System                                |
| 5 | Single Window for processing clearances (customs, health, agro, etc.)         |
| 6 | Single counter for registration of vehicles                                   |
| 7 | Electronic Procurement  |
| 8 | Online filing of Cases (Judiciary)  |
| 9 | Open access to non-personal data sets (e.g. educational, environmental, etc.) |

### 5.3.1 Awareness of Government services targeted to businesses

In line with the G2C recommendation 1, it is proposed that marketing and awareness strategies be developed for Government Portal and e-Services targeting businesses.

#### **G2B Recommendation 1**

**Develop Marketing and Awareness strategies for Government Portal and e-Services targeting businesses**

### 5.3.2 Open Government Data

In order to promote greater transparency, service delivery, efficiency and innovation in Government-to-Business transactions, the elaboration of a Government-wide Open Government Data Policy is required.

The assistance of international organisations will be sought to carry out an Open Government Data readiness assessment and implement Open Government Data initiatives.

## **G2B Recommendation 2**

### **Formulate and implement an Open Government Data Policy**

#### 5.3.3 E-Payment Facility

In line with Government's policy regarding business facilitation, it is essential to automate transactions between Government and business. As such, it is proposed that e-Payment and m-payment facilities be integrated in existing e-Government applications targeting business, e.g. Mauritius e-Registry Project.

## **G2B Recommendation 3**

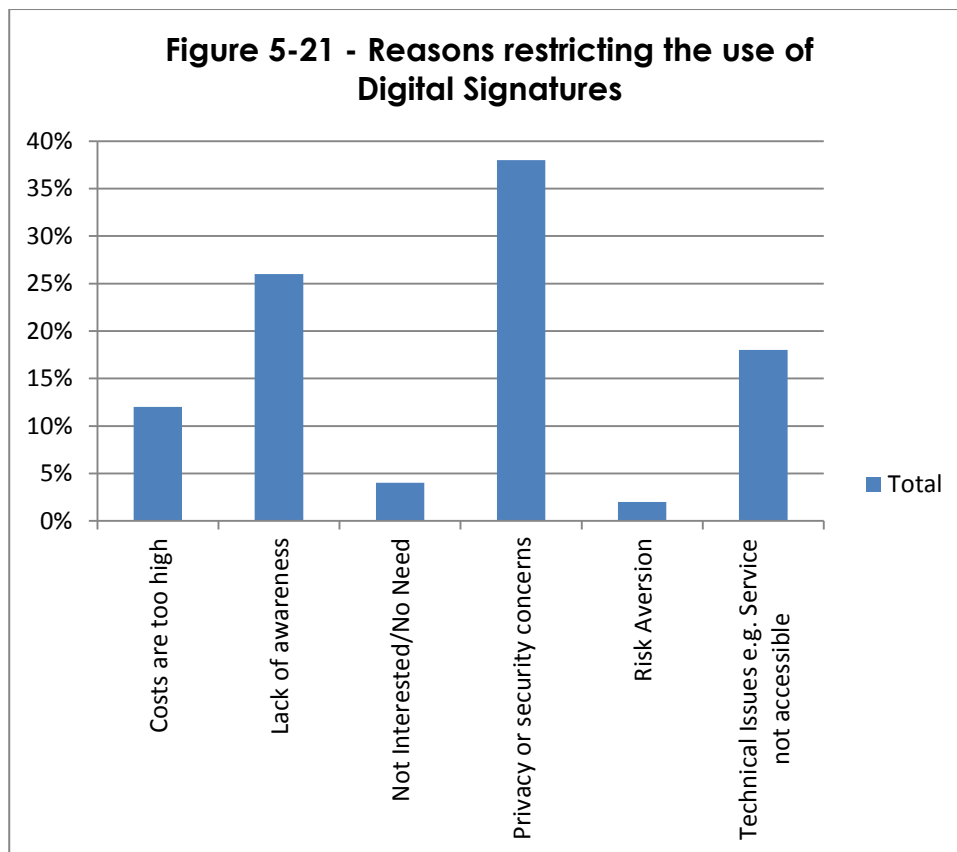
### **Integrate e-Payment and m-payment facilities in the existing e-Government applications**

#### 5.3.4 Electronic Authentication and Digital Signatures

The Mauritius National Identity Card Project includes setting up of a Government Service Platform (GSP), which provides amongst others a smart card validation service to authenticate citizens calling at service counters.

The smart card also provides for offline verification of the identity of the citizens through the use of the fingerprints, which are stored on the smart card. The GSP will provide interfacing mechanisms for businesses (e.g. banks) to benefit from the data platform for citizens.

The use of digital certificates can further reinforce the trust of online business transactions with the Government. Figure 5-21 illustrates main reasons restricting use of digital signatures. To strengthen the adoption of digital certificates, measures have to be implemented to make electronic certificates more affordable.



**G2B Recommendation 4**

**Promote the use of the Card Validation service and fingerprint readers by businesses to validate the identity of citizens**

**G2B Recommendation 5**

**Implement measures to make digital certificates affordable**

### 5.3.5 Business Facilitation

The European Commission (2006) recommends a list of basic services that have to be implemented to facilitate business operations. As part of its business facilitation initiatives, Mauritius has implemented most of the recommendations advocated by the European Commission. However, in order to further ease the process of doing business in the country, there is a need to shift business e-Services to a more transactional stage.

#### **G2B Recommendation 6**

**Assess the current state and re-engineer e-Services to a highly transactional mode**

#### **Building and Land Permit**

Online service for Building and Land Permit is already available on the Local Authorities portal. However, low take up of the e-service has been noted. Therefore, it is recommended to promote this service and integrate e-payment facility.

#### **G2B Recommendation 7**

**Promote the use of online Building and Land Permit with e-payment facility**

#### **Work permit**

An e-Work Permit Plan has been prepared for the Ministry of Labour and Industrial Relations. There is a need to accelerate the implementation of the recommendations of the plan.

#### **G2B Recommendation 8**

**Accelerate the implementation of the e-Work Permit Plan**

### **Labour Market Information System**

The Government has implemented a Labour Market Information System (LMIS) to enable potential job seekers to obtain information about vacancies in local companies. Besides, it enables employers to register and submit available vacancies online. However, the LMIS is not being optimally used and there is a need to review its processes.

#### **G2B Recommendation 9**

**Assess the effectiveness of the LMIS and chart the way forward to further improve the system**

### **Business Statistics**

Presently, statistical data on companies are collected by means of questionnaires forwarded to companies by Statistics Mauritius. The whole process is manual.

The trend worldwide is to establish standard procedures to collect statistical data online from companies (European Commission, 2006). This will ease data collection and preparation of statistical report.

#### **G2B Recommendation 10**

**Implement online submission of company data to Statistics Mauritius**

### 5.3.6 E-Procurement

E-Procurement is in its initial stage. There is a need to accelerate its implementation so as to enable the following:

1. Electronic submission of digitally signed bids
2. Evaluation of bids
3. Online payment management facility
4. Contract Management
5. Online updating of Treasury Accounting System and Registrar of Companies

#### **G2B Recommendation 11**

**Implement e-Procurement so as to enable sustainable procurement in Government**

### 5.3.7 Single Window

The United Nations Centre for Trade Facilitation and Electronic Business recommends the establishment of a “*Single Window*”, whereby trade-related information and/or documents need only be submitted once at a single entry point to fulfill all import, export, and transit-related regulatory requirements (UN/CEFACT, 2005). It is recommended that the Single Window concept be also implemented in Mauritius.

#### **G2B Recommendation 12**

**Implement Single Window for trade facilitation**

### 5.3.8 Online Filing

#### **e-Judiciary**

Online filing of commercial court cases has already been implemented as per the e-Judiciary project. However, there is need to encourage the usage of the system.

#### **G2B Recommendation 13**

**Promote the use of online filing of commercial court cases**

#### **Tax Assessment Review Committee**

In order to facilitate corporate bodies to file objection to the Assessment Review Committee with regards to tax related issues, it is recommended to setup an online filing system.

#### **G2B Recommendation 14**

**Implement online filing of objection to Assessment Review Committee for tax issues**



## 6 Conclusion

Modern democracies advocate increased participation of citizens in decision-making processes, increased transparency and accountability. These principles have guided the formulation of the e-Government Strategy 2013 – 2017. Appropriate policies in the area of social media, data sharing, Open Source Software, Open Government Data have been identified for a more transparent and accountable delivery of public services.

Information systems and e-services that enhance citizen convenience and promote business facilitation, on the basis on the e-Government Needs Survey, have been singled out for fast tracking over the period of the e-Government Strategy. Supporting instruments like e-Payment, m-Payment and digital certificates will be promoted.

In order to facilitate implementation of the recommendations of this Strategy, an implementation plan together with budgetary requirements and funding mechanisms have been worked out. Moreover, to give a head start to the e-Government Strategy 2013-2017, implementation of some “Quick Wins” have been already initiated.

The e-Government Strategy 2013 – 2017 brings the right mix of actions for issuing a new dawn in the use of ICTs in Government for the citizens and businesses. It is projected that the Strategy will thrust Mauritius in the Top 50 leading countries as measured by the UN e-Government Index.

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## 8 Annex – List of Recommendations

| e-Government Strategy 2013-2017 of the Republic of Mauritius |   |   |                  |   |   |   |
|--|---|---|------------------|---|---|---|
| #  | Owner(s)  | Recommendation  | Timeframe (Year) |   |   |   |
|  |   |   | 1                | 2 | 3 | 4 |
| <b>Government -to- citizen (G2C) Recommendations</b>         |   |   |                  |   |   |   |
| C1   | MICT, Mauritius Post                              | Market and create awareness of Government Portal and e-Services   | ✓                | ✓ | ✓ | ✓ |
| C2   | MICT, NCB   | Set up a Help Desk to help citizens facing problems in the use of the Government Portal, e-Services and m-Services  |                  | ✓ |   |   |
| C3   | MICT, NCB/GOC, Concerned Ministries & Departments | Implement new e-Services as per Citizen's needs:<br>1 ) Application for driver's license (excluding learner's license)<br>2) Application for Mauritian passport<br>3) Application for obtaining a copy of birth or marriage certificate<br>4) Online publication of examination results<br>5) Registration of motor vehicles<br>6) Application for an appointment at a public hospital<br>7) Application for obtaining a Certificate of Character<br>8) Application for admission to schools/colleges<br>9) Facility to effect electronic payment for Government services<br>10) Facility to enrol as elector<br>11 ) Application for building permit e.g. Residential<br>12) Facility to request for transfer of students<br>13) Facility to make declaration of theft to the police | ✓                | ✓ | ✓ | ✓ |
| C4   | MICT, NCB/GOC, Concerned Ministries & Departments | Design services that are usable on mobile devices as well as desktop and laptop computers   | ✓                | ✓ | ✓ | ✓ |

| e-Government Strategy 2013-2017 of the Republic of Mauritius |  |  |                  |   |   |   |
|--|--|--|------------------|---|---|---|
| #  | Owner(s)   | Recommendation   | Timeframe (Year) |   |   |   |
|  |  |  | 1                | 2 | 3 | 4 |
| C5   | PMO, National Disaster Risk Reduction and Management Council, MICT | Implement SMS-based Disaster Alerting System   | ✓                | ✓ |   |   |
| C6   | MICT, Mauritius Post, Ministries & Departments                     | Operate an One-Stop Shop for Government Services using network of Mauritius Post   | ✓                | ✓ | ✓ | ✓ |
| C7   | MICT, NCB, MCSAR   | Set up a Government Call Centre to provide information on Government Services  |                  | ✓ |   |   |
| C8   | MOFED, MICT  | Provide e-Services with e-Payment and m-Payment facilities   | ✓                | ✓ | ✓ | ✓ |
| C9   | MICT, ICTA   | Promote use of online transactions using Digital Signatures  |                  | ✓ |   | ✓ |
| C10  | MICT, NCB, Ministries & Departments                                | Formulate and implement a Social Media Policy  | ✓                | ✓ | ✓ |   |
| C11  | PMO, MICT, NCB, Ministries & Departments                           | Promote e-Participation initiatives such as online consultation on draft bills, regulations, etc.  |                  | ✓ |   |   |
| C12  | PMO, AGO, MICT, Ministries & Departments                           | Democratise access to Government information   | ✓                |   |   |   |
| Government -to- Government (G2G) Recommendations             |  |  |                  |   |   |   |
| G1   | MICT, MOHQL, MOEHR, MPF, MSS, MOA, MLIRE                           | Implement the recommendations of existing e-Government Master plans<br>(i) E-Health plan (prepared in 2008)<br>(ii) e-Business Plan for Traffic Branch (prepared in 2009)<br>(iii) E-Agriculture plan (prepared in 2011)<br>(iv) E-Education plan (prepared in 2012)<br>(v) E-Work Permit Plan (prepared in 2012)<br>(vi) SkyGovNet Plan (currently under preparation)<br>(vii) e-Government Master Plan for Ministry of Social Security (currently under preparation) | ✓                | ✓ | ✓ | ✓ |

| e-Government Strategy 2013-2017 of the Republic of Mauritius |   |   |                  |   |   |   |
|--|---|---|------------------|---|---|---|
| #  | Owner(s)  | Recommendation  | Timeframe (Year) |   |   |   |
|  |   |   | 1                | 2 | 3 | 4 |
| G2   | MICT,<br>Concerned<br>Ministries &<br>Departments               | Implement new e-Government projects as per Government agencies' needs<br>1) Disaster Assistance and Crisis Response System<br>2) Project/Tasks Monitoring System<br>3) Document Management and Workflow System<br>4) Integrated HR Management System<br>5) Inventory Management System<br>6) Physical Asset Management System | ✓                | ✓ | ✓ | ✓ |
| G3   | MICT,<br>Concerned<br>Ministries &<br>Departments               | Implement end-to-end e-Services (Integration of back-end processes with e-services application system to include e-Payment, m-Payment and Digital Signatures so as to facilitate transactions   | ✓                | ✓ | ✓ | ✓ |
| G4   | AGO, Data Protection Office, MICT, All Ministries & Departments | Formulate and Implement Data Sharing Policy   | ✓                | ✓ | ✓ | ✓ |
| G5   | PMO, MICT   | Set up of Government Service Platform and sharing of citizens' data with Government agencies  |                  |   | ✓ | ✓ |
| G6   | MICT  | Prepare Guidelines and Standards for the procurement of ICT Systems in Government   | ✓                | ✓ | ✓ | ✓ |
| G7   | MICT, NCB   | Consolidate Government Data Centre Initiatives  | ✓                | ✓ | ✓ | ✓ |
| G8   | MICT, NCB, OPSG, Parastatal bodies                              | Extend Government Cloud to Parastatal bodies for infrastructure sharing   |                  |   | ✓ | ✓ |
| G9   | MICT,<br>Concerned<br>Ministries &<br>Departments               | Implement Business Continuity Management Plans for critical systems   |                  | ✓ | ✓ | ✓ |
| G10  | MICT,<br>Concerned<br>Ministries &<br>Departments               | Formulate and implement Open Source Software Policy   |                  | ✓ | ✓ | ✓ |



| e-Government Strategy 2013-2017 of the Republic of Mauritius |  |  |                  |   |   |   |
|--|--|--|------------------|---|---|---|
| #  | Owner(s)                                 | Recommendation   | Timeframe (Year) |   |   |   |
|  |  |  | 1                | 2 | 3 | 4 |
| G11  | MICT, Ministries & Departments           | Develop and Implement Green ICT Measures Guidelines<br>(i) Procurement of sustainable ICT resources e.g. EnergyStar and EPEAT compliant peripherals<br>(ii) Reduce power consumptions of data centres and server rooms<br>(iii) Implement Document Management Systems, e-Registry, e-Gazette, etc.<br>(iv) Use of Duplex printing, eco-fonts, etc.<br>(v) Use of ICT tools to communicate and work together effectively at a distance. E.g. Email, Video Conferencing facilities | ✓                | ✓ | ✓ |   |
| G12  | MICT, AGO                                | Set up a Legal and Regulatory Committee to review existing Legal and Regulatory framework to sustain various e-Government initiatives  |                  | ✓ | ✓ | ✓ |
| G13  | MICT, MCSAR                              | Leverage ICT Adoption: ICT training to drive e-Government Projects to be delivered by the Civil Service College, Mauritius   |                  | ✓ | ✓ | ✓ |
| G14  | MICT, MCSAR                              | Leverage ICT adoption: Provision of Incentives   |                  | ✓ | ✓ | ✓ |
| G15  | Ministries & Departments                 | Leverage ICT Adoption: Ministries/Departments to replace Personal Computers with notebooks for Senior Officers   |                  | ✓ | ✓ |   |
| G16  | MICT and MCSAR                           | Carry out in-depth study for the creation of an ICT directorate with new specialised posts in ICT for successful implementation of e-Government initiatives  |                  | ✓ | ✓ |   |
| G17  | MICT, RSC                                | Reforms Steering Council to facilitate approval and funding of e-Government projects   | ✓                |   |   |   |
| G18  | MICT                                     | Develop and establish an e-Government measurement framework  |                  |   | ✓ | ✓ |
| Government -to- Business (G2B) Recommendations               |  |  |                  |   |   |   |
| B1   | MICT, Concerned Ministries & Departments | Develop Marketing and Awareness strategies for Government Portal and e-Services targeting businesses   | ✓                |   | ✓ |   |

| e-Government Strategy 2013-2017 of the Republic of Mauritius |   |   |                  |   |   |   |
|--|---|---|------------------|---|---|---|
| #  | Owner(s)  | Recommendation  | Timeframe (Year) |   |   |   |
|  |   |   | 1                | 2 | 3 | 4 |
| B2   | MOFED, MICT, Statistics Mauritius, Open Government Data Working Group, Concerned Ministries & Departments | Formulate and Implement an Open Government Data Policy  | ✓                | ✓ | ✓ |   |
| B3   | MICT, MOFED   | Integrate e-Payment and m-payment facilities in the existing e-Government applications                                    | ✓                | ✓ | ✓ | ✓ |
| B4   | PMO, MOFED, MICT  | Promote the use of the Card Validation service and fingerprint readers by businesses to validate the identity of citizens |                  | ✓ | ✓ |   |
| B5   | MICT  | Implement measures to make digital certificates affordable  | ✓                | ✓ | ✓ | ✓ |
| B6   | MICT  | Assess the current state and re-engineer e-Services to a highly transactional mode  | ✓                | ✓ | ✓ | ✓ |
| B7   | Ministry of Local Government & Outer Islands  | Promote the use of online Building and Land Permit with e-payment facility  | ✓                | ✓ | ✓ | ✓ |
| B8   | MLIRE   | Accelerate the implementation of the eWork permit plan  | ✓                | ✓ |   |   |
| B9   | MLIRE   | Assess the effectiveness of the LMIS and chart the way forward to further improve the system                              | ✓                | ✓ |   |   |
| B10  | Statistics Mauritius  | Implement online submission of company data to Statistics Mauritius   |                  | ✓ |   |   |
| B11  | MOFED   | Implement e-Procurement so as to enable sustainable procurement in Government   | ✓                | ✓ |   |   |
| B12  | MOFED, MRA , Concerned Ministries & Departments   | Implement Single Window for trade facilitation  | ✓                |   |   |   |
| B13  | The Judiciary   | Promote the use of online filing of court cases   | ✓                |   |   |   |
| B14  | MOFED, ARC  | Implement online filling of objection to Assessment Review Committee for tax issues                                       |                  | ✓ |   |   |

*e-Government Strategy  
2013-2017*

**Central Informatics Bureau  
Ministry of Information and Communication Technology  
August 2013**