



REPUBLIC OF MAURITIUS

NATIONAL AUDIT OFFICE

PERFORMANCE AUDIT REPORT

MOVING TOWARDS E-GOVERNMENT THROUGH ICT-ENABLED PROJECTS

**Ministry of Information Technology,
Communication and Innovation**

JUNE 2020

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PREFACE

Section 16(1A) of the Finance and Audit Act requires the Director of Audit to carry out performance audit and report on the extent to which a Ministry, Department or Division is applying its resources and carrying out its operations economically, efficiently and effectively.

I am pleased to submit to the Minister of Finance, Economic Planning and Development, and through him to the National Assembly this Performance Audit Report entitled “Moving Towards e-Government Through ICT-Enabled Projects”. The subject matter was selected in view of the contribution of ICT in enhancing the efficiency and effectiveness of Government’s operations and in making a difference to the lives of citizens.

The objective of the audit was to assess whether the Ministry of Information Technology, Communication and Innovation and its Divisions were effective in supporting the implementation of ICT-enabled projects in Ministries and Departments to enhance their service delivery. The Report contains audit findings, conclusion, recommendations and emphasises on areas of improvements on aspects of formulation and implementation of e-strategies and plans, adoption of appropriate project governance structures and project management methodologies. The Ministry was given the opportunity to comment on the content of the Report.

My Office intends to carry out a follow-up audit at an appropriate time regarding actions taken by the Ministry in relation to the implementation of the recommendations.

I would like to take this opportunity to thank the Permanent Secretary and the staff of the Ministry of Information Technology, Communication and Innovation and its Divisions as well as staff of User Ministries and Departments for their cooperation and collaboration. I also wish to express my sincere thanks to the staff of the Performance Audit Unit of the National Audit Office for their commitment.



C. ROMOOAH
Director of Audit
National Audit Office
PORT LOUIS

30 June 2020

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ABBREVIATIONS AND ACRONYMS

CIB	Central Informatics Bureau
CISD	Central Information Systems Division
COTS	Crime Occurrence Tracking System
DGTS	Digital Government Transformation Strategy
DPO	Data Protection Office
GOC	Government Online Centre
HRMIS	Human Resource Management Information System
ICT	Information and Communication Technologies
ITSU	IT Security Unit
MAIFS	Ministry of Agro-Industry and Food Security
MAURITAS	Mauritius Accreditation Service
MoHQL	Ministry of Health and Quality of Life
MoHW	Ministry of Health and Wellness
MoEHR	Ministry of Education and Human Resources
MoETEST	Ministry of Education, Tertiary Education, Science and Technology
MoFED	Ministry of Finance and Economic Development
MoFEPD	Ministry of Finance, Economic Planning and Development
MPF	Mauritius Police Force
MSISSNS	Ministry of Social Integration, Social Security and National Solidarity
MITCI	Ministry of Information Technology, Communication and Innovation
NAO	National Audit Office
NCB	National Computer Board
OECD	Organisation for Economic Co-operation and Development
PAC	Public Accounts Committee
PCR	Project Closure Report
PIMU	Project Investment Management Unit
PMBOK	Project Management Body of Knowledge
PMC	Project Monitoring Committee
PMMI	Project Management Manual for ICT Projects
PMP	Project Management Plan
PRB	Pay Research Bureau
PRF	Project Request Form
PSBT	Public Sector Business Transformation
PSC	Project Steering Committee
SDD	Software Design Description
SDG	Sustainable Development Goal
SRS	Software Requirement Specifications
TIC	Transformation Implementation Committee
UAT	User Acceptance Test
WHO	World Health Organisation

EXECUTIVE SUMMARY

Government is promoting, through the Ministry of Information Technology, Communication and Innovation (MITCI), the development of the ICT sector, which includes the implementation of an e-Government Programme. This Programme aims at providing Government services more conveniently to the public, businesses, and entities on a digital platform, anywhere and anytime. A panoply of entities under the aegis of the MITCI supports the implementation of ICT-enabled projects, under the e-Government Programme, within their respective mandates. This includes the Central Informatics Bureau (CIB), IT Security Unit (ITSU), Central Information Systems Division, National Computer Board and the Government Online Centre.

As of December 2019, some 130 ICT-enabled projects were operational, 35 projects were under implementation or near-completion and 55 new projects were earmarked for implementation. During the past four financial years ended 30 June 2019, some Rs 2.2 billion had been invested in such projects whose functionalities and business impacts are critical to promoting e-governance.

Worldwide, the implementation of ICT-enabled projects is regarded as a high-risk venture due to the complexity of such projects, and a comparatively high failure rate in terms of timeliness of delivery, budget implications and specifications issues. Major recurring issues and challenges encountered in the implementation of ICT-enabled projects in Mauritius were identified in recent Reports of the National Audit Office (NAO) and the Public Accounts Committee. Several ICT-enabled projects on which more than Rs 700 million were spent either did not generate the expected benefits or their success was compromised in terms of time, cost and quality. In its Report of March 2018, the Public Accounts Committee recommended that an external appraisal of the whole computerisation programme for Government be carried out. It is against this background that the NAO has carried out this Performance Audit entitled ‘Moving Towards e-Government Through ICT-Enabled Projects’.

Objective, Scope and Methodology

The audit assessed whether the MITCI and its Divisions were effective in supporting the implementation of ICT-enabled projects in Ministries and Departments to enhance their service delivery and covered the period January 2016 to January 2020. The audit design was based on a top-bottom perspective¹ and a ‘Whole-of-Government’ approach².

The focus was on the interventions of the MITCI and its Divisions in respect of ICT-enabled projects already completed, as well as those under implementation across Ministries and Government Departments. This comprised the examination of progress achieved on the formulation and implementation of e-Strategies and Plans, Project Governance structures and Project Management Methodologies adopted to implement these projects in Mauritius (excluding Rodrigues and Outer Islands). Capacity assessments

¹ A Performance Audit perspective that concentrates mainly on the requirements, intentions, objectives and expectations of the legislature and central government.

² An approach that refers to the joint activities performed by diverse Ministries, Public Administrations and Public Agencies in order to provide a common solution to a particular problem or issue.

relating to the whole ICT sector, hardware, software, network infrastructure and human resources were excluded.

The audit was conducted in accordance with the requirements of the NAO Performance Audit Manual, which is based on International Standards of Supreme Audit Institutions. Different methodologies were used to gather and analyse data, understand the audit area, along with obtaining sufficient, relevant and reliable audit evidence that support the conclusions and recommendations.

Key Findings

Significant expenditure has been incurred on the e-Government Programme during the past decade leading to more than 100 ICT-enabled projects in operation, and some 35 in progress or near-completion. Different Strategies and Plans were developed and aimed at paving the way towards e-Government through these projects where the focus was on benefits realisation, and contribution to the achievement of the Sustainable Development Goals by fostering innovation and bridging digital divide³. These projects were generally costly, risky, and spanned over several years and were implemented against the backdrop of rapidly changing technology.

Several projects currently in operation had been delivered on time, within budget and according to specifications. However, our findings also confirmed that a number of on-going projects would have to be abandoned before completion, some are experiencing cost overruns and delays, and others have recently been implemented without any perceptible benefits. Among other factors leading to such performance gaps, were major issues relating to the formulation and implementation of e-Strategies, adoption of Project Governance Structures and Project Management Methodologies, all of which were within the purview of the MITCI and its Divisions. Also, several aspects of the ‘Whole-of-Government’ approach, like close collaboration among different stakeholders, which are crucial for implementation of these projects were not prevalent.

Formulation and implementation of e-Strategies

- 1) The MITCI has a key role to play in all the structures recommended in its ICT Plans, Strategies and the Pay Research Bureau (PRB) Reports. These structures would have enabled oversight by the MITCI on areas under its purview, such as policies and strategies, but were not functional since their announcement.
- 2) The Public Sector Business Transformation (PSBT) Strategy deals with several parts of e-Government projects which comprise human resources management, business process re-engineering, administrative and legislative needs. The MITCI and its Divisions, though possessing the required technology and expertise, need proper functioning of these parts to implement ICT-enabled projects successfully. Key

³ A digital divide is any uneven distribution in the access to, use of, or impact of Information and Communication

Technologies between any number of distinct groups. These groups may be defined based on social, geographical, or geopolitical criteria, or otherwise.

structures set up under the PSBT Strategy were not functional as they should have been, and that deprived the PSBT Bureau the means to channel challenges identified in the Action Plans of the Transformation Implementation Committees for necessary interventions at strategic level.

- 3) The design of e-Strategies consume time, energy and resources, and should not remain as blueprints. Instead, they should be evaluated concurrently with implementation so that they may be re-aligned, if necessary. The key performance indicators which should have been developed as per the Action Plan accompanying the Digital Government Transformation Strategy were not defined to measure progress realised and trigger corrective actions.
- 4) Schemes of Service provide for MITCI and CIB staff to carry out evaluations of ICT-enabled projects and to take corrective actions. However, the Ministry argued that these tasks fell outside their purview.
- 5) Under the 'Expert Skill Scheme', the MITCI had obtained the necessary resources to build capacity, through the hiring of Consultants, to support its interventions. However, it did not take appropriate advantage of this facility.
- 6) Though the MITCI and its Divisions cannot compel Ministries and Departments to develop e-Government Plans, they should push forward this strategic agenda by providing the necessary technical support. The inability of the MITCI to sort out the issue of allowance in respect of the 'Head, ICT' recommendation of PRB has been a missed opportunity to support Ministries and Departments in the most economical way.
- 7) The implementation of four e-Government plans (Health, Education, Agriculture and Social Security) has remained at planning stage and has been dragging on for more than five years. The longer the delays in their implementation, the greater is the likelihood of these plans requiring subsequent cost revisions, and the higher the risk of intended benefits not realised.
- 8) In respect of the e-Health Project, with a project value of some Rs 700 million, the plan prepared by CIB proposed that the Project be first run as a pilot phase, initially in one Hospital, before its final roll out to the remaining Health Institutions. In 2019, the Ministry of Health and Wellness took the decision to go directly to full roll out without a pilot phase. For such large, complex and risky investment, good practices recommend that adopting a pilot phase is a more prudent approach.
- 9) In the Digital Government Transformation Strategy, it is recommended to have recourse to 'business cases' which use appropriate metrics to identify costs and benefits, establish clear responsibilities and roles among criteria to justify and prioritise investments in ICT-enabled projects. However, in respect of projects submitted for financial clearance through briefs or Project Request Forms, the justifications provided by user Ministries and Departments fell short in respect of providing for risk assessment and appropriate structures to drive these projects.

Project Governance

- 1) Project governance is about guiding and monitoring the process of converting investment decisions into value for an organisation by way of delivering the intended benefits. It operates in continuous sequences from inception, through various decision points and milestones to operation and benefit delivery. The current organisational governance in Ministries and Departments does not provide for such a governance structure. The Project Management Manual for ICT Projects issued in 2017 to strengthen governance structure does not provide enough guidance on accountability, roles, and responsibilities at all project stages.
- 2) The prime objective of an effective governance structure is to provide the assurance that an ICT-enabled project is a success. Two major indicators can be used to determine success. The first one concerns the ability to deliver the technological component of the project on time, within budget, and within scope. This is achieved through a Project Closure Report which is the responsibility of the CIB, but is not being satisfactorily executed in compliance with good practices. The second indicator refers to success in delivering the promised project benefits and is measured in terms of a project's contribution to the business objectives of the organisation, achieving planned benefits to the organisation and to users. This is measured through a Post Implementation Evaluation which is currently not being carried out.

Project Management Methodologies

- 1) As regards project management methodologies, the Project Management Manual for ICT Projects lacks guidance on roles and responsibilities of CIB on important tasks, such as Software Requirement Specifications, Software Design Description and Project Implementation Evaluation. Project management documentation kept by CIB was incomplete. Approval of key stages of projects were not recorded in the 'Notes of Meeting' of committees and meetings.
- 2) The tasks regarding Software Requirement Specifications, Software Design Description and User Acceptance Tests are usually led by the service provider. However, the execution of these tasks becomes challenging due to inadequate technical specifications, inaccurate capture of business processes, design and prototyping. Even though test procedures are under the responsibility of the service provider, the lack of knowledge of users in technology or development processes increases the risk of failure. The highly technical aspects of some projects presented difficulties for the Procurement and Supply Department, and this led to longer time in preparing bidding documents, resulting in delays on projects. The user Ministries and Departments needed more support in these areas.
- 3) Project documentation necessary to substantiate the close monitoring of projects and appropriate level of support to user Ministries and Departments-was not appropriately kept by CIB. Custody of these documents was considered to be the sole responsibility of user Ministries and Departments, with no need for a copy at the level of the MITCI and CIB for project monitoring.
- 4) Project Closure Reports which, amongst others, assess the success of projects were not always prepared and agreed with user Ministries and Departments. Absence of these

documents did not give the assurance to all stakeholders that best practices for future projects were identified and all issues on the projects were resolved.

- 5) Post-implementation evaluation, important to provide assurance that intended benefits under a project had been realised, was not carried out by the MITCI and CIB. The latter considered that the execution of this activity on a project would lead to conflict of interest, despite this duty was included in the respective Schemes of Service of their personnel.
- 6) The responsibilities for managing projects risks were left out to vendors despite their perspective of risks were narrower than that of the MITCI, CIB and user Departments/ Ministries. For example, a vendor cannot be expected to assess its own risk of going into receivership and formulate mitigation measures in that respect.
- 7) In only 19 per cent of systems already in operation, security audits have been carried out by ITSU to provide assurance that controls embedded in the projects at design stage were functional. As regards systems recently rolled out, only nine per cent were subject to security audits.
- 8) There were potential areas of conflict when Programme Managers of ITSU were called upon to audit systems, which they themselves have designed and supported during project implementation.

Conclusion

The MITCI and its Divisions have taken laudable initiatives to move forward the e-Government Agenda. Several projects currently in operation have been delivered on time, within budget and according to specifications. However, our findings indicate that, the support provided by the MITCI and its Divisions had also been challenged in areas relating to formulation and implementation of e-strategies, adoption of project governance structures and project management methodologies.

In areas of interventions that had been challenged, their level of support was not effective enough to deliver the intended benefits of ICT-enabled projects within time, cost and to specifications. Though there were factors outside their control which affected negatively implementation of these projects, they could have done better if they had focused more effectively on issues which were within their mandate.

Recommendations

In order to increase the effectiveness of their support, the MITCI and its Divisions need to focus in priority on increasing the proximity of their interventions with users, building capacity to keep pace with new technologies, favouring a system that evaluates and provides feedback on their output, concentrating on project governance and considering the review of their Project Management Manual for ICT Projects.

Formulation and implementation of e-Strategies

1. The least that the MITCI can achieve now in that respect, is the re-activation of the e-Government and Computerisation Steering Committee recommended in the PRB Report 2016 to address the issue of lack of ownership of ICT-enabled projects by Ministries and Departments.
2. As the MITCI is one of the key players at strategic level in the structures set up for the PSBT Strategy, it should intervene to kick start the operation of these structures.
3. The key performance indicators which should have been developed by all stakeholders as per the Action Plan accompanying the Digital Government Transformation Strategy should be defined, and used to measure progress realised and for corrective actions.
4. The MITCI and CIB should consider finalising the four e-Government plans (Health, Education, Agriculture and Social Security) among their priorities.
5. In case the Ministry of Health and Wellness is still favouring a full rollout approach for the e-Health Project, the MITCI should advise and ensure that the structure put in place to drive the project should comprise a management team with appropriate expertise and experience.
6. Though the Project Request Form is a template of the Ministry of Finance, Economic Planning and Development and pending the 'business case' approach is adopted, the MITCI and CIB should support user Ministries and Departments to prepare Project Request Forms that use sufficient metrics to assess the likelihood of project success at financial clearance stage.

Project Governance

1. A Project Governance framework based on international benchmarks that takes the achievement of business objectives into consideration, in addition to software project management methodology should be included in the Project Management Manual for ICT Projects. The MITCI should set up the recommended Committees to monitor the use and impact of the Manual, and also to ensure continuous update of the document to bridge the gaps identified in this Report.
2. The terms of reference of the Project Steering Committee should be set right from the planning stage, instead of stipulating them at contract award stage.
3. CIB should prepare Project Closure Report and carry out Post Implementation Evaluation for all projects in collaboration with user Ministries and Departments.

Project Management Methodologies

1. Definition of roles and responsibilities, maintaining complete project documentation and recording of approval of key stages should be reconsidered by CIB to provide assurance that all stages during project implementation were closely supported and monitored.

2. CIB should provide closer support to user Ministries and Departments in respect of Software Requirement Specifications, Software Design Description, User Acceptance Tests and preparation of bidding documents.
3. The Ministry and CIB should have a wider perspective of project risks, and support the preparation of a comprehensive Risk Management Plan at planning stage.
4. To ensure segregation of duties and avoid conflict of interest, Programme Managers of the ITSU should focus only on security audits during project implementation stage. This would release more resources to carry out such audits on rolled out projects, as few security audits have been carried out over the past years. Programme Managers of CIB, who according to their Schemes of Service have competence on security norms in information systems, may handle the technical specifications on IT security aspects (currently being done by ITSU), while preparing the technical specifications in bidding documents.

Summary of Ministry's Replies

- There is a shortage of qualified IT professionals to drive ICT-enabled projects at the Ministry and CIB.
- The Ministry and its Divisions also experience inadequate collaboration, and commitment in respect of project ownership from user Ministries and Departments. ICT is regarded as a peripheral support in Ministries and Departments instead of as an enabler of strategic value.
- The Project Management Manual for ICT Projects is a document which is meant to be concise with enough material for a quick reading, while abstracting users from complex technicalities, but at the same time introduces the important steps in the implementation of ICT projects.
- Several tasks included in the respective Schemes of Service of key personnel were not executed as it would lead to conflict of interest.

CHAPTER ONE

INTRODUCTION

1.1 Background

The Information and Communication Technologies (ICT) sector is currently the third pillar of the economy. In 2018⁴, its contribution to Gross Domestic Product stood at around 5.7 per cent, with a growth rate of 5.3 per cent, and employed some 25,000 people.

Government is promoting the development of the ICT sector through the Ministry of Information Technology, Communication and Innovation (MITCI). This includes the implementation of an e-Government Programme through which services are being provided more conveniently to the general public, businesses and entities on a digital platform, anywhere and anytime.

1.1.1 Development in ICT sector to provide better service to the citizens and businesses

Citizens and businesses interact with Government (through Ministries and Government entities) at various points in time, not out of choice, but out of necessity. In the past, these transactions have mainly been carried out over the counters using paper-based documents. Developments in technology have created opportunities for Government to deliver greater efficiency, while keeping pace with citizens' rising expectations about how they want to engage with Government and access public services and information online.

Government's dependence on ICT has accelerated during the past two decades in accordance with National ICT Plans, Digital Strategies and e-Government Programmes. The digitalisation of services through ICT in Ministries and Government entities are allowing enhanced access to services and promoting openness of Government activities. This has contributed in minimising execution time of transactions and associated costs. The e-Government Programme is a significant area of Government spending. Over the period 2009 -2018, some Rs 3 billion were invested in ICT-enabled projects.

ICT-enabled projects use information and communication technologies to facilitate the transformation of Government business and services, and hence, largely contribute to drive forward the e-Government Programme. These technologies store, retrieve, manipulate, transmit or receive information electronically or in a digital form. They include hardware, communication devices or applications, including computer hardware, software, and network infrastructure. The projects are usually wide in scope, complex in nature, have high project values and business impacts. They also involve several stakeholders with extensive dependencies and influences.

MITCI is responsible to implement the e-Government Programme. The successful implementation of ICT-enabled projects under this Programme in Ministries and Government entities, enables the provision of services electronically anytime and anywhere for the greater convenience of the public. A panoply of entities under the aegis of MITCI supports the implementation of projects within their respective mandates. This includes the

⁴ Figures from Statistics Mauritius 'ICT Statistics-Year 2018 and Three-year Strategic Plan 2019/20-2021/22

Central Informatics Bureau (CIB), IT Security Unit (ITSU), Central Information Systems Division (CISD), National Computer Board (NCB) and the Government Online Centre (GOC).

1.2 Motivation

As of December 2019, some 130 ICT-enabled projects were operational, 35 projects were under implementation or nearing completion, and 55 new projects were earmarked for implementation. The budget for ICT-enabled projects is allocated to individual Ministry/Department rather than under the central control of the MITCI. During the past four financial years ended 30 June 2019, some Rs 2.2 billion had been invested in such projects whose functionalities and business impacts are critical to promoting e-governance.

Worldwide, the implementation of ICT-enabled projects is regarded as a high-risk venture due to complexity of such projects and a comparatively high failure rate in terms of timeliness of delivery, budget implications and specifications issues. Audit Reports published by some countries, for example Canada, Netherlands and Australia, pointed towards the need to link ICT projects risks to potential project failures. Project risks, including those beyond traditional ones, are only effectively managed when governance structures and processes are robust and facilitate timely intervention.

Major recurring issues and challenges encountered in the implementation of ICT-enabled projects were identified in recent Reports of the National Audit Office (NAO) and the Public Accounts Committee (PAC). Several ICT-enabled projects on which more than Rs 700 million were spent either did not generate the expected benefit or their success was compromised in terms of time, cost and quality. In its Report of March 2018, the PAC recommended that an external appraisal of the whole computerisation programme for Government be carried out.

It is against this background that the NAO has carried out this Performance Audit entitled ‘Moving Towards e-Government Through ICT-Enabled Projects’.

1.3 Audit Objective

The audit assessed whether the MITCI and its Divisions were effective in supporting the implementation of ICT-enabled projects in Ministries and Departments to enhance their service delivery.

The audit was designed by formulating three audit questions derived from the audit objective, and using a top-bottom perspective and a ‘Whole-of-Government’ approach. The answers to the questions supported the conclusion against the objective. The audit questions are as follows:

- Were their interventions adequate to support Ministries and Departments to develop and implement their e-strategies, and to digitalise their prioritised processes?

- Were their interventions appropriate to support the setting up and operation of the effective project governance structures in order to drive ICT-enabled projects successfully?
- Were appropriate methodologies adopted to deliver these ICT-enabled projects within defined time frames, budgeted costs and specifications/quality?

These questions were further developed into sub-questions as listed in Appendix I.

1.4 Audit Scope

The focus was on the interventions of the MITCI and its Divisions in respect of ICT-enabled projects already completed, as well as those being implemented across Ministries and Government Departments. This comprised the examination of progress achieved on the formulation and implementation e-Strategies and Plans, Project Governance structures and Project Management Methodologies adopted to implement these projects in Mauritius (excluding Rodrigues and Outer Islands). Capacity assessments relating to the whole ICT sector, hardware, software, network infrastructure and human resources were excluded.

The audit covered the period January 2016 to January 2020 and was supplemented with information relating to period prior to January 2016.

1.5 Audit Methodology

The audit was conducted in accordance with the requirements of the NAO Performance Audit Manual, which is based on International Standards of Supreme Audit Institutions. Different methodologies were used to gather and analyse data, understand the audit area, along with obtaining sufficient, relevant and reliable audit evidence that support the conclusions and recommendations.

1.6 Methods used for gathering and analysing data

Data was gathered mainly from files and documents. This was complemented by interviews and site visits to confirm information in files and to ascertain and assess processes being carried out. Sampling and benchmarking were also carried out. Content analysis and case studies were extensively used for data analysis.

1.6.1 Documents reviewed

Information relating to processes, policies, strategies, structures, project management methodologies and amount spent on projects was collected through review of files, documents and databases available on the e-Document Management System at the MITCI, CIB, ITSU, User Ministries and Departments.

1.6.2 Personnel interviewed

Interviews and meetings were carried out with key personnel at operational, middle and senior management levels of the main players involved in the implementation and delivery of ICT-enabled projects, namely:

- Senior management at MITCI
- Senior Management and officers of the Programme Manager and System Analyst cadres of CIB, ITSU, CISD and GOC
- Officers of the following Ministries and Departments involved in implementation of ICT-enabled projects:
 - i. Ministry of Education, Tertiary Education, Science and Technology (MoETEST) for e-Education Project;
 - ii. Ministry of Finance, Economic Planning and Development (MoFEPD) for e-Business Plans and expenditure on e-Government projects under the Public Sector Investment Programme;
 - iii. Ministry of Public Service, Administrative and Institutional Reforms for Human Resource Management Information System (HRMIS);
 - iv. Mauritius Police Force (IT Unit) for the projects ‘Crime Occurrence Tracking System’ (COTS) and ‘Automated Fingerprint Identification System’;
 - v. Ministry of Social Integration, Social Security and National Solidarity (MoSISSENS) for e-Social Security Project;
 - vi. Ministry of Health and Wellness (MoHW) for e-Health Project;
 - vii. Ministry of Agro-Industry and Food Security (MAIFS) for e-Agriculture Project;
 - viii. Supreme Court of Mauritius for Revamping the Digital Court Recording System and the computerisation of Revenue Management System and backend; and
 - ix. National Transport Authority for project ‘Online Motor Vehicle Licence’.

The interviews and discussions were used to confirm the information obtained from documents reviewed and supplement explanations that were not available in the reviewed documents.

1.6.3 Site Visits

Site visits were effected at the GOC, National Transport Authority, Police IT Unit and Police Stations and user Ministries to ascertain the physical infrastructure in place, discuss with officers concerned and assess relevant aspects of completed ICT-enabled projects in operation.

1.6.4 Sampling

The status of some 130 projects in operation was reviewed. The 35 projects which were being implemented or completed during the period 2016 to 2019 were examined. Common and recurrent issues affecting performance, business impact and overall success of all these 165 projects were identified. In respect of 10 of these projects, with total project value exceeding Rs 1 billion, major issues relation to formulation and implementation of e-strategies, adoption of project governance structures and project management methodologies were examined and analysed. The analysis is included in Case Studies as audit findings to support the audit conclusion.

1.7 Assessment Criteria

Criteria used as a basis for evaluating the evidence collected, developing audit findings and reaching conclusions on the audit objectives were extracted from the following sources:

- i. Legislations – Electronic Transaction Act, Data Protection Act, Computer Misuse and Cybercrime Act, Information and Communication Act and Public Procurement Act;
- ii. ICT Policy and Plans of 2007 and 2011, Digital Government Transformation Strategy (DGTS) 2018-22, e-Government Strategy 2013-2017 and Digital Vision 2030 in respect of policies and strategies;
- iii. CIB Project Management Manual for ICT Projects (PMMI) 2017 in respect of methodology for implementation of ICT-enabled projects;
- iv. Recommendations on e-Government Programme in the Reports of Pay Research Bureau (PRB) 2013 and 2016;
- v. Schemes of Service – Roles and responsibilities of officers of MITCI towards management and implementation of e-Government agenda;
- vi. Circulars and Policies of respective Ministries and Departments;
- vii. Standard, Guidance and Practices for project management: –International project management standard such as Project Management Body of Knowledge (PMBOK) and PProjects In Controlled Environment (PRINCE2) of United Kingdom as guidance;
- viii. IT Governance Framework: Control Objectives for Information and Related Technology (COBIT 5) of the Information Systems Audit and Control Association (ISACA); and
- ix. Publications of World Bank, Commonwealth Secretariat, Department of Treasury and Finance of Victoria (Government of Australia), Organisation for Economic Cooperation and Development (OECD), research and advisory consultants like Gartner and Mc Kinsey & Company.

Details on other assessment criteria used are in the relevant paragraphs in the Report.

1.8 Data Validation Process

Management of the MITCI, its Divisions and user Ministries and Departments were provided with the audit criteria, findings and recommendations to confirm their relevance, accuracy and suitability.

1.9 Structure of the Report

The remaining part of the Report covers the following:

- Chapter Two describes the audit area, the processes, structures, roles and responsibilities of key players and relevant stakeholders in the implementation of ICT-enabled projects under the e-Government Programme;
- Chapter Three presents the audit findings based on the three specific audit questions;
- Chapter Four provides audit conclusion; and
- Chapter Five presents the recommendations based on the audit findings and conclusions.

CHAPTER TWO

DESCRIPTION OF THE AUDIT AREA

This Chapter describes the audit area, the processes, structures, roles and responsibilities of key players and relevant stakeholders in the implementation of ICT-enabled projects under the e-Government Programme.

2.1 Introduction

In this Chapter, the concept and benefits of e-Government, and its implementation through ICT-enabled projects to enable the achievement of Sustainable Development Goals (SDGs) at national level are described. Also, the overarching policies, strategies, guidelines, legal framework, associated investments, funding, infrastructure, processes, key stakeholders and their roles in implementation of the ICT-enabled projects are presented.

The description has as background a ‘Whole-of-Government Approach’ which has been adopted to understand the audit area, and eventually help to develop the audit findings, conclusion and recommendations (Appendix II refers).

2.2 E-Government and e-Governance

The World Bank has defined e-Government as ‘Government-owned or operated systems of information and communications technologies that transform relations with citizens, the private sector and/or other Government agencies so as to promote citizen empowerment, improve service delivery, strengthen accountability, increase transparency, or improve Government efficiency’.

While e-Government entails delivery of Government services and information to the public using electronic means, e-governance allows direct participation of constituents in Government activities. In more simple terms, e-governance is the use of ICT to support good governance. Countries which have embraced e-Government have achieved three distinct goals as depicted in Figure 1.

Figure 1: Three distinct goals achieved through e-Government



Source: 'World Bank – E-Government for Development Countries, by Booz, Allen & Hamilton'

2.3 Sustainable Development Goals and e-Government

The United Nations e-Government Survey 2018 ranks Mauritius first in Africa and 66th worldwide. The Survey measures e-Government effectiveness in the delivery of public services and the global trend towards higher levels of e-Government development. It examines how digital technologies and innovations are impacting the public sector and changing people's everyday lives. As evidenced by the survey assessment, exploiting digital Government has far-reaching potential for countries, not just in improving institutional processes and workflows for greater efficacy and effectiveness of public service delivery, but also in ensuring inclusion, participation and accountability to leave no one behind.

The MITCI, through its Digital Strategy Vision 2030, intends to implement digital technologies in all the Ministries and Departments thus fulfilling the potential of the 2030 Agenda for Sustainable Development. The ICT applications in use and in the pipeline under each SDG are illustrated in Appendix III.

2.3.1 Digital Government enablers, Toolkits and recognition

The MITCI, through CIB, has been instrumental in the conceptualisation, design and implementation of the enablers, platforms and toolkits that shape up the Digital Government architecture, such as

- i. InfoHighway – Award winning data sharing platform;
- ii. Government Cloud at GOC – Hosting of all Government e-Services, Websites, Mobile Apps and Systems;
- iii. Government Intranet System – Connecting all Government agencies to Internet and systems via High-Speed Fibre links;
- iv. Government Email Service – Email infrastructure for all Public Officials;
- v. E-Services Portal - One-Stop Shop for all e-services with a single login; and
- vi. Online Payment Facility – Ability to pay online for services.

Several milestones were also achieved, such as winning International, as well as National Awards.

2.4 Policies, strategies and monitoring and reporting structures

Mauritius started its computerisation journey in the 1990s. The main focus of computerisation 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. In 2007, e-services have been added to the e-Government agenda through the National ICT Policy 2007, and enhanced with subsequent policies, strategies, economic vision, monitoring and reporting structures as described in the following paragraphs.

2.4.1 National ICT Policy 2007

This was the first time that a comprehensive ICT Policy was elaborated to realise the vision of Government in developing an information-based economy and an information society in our country. The policy promoted the acceleration of e-Government which included the following measures:

- Special initiative to cater for delivery of e-Government applications ‘Anytime, Anywhere and Anyhow’;
- A comprehensive business process re-engineering in Ministries and Departments to bring about efficient delivery of services to businesses and citizens, and the enhanced use of electronic document management in the Public Sector; and
- The implementation of information systems and shared databases across Ministries and Departments in order to facilitate information sharing and communications.

Under this Policy, several key e-Government projects were implemented and completed, which included e-Parliament, e-Archive, and e-Project Management Solution. A number of e-Government Master Plans (Health, Agriculture, Traffic and Prisons) were initiated.

2.4.2 National ICT Strategic Plan 2011-2014: Towards i-Mauritius

The ‘Towards i-Mauritius’ emphasised the need to redesign processes in order to make them more effective and recommended the re-orientation of e-Government initiatives in the following ways:

- i. Need to centralise initiatives and decentralise implementation;
- ii. Prioritise services (Mission) and identify measurable service goals (outcomes);
- iii. Identify, appoint and empower mission leaders;
- iv. Increase Private Sector participation;
- v. Put in place a common infrastructure, policies, standards and framework;
- vi. Service delivery through Common Service Centres; and
- vii. Think big, start small and scale fast

Also, in terms of governance at strategic level, there was the proposal to set up a National e-Government Apex Committee. To achieve the policy goals and objectives as determined by the Apex Committee, a high level e-Government Programme Steering Council had to be set up at the Ministry’s level to oversee the e-Governance Programme and ensure intra-departmental coordination.

At Programme Level, recommendation was made in the Plan for the creation of an e-Governance Mission Team, comprising major actors like CIB, CISD, NCB, GOC to support the Programme Steering Council and Apex Committee. The Team would function

as the secretariat and full time internal advisory body in undertaking e-Governance projects or enhancing the performance of the existing programmes. This team would be responsible for undertaking the groundwork for providing an overall direction, standardisation and consistency through programme management of the e-Governance initiatives. All interdependencies, overlaps, conflicts, standards, overarching architecture, security, legal aspects, etc. across projects, as well as core and support infrastructure shared across several projects would fall under the purview of this team. It was expected that the e-Governance Mission Team would typically consist of core people, like Chief Information Officers who will be involved in the development and operations of the projects, as well as the initial actors who had led the various existing projects so far. The actual size would depend on the scale and maturity of the e-Governance Programme.

2.4.3 Economic Vision 2030

The Economic Vision 2030 of August 2015 aimed at transforming the ICT industry into a key sector by fostering innovation and creativity and developing a sustainable and high value added-economy that would provide more accessible and higher-value opportunities for the Mauritian citizens. The strategy revolved around four main objectives which included the transformation of Mauritius into a Smart Island. Also, one of the objectives was to achieve greater trust in Government through responsiveness and transparency, and by providing opportunities for greater engagement by service users and citizens in general.

2.4.4 E-Government Strategy 2013-2017

In 2013, an e-Government Strategy 2013-2017 was developed taking into consideration internal and external elements that constitute the building blocks for a successful e-Government. New approaches were adopted to support a shift from counter services to digitalised services, through a focus on environment in which citizens and businesses determine their own needs and address them in partnership with Government. Government has modernised legacy systems, implemented a number of online services and mobile applications, as well as an open data portal, amongst others. These measures have assisted and guided Government to drive its e-Government agenda.

2.4.5 Public Sector Business Transformation Strategy 2017

The Public Sector Business Transformation (PSBT) Bureau which operates under the aegis of the then Ministry of Civil Service and Administrative Reforms was set up in 2017. The main objective of the Bureau is to be the catalyst of Government's transformation agenda and to contribute towards the creation of a new management model for the Mauritius Public Service.

The PSBT Bureau plays an oversight role in the implementation of the Public Sector Transformation Strategy which includes digital transformation as one of its 10 implementation pillars. MITCI is a key player, being a member of the High-Powered Committee. The deliverables of the Strategy as set out in the implementation guideline of the PSBT are:

- Technology is an accelerator for improved quality service, efficiency, productivity, performance and results;

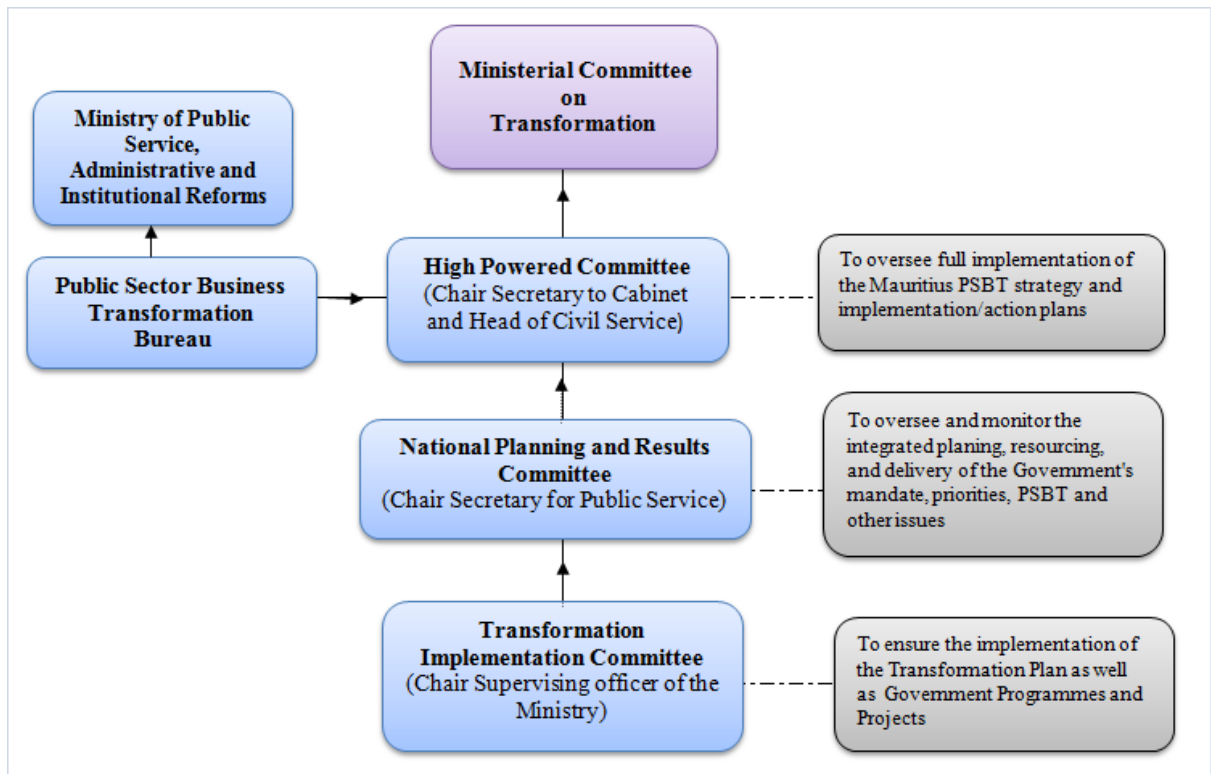
- E-platforms (such as e-procurement), tools, apps and technology are used to drive customer-centric digital transformation and e-participation by the public and clients;
- Embrace digital curiosity;
- Share more information between all Ministries in a Whole-of Government to improve and shorten decision cycles, and use centrally-pooled data to take decisions in a standardised and consistent manner; and
- Dedicate resources, time and effort in developing a new workplace, culture and ethos so that digital transformation is successful.

A three-pronged approach has also been adopted as an implementation model which is governed by the action of a:

- Transformation Implementation Committee (TIC) set up in each Ministry and Department to spearhead the transformation process in a smooth manner;
- National Planning and Results Committee chaired by the Secretary for Public Service of the then Ministry of Civil Service and Administrative Reforms; and
- High Powered Committee on PSBT chaired by the Secretary to Cabinet and Head of the Civil Service.

Figure 2 illustrates the flow of information, lines of reporting and terms of reference.

Figure 2: Implementation Model through Committees



Source: NAO analysis of PSBT Strategy

→ Flow of information → Accountable to Terms of reference

2.4.6 Digital Government Transformation Strategy 2018-2022

The MITCI, in consultation with the industry, has formulated a Digital Government Transformation Strategy 2018-2022 which outlines the governmental imperative for making Government services ‘digital by default’, and improving the efficiency, effectiveness and governance of public services through a successful digitalised transformation. The DGTS shapes Government priorities and promotes collaboration in the design of Government services.

While the DGTS provides an overarching digital policy relevant for the whole of Government, irrespective of any development sector, Ministries and Departments should also ensure that they implement e-Business strategies for their respective sectors, which include business process reengineering and a roadmap to achieve digital transformation of their services and processes in line with the DGTS.

An action plan to accompany Government agencies in the implementation of the Strategy was formulated, together with a PMMI, which describes the project management methodology, the processes, and roles of stakeholders and provides project document templates, among others for the implementation of ICT projects.

2.4.7 Digital Vision 2030

The Digital Vision 2030, formulated in 2018, is based on the Economic Vision 2030 of August 2015, Government Programme 2015-2019, past Budget Speeches and the PSBT Strategy. As regards e-Government, the main recommendations formulated included the following:

- i. Review and align procurement clauses to cater for new trends in technology and ICT deployment methods;
- ii. Review existing legal and regulatory framework to sustain various Digital Government initiatives;
- iii. Re-engineering of user processes before application of technology;
- iv. Dedicated Business Product Owners in Ministries/Departments;
- v. End-to-end digital services with paperless transactions and payments;
- vi. Use data and analytics for monitoring and continuously improve quality of digital services;
- vii. Data should flow instead of paper – data sharing through the Info Highway; and
- viii. Ministries/ Departments should follow the PMMI.

The above recommendations are aligned with other related business transformation strategies for achieving the Mauritius Vision 2030.

2.5 Legal Framework

A crucial element for ICT development is the availability of a conducive legal and regulatory framework. In this perspective, appropriate legislations on data security, protection against cyber-crimes, the liberalisation and regulation of telecommunications and data protection have been enacted, namely

- Computer misuse and cybercrime legislations - Computer Misuse and Cybercrime Act;
- Data protection legislations – Data Protection Act;
- Electronic transactions legislations – Electronic Transactions Act; and
- Information and communication technologies legislations - Information and Communication Technologies Act.

These legislations were framed in line with the mandate of the MITCI. The Police Department, Data Protection Office and the Information and Communication Technologies Authority are the enforcement agencies of these legislations.

2.6 Roles and Responsibilities of Key Players

The MITCI is one of the key players in respect of the e-Government Programme, supported by entities operating its aegis. The entities which are directly involved are:

- Central Informatics Bureau;
- Central Information Systems Division;
- IT Security Unit;
- Data Protection Office; and
- GOC of the NCB.

The other key players are the User Ministries/ Departments and Solution Providers /Vendors. User Ministries/ Departments have the ownership and responsibility of implementing ICT projects and managing contracts with the support of designated officers.

Details in respect of their respective missions, visions, objectives, organisations and processes are described in the following paragraphs. A brief graphical representation of the roles and responsibilities is as per Appendix IV.

2.6.1 Ministry of Information Technology, Communication and Innovation

The vision of the MITCI is to move towards ‘A well connected, knowledge-based and high-income society, through a culture of innovation and the adoption of technology’. Its mission is ‘To provide a high-speed communication infrastructure, develop a digital economy and strengthen innovation in industry by improving delivery of service, as well as the dissemination of information through the optimal use of emerging technologies’.

The MITCI is responsible for the formulation and implementation of Government policies in the ICT sector with the following objectives:

- i. Formulate appropriate policies and provide the necessary legal framework for the development of ICT and its optimal use across all sectors;
- ii. Facilitate, through the implementation of an e-Government programme, the provision of Government services electronically anytime and anywhere for the greater convenience of the public;
- iii. Promote and facilitate the development of the ICT sector;
- iv. Ensure that the ICT culture permeates all levels of the society to bridge the digital divide to the extent possible;
- v. Promote the development of ICT enabled services, including e-Business;
- vi. Encourage the adoption of new technologies and best practices in the ICT sector;
- vii. Promote capacity building in ICT sector; and
- viii. Promote and facilitate IT Security within Government systems.

To support the achievement of these objectives, a Chief Technical Officer assists the MITCI. Relevant duties incumbent in this position in respect of e-Government projects include the need to monitor progress, evaluate e-Government projects to assess impact of service delivery and to advise on corrective actions. The roles and responsibilities and duties include the following:

Roles and Responsibilities

To play a leading role in providing strategic direction for the development and growth of the ICT sector

Duties

To be responsible to the head of the Ministry for the performance of the following duties:

- To ensure the provision of effective ICT support services to Ministries/Departments; and
- To ensure the promotion and adoption of new technologies and best practices in ICT.

To monitor progress in the implementation of e-Government projects and to advise on corrective measures needed, if any.

To evaluate e-Government projects to assess the impact of service delivery.

(a) Central Informatics Bureau

The CIB's main function is to promote e-Governance through the provision of project management, consultancy and advisory services to Ministries and Departments for the successful implementation of e-Government projects and on ICT matters. The main objectives are as follows:

- i. Provide strategic directions to Ministries and Departments in their digital transformation;
- ii. Initiate, implement and monitor ICT projects in Ministries and Departments;
- iii. Work in partnership with Ministries and Departments to improve on how they deliver digital services;
- iv. Provide products and platforms that can be reused across Ministries and Departments;
- v. Involve in procurement and choice of ICT solutions;
- vi. Empower Public Officers by building digital skills capability across Government;
- vii. Formulate methods to deliver and continuously improve services for users; and
- viii. Propagate the ICT culture within the Civil Service.

Currently, the CIB is engaged in providing project management services and whole gamut of technical capabilities in not less than 250 projects (of which 130 operational projects, 35 ongoing major projects and 55 new major projects for financial year 2019-20) for the entire Civil Service.

Of the 48 funded posts at the CIB, 36 are of Programme Manager Grade whose core role and responsibilities are project management services and technical advice to Ministries/ Departments. As at January 2020, there were 23 Programme Managers and 10 Lead Programme Managers in post under the supervision of a Director and a Deputy Director. Details in respect of their respective qualifications, roles, responsibilities and duties are listed in Appendix V.

(b) Central Information Systems Division

The CISD has a Technical Section (Analyst Cadre) and an Operations Section (Technical Support and Data Entry Cadre). The main services provided in relation to e-Government include development and maintenance of Government Websites, administration of the Government e-mail services, technical assistance in the choice of computer hardware, software and related services, application development and implementation, Database, System and Network Administration, application software maintenance, commissioning of computer equipment, first-level technical support on personal computer hardware and software, provision of central backup service for data in Ministries and Departments, computer operations and data capture.

(c) *IT Security Unit*

ITSU's vision, mission and objectives are in line with the mission of the MITCI to provide the right environment for the harnessing of ICT. The mandate of the IT Security Unit is to:

- develop and review IT Security Standards for implementation in the Civil Service;
- carry out security audits of IT systems within the Civil Service and make recommendations thereon;
- assist Ministries/Departments in the implementation of IT Security Standards;
- conduct internal training sessions in view of disseminating information on IT Security Standards; and
- liaise with external bodies in view of the implementation of Government policies related to IT security.

The execution of these responsibilities is relevant and conducive to the implementation of e-Government programme.

Of the 21 funded posts at the ITSU, 20 are of Programme Manager Grade.

(d) *Government Online Centre*

The GOC, under the management of the NCB, is the key infrastructure to enable e-Government. It is the data centre which hosts e-Government and back office applications of Ministries and Departments, the Government Web Portal (Websites of Ministries and Departments), Government e-mail services, as well as all Government services provided online. The GOC hosts IT infrastructure, such as servers and networking to ensure that online Government services are available round-the-clock to citizens, businesses and Government.

(e) *Data Protection Office*

The Data Protection Office aims at protecting privacy rights of individuals by ensuring that the principles of data protection are observed. For e-Government projects that deal with personal data, the Data Protection Office provides advisory services to Ministries and Departments to comply with the Data Protection Act so that issues of data protection can be identified and resolved as early as possible in the project life cycle.

2.6.2 *User Ministries/ Departments*

User Ministries/Departments retain the ownership, funding and responsibility of implementing ICT projects and management of related contracts. Designated officers from different functional areas, like Technical, Professional, Procurement and Supply, Finance Section, Human Resource and Administration departments are involved in the implementation of the projects. They collaborate and contribute their knowledge of the business processes through different stages of a project. Their main responsibilities include the following:

- contribute towards preparation of e- Government Plans and driving ICT-enabled projects;
- collaborate with all stakeholders involved in the implementation of ICT projects;
- administer ICT contracts; and
- support towards the provision of project- related resources and logistics.

2.6.3 Solution Providers/ Vendors

A large percentage of procurement of ICT systems in the Civil Service is outsourced to external vendors. Software and hardware vendors are important stakeholders in ICT projects. They are responsible for supply, installation and maintenance of computer systems in User Ministries and Departments. As per PMMI, the Solution Providers/Vendors are involved in the following stages:

- i. Project Implementation phase;
- ii. Software Development Activities;
- iii. In case of tailor-made software, the preparation/amendment of Software Requirement Specifications (SRS) and Software Design Description (SDD);
- iv. Preparation of User Acceptance Test;
- v. Software development/full-fledged testing and correction of defects/issues;
- vi. Software installation;
- vii. User training on application; and
- viii. System commissioning by CISD together with user Ministry/Department.

Their services are contracted by User Ministries and Departments after selection through bidding procedures governed by the Public Procurement Act.

2.7 Other Players

The MoFEPD has authority over provision of financial clearances for ICT-enabled projects and contributes towards their implementation. The PRB recommends the organisational structure, pay, grading and conditions of service of personnel involved in these projects and advocates reforms to drive the e-Government Programme.

2.7.1 Ministry of Finance, Economic Planning and Development

The MoFEPD is responsible for providing financial clearances for all projects as per established procedures. An ICT-enabled project is initiated by a Project Brief prepared by

a Client Ministry/ Department in collaboration with the CIB, which includes a high level scope, resource requirements, implementation time frame and milestones, expected benefits and a cost estimate. The project is expected to be aligned with its business strategy. Based on the Project Brief, a Project Request Form (PRF) is submitted to MoFEPD, which includes estimated project value, need and objective of project, and time schedule. The MoFEPD appraises the project as per the PRF, and if specific criteria are met, funding of same is approved.

The Capital Project Process Manual of MoFEPD has prescribed processes to ensure that projects are adequately prepared so as to avoid unnecessary delays at implementation stage. It provides for project proposals:

- below Rs 25 million – MoFEPD to appraise and give appropriate clearances
- Rs 25 million and below Rs 100 million – client Ministry/ Department to seek Cabinet approval, and thereafter proceed with project preparation
- Rs 100 million and above – Client Ministry/ Department to seek Cabinet approval before carrying out the appropriate study of the project, and subsequently for project preparation and implementation

Capital projects with a project value above Rs 25 million should be submitted first to the Project Plan Committee before they can be considered for inclusion in the Public Sector Investment Programme, and eventually in the Budget, subject to financial clearances. The Public Investment Management Unit set up under the MoFEPD carries out monitoring and evaluation of projects above Rs 100 million.

2.7.2 Pay Research Bureau

The PRB is responsible for the continual review of the Pay and Grading Structures and Conditions of Service in the Public Sector. Among other tasks, the Bureau is responsible for devising appropriate job evaluation schemes and carrying out assessment of jobs, formulating policies and making recommendations on Public Sector Management Reforms, salaries, allowances and other conditions of service. This includes a purview on the suitability of the structures, conditions and scheme of services of the MITCI and its Divisions to drive and implement the e-Government Programme.

In its Reports, the Bureau has been advocating about the need to modernise the Public Sector through various reforms, including e-Government initiatives and computerisation of work processes. In 2016, following a survey carried out, the Bureau reported that despite the implementation of various systems in the Public Sector, the adoption of modern technologies seems quite invisible, moving at a slow pace. It also observed that many recommendations made with reference to e-Government have either not been implemented or implemented partly, including those introduced in its previous Reports. It also pointed out that e-Government and Public Sector computerisation are not among the priority goals of organisations despite Government's objective of graduating the ICT sector to the next level, and embedding the use of technology in the day to day life of public servants.

In its Report of 2016, PRB recommended the following in respect of e-Government:

- The setting up of an e-Government and Computerisation Steering Committee at the MITCI, within three months as from the date of publication of this Report, under the Chairmanship of the Chief Technical Officer, representatives of the CIB, ITSU and CISD, as well as representative/s of the then Ministry of Finance and Economic Development (MoFED), among others, to formulate policies for each Ministry/ Department/ Organisation regarding computerisation plan and modernisation of the Public Sector through the deployment of IT;
- That each organisation should in consultation with MoFED, make necessary arrangements for the voting of a budget regarding the setting up and implementation of the e-Government initiative or related IT issue; and
- That the e-Government and Computerisation Steering Committee should submit a progress report on a bi-annual basis to the Steering Committee on Public Sector Reforms.

These recommendations were formulated in response to the non-implementation of several e-Government projects due to the following challenges:

- i. Financial constraints;
- ii. Shortage of IT personnel at the CIB and CISD;
- iii. Lack of IT professionals possessing the desired skills and competencies;
- iv. Resistance from staff to change;
- v. Absence of an e-culture;
- vi. Inadequate collaboration among departments; and
- vii. An undefined role on ownership of projects.

2.8 Investments in projects and annual cost

Some Rs 2.2 billion have been invested in ICT-enabled projects over the past four financial years ended 30 June 2019. This comprised acquisition of hardware, software, development of new and upgrade of existing applications, and associated services. Table 1 refers.

Table 1: Investment in ICT-enabled projects during past four years ended 30 June 2019

e-Government ICT-enabled projects	Total (Rs '000)
Acquisition of Equipment for Early Digital Learning Programme	590,667
Upgrading of E-Government Projects	543,614
Acquisition of IT Equipment	415,199
Live Broadcasting Project	137,213
Mauritius E-Licensing Project	94,946
National Innovation Programme/ Innovative ICT related Schemes	89,024
E-Business Plan	49,889
LAVIMS Project	48,248
Acquisition of Software	38,542
Standard Equipment for Police	33,866
Upgrading of ICT Equipment	27,046
Upgrading of GOC	24,143
Computerisation of National Transport Authority	21,307
Acquisition of Equipment for Sankore Project	18,793
E-Payment Project	12,100
Mauritius National Identity Card and Related Projects	9,863
Enhancement of Employment Information Centres	8,800
Cooperatives Division e-Registration Project (CDeRP)	7,520
Upgrading of Criminal Intelligence System	7,295
Acquisition of Equipment for School IT Programme (Computing)	6,717
Environment Impact Assessment Licensing Project	3,983
E-Document Management System	1,055
Acquisition of Braille PC for Visually Impaired Children	1,000
Total	2,190,830

Source: Treasury Accounting System

For the year ended 30 June 2019, some Rs 100 million have been paid as salaries (excluding Travelling Allowances) to some 200 officers of MITCI and its Divisions involved in e-Government programme. This sum is exclusive of payment for the Data Protection Office and GOC personnel. Table 2 refers.

Table 2: Salaries paid to officers of MITCI and its Divisions during financial year 2018-19

Entity	Grade	No of Officers	Amount (Rs million)
MITCI	Chief Technical Officer	1	1.4
CIB	Director, Deputy Director / Lead Programme Managers, Programme Managers	48	30.5
ITSU	Head, Programme Managers	21	11.5
CISD	Director, Deputy Director, Technical Managers, Senior System Analysts, System Analysts, Senior Assistant System Analysts and Assistant System Analysts	134	57.1
	Total	204	100.5

Source: Treasury Accounting System

2.9 ICT infrastructure supporting e-Government

Government entities have diverse ICT infrastructure, dependent on the level of digitalisation of their business processes. It ranges from entire work still being done on paper up to fully digitalised services.

The current system infrastructure has two main components – the centralised data center (servers and associated facilities) of the GOC, and the Info Highway which is the centralised Government Gateway which serves as the medium for data exchange between different Government institutions.

As regards the application infrastructure, the GOC provides Internet access and e-mail facilities to employees of Ministries and Departments through the Government Intranet Network System. It also provides other services, such as website publishing and hosting, common and back office applications (such as Registry) for Ministries and Departments. The Government Web Portal, which is the gateway to access applications online through one of its sub-portals (the Citizen Portal), is also hosted at the GOC. Some 140 e-Services to interact with the Government anytime, anywhere and in real-time are available online.

2.10 Project Management Framework for ICT Projects

An 'ICT Manual for the Civil Service' was published by the then Ministry of Information Technology and Telecommunications (MITCI) in 2004. The document was expected to serve as a roadmap for Ministries and Departments that plan to embark on computerisation projects and helps users understand their roles and responsibilities throughout the different phases of project implementation.

In 2013, the PMMI was prepared by the CIB, and updated in May 2016. It was approved by Government in 2017 and circulated to all Ministries / Departments in May 2018. The PMMI was reported by the MITCI to be based on leading international project management

methodologies, such as Project Management Body of Knowledge (PMBOK)⁵ and Projects In Controlled Environment (PRINCE2)⁶ of United Kingdom. As such, it should be used as a reference document for effective and efficient project management methodology for the implementation of ICT projects in the Civil Service. A Committee was to be set up at the level of the MITCI to monitor the use and impact of the PMMI and also to ensure continuous update of the document in line with best practices. The PMMI is expected to support the e-Government strategy by:

- defining the processes involved to manage the implementation of ICT projects;
- outlining the roles of the stakeholders in the formulation of ICT-related policies, implementation of ICT projects and operation of Government systems; and
- providing project document templates to be used throughout all phases of the implementation of ICT projects.

The phases and activities are depicted in Figure 3.

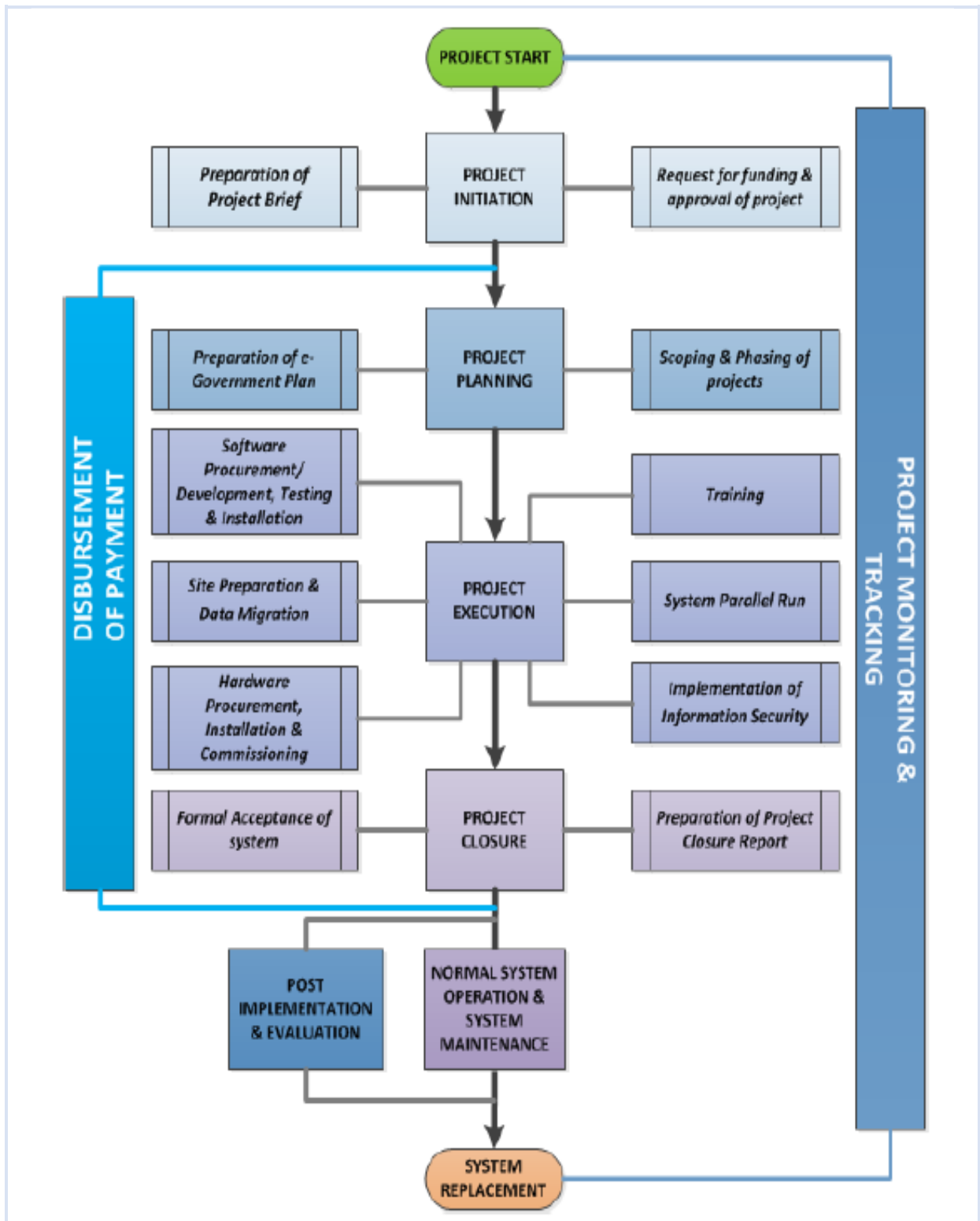
This framework is expected to achieve the following:

- Increase efficiency in implementing projects;
- Reduce variances in project results, including cost overruns and schedule slippage;
- Provide a harmonised understanding of steps, roles and approach in the implementation of all ICT projects;
- Improve maturity of project management processes through the use of proven methodologies; and
- Build a common base of project management document templates to be used in practice.

⁵ PMBOK is a recognised standard used by project managers since 2013. It describes the project management processes, tools and techniques used to manage a project toward a successful outcome.

⁶ PRINCE2 was launched in 1996 in response to user requirements for improved guidance on project management. It is based on the experiences of scores of projects, project managers and project teams

Figure 3: Project Management Framework applicable to ICT projects



Source: PMMI

CHAPTER THREE

FINDINGS

This Chapter presents the audit findings on whether the MITCI and its Divisions were effective in facilitating the implementation of ICT-enabled projects across user Ministries and Departments in order to enhance their service delivery.

3.1 General

As per good practices, ICT-enabled projects are implemented on the basis of a strategic framework, including elements such as governance, emerging trends and technologies, business systems and applications, infrastructure and technology, IT business continuity, security, project management and information management. All these elements should be handled in an integrated manner during implementation of ICT-enabled projects. This would ensure that the ICT systems delivered are secure, appropriately developed and maintained in order to achieve their objectives.

Findings in respect of the assessment on the support provided by the MITCI and its Divisions have been developed using a top-bottom perspective and a Whole-of-Government approach which focus on achievement of strategic objectives of Government. They covered areas of support in relation to e-strategies and digitalisation of prioritised processes, project governance and project management methodologies used. The findings are organised in paragraphs 3.2 to 3.4 as follows:

Paragraph 3.2	Adequacy of support towards e-strategies and digitalisation of prioritised processes;
Paragraph 3.3	Support towards the setting up and operation of effective project governance structures; and
Paragraph 3.4	Support towards adoption of appropriate methodologies to deliver ICT-enabled projects as per their defined time frames, budgeted costs and specifications/ quality.

3.2 Adequacy of support towards e-strategies and digitalisation of prioritised processes

As described in Chapter 2, over the past years, there have been gradual formulation of overarching visions, plans, policies, strategies, guidelines, structures, recommendations, organisational and legal frameworks within which ICT-enabled projects were being implemented. These projects were expected to be gradually derived from e-business plans or e-strategies of respective Ministries and Government entities. This would have ensured alignment to high level Government strategies and delivery of the intended benefits through digitalisation of prioritised processes.

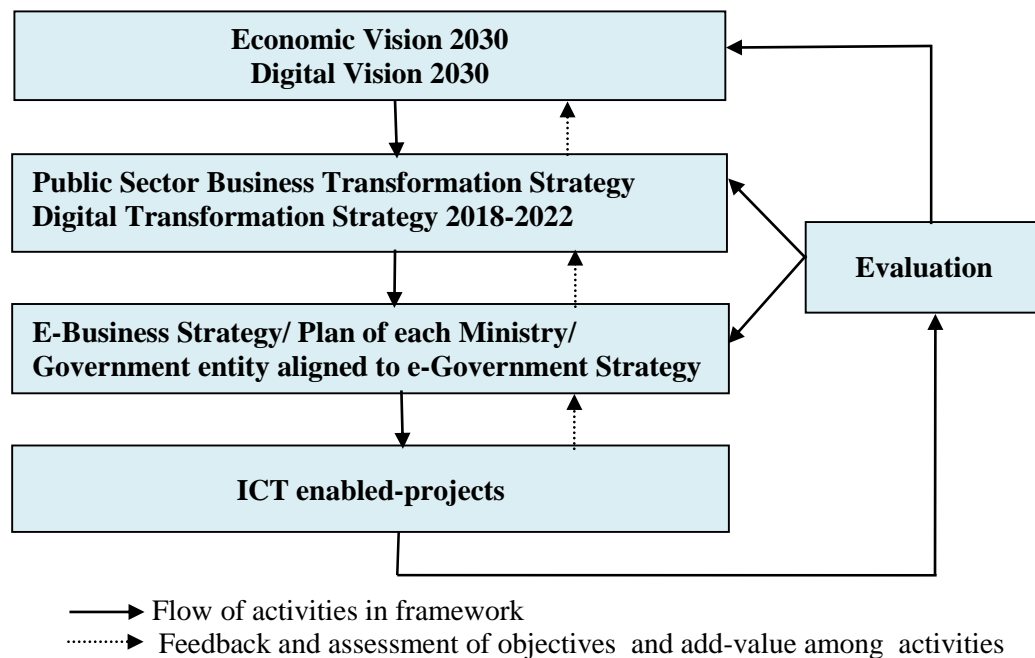
This Section examined whether Ministries and Government entities were adequately supported to align their information strategies with their business objectives and to digitalise their prioritised processes through well-functioning structures and processes. The findings are organised as follows:

- 3.2.1 Appropriate structures to support, monitor and assess impact of the interventions;
- 3.2.2 Adequate support to Ministries and Departments to develop and implement their e-Business Strategies/ Plans; and
- 3.2.3 Appropriate mechanisms to prioritise and digitalise processes.

3.2.1 Appropriate structures to support, monitor and assess impact of the interventions

The current e-Government system was analysed in order to identify the linkages between the visions, policies and strategies, programme, and investments in the projects to generate value. Figure 4 below illustrates the linkages based on a recommended Strategic Framework Model⁷.

Figure 4: Strategic Framework Model of current e-Government System



Source: NAO Analysis

The visions determine the desired state of Government in the long term. The policies and strategies describe a set of political commitments with detailed goals and objectives that reflect the visions. The programme determines strategies and actions to be implemented through the projects with commitment of financial resources. The projects implement the goals described in the programme. Evaluation helps to ensure that the projects generate desired values, measures the state of e-Government and better plans for future policies/ strategies.

⁷ ‘Strategic Framework for Designing e-Government in Developing Countries - Catherine Mkude, Maria Wimmer.’

The adequacy of support, functioning of the recommended structures and assessment of interventions under this Framework in paragraphs 3.2.1.1 to 3.2.1.5.

3.2.1.1 Structures to support e-Government Programme and ICT-enabled projects

In respect of the prominent roles expected to be played by the MITCI and its Divisions to provide oversight, advice and monitoring, the following paragraphs examined the support provided through the following structures:

- Structures recommended in ICT Plan, Strategies and PRB Reports;
- Structures set up following PAC Report March 2018;
- Working Group on Digitalisation of Public Sector set as per Budget 2018-19; and
- Support of the MITCI to implement the DGTS through PSBT Bureau.

(a) Structures recommended in ICT Plan, Strategies and PRB Reports

In the National Strategic Plan of 2011-2014 and the subsequent Digital Strategies, the establishment of Committees, Council and Task Force with high level objectives as per Table 3 was recommended. None of these structures were set up, except for two Minister-led Committees for e-Health and the HRMIS Project, and two committees regarding the implementation of Digital Mauritius 2030 and DGTS.

Table 3: Recommended structures and objectives in ICT Plan and Digital Strategies

Strategic Plan/ Strategy	Proposed Structure	Objectives
National ICT Strategic Plan 2011-2014	<ul style="list-style-type: none"> – National e-Government Apex Committee, ideally under the Chairmanship of the Prime Minister – At Ministry level - high level e-Government Programme Steering Council headed by the ICT Minister – At Programme Level - creation of an e-Governance Mission Team 	<p>To determine policy goals and objectives and to address coordination</p> <p>To oversee the e-Governance programme and ensure intra-departmental coordination</p> <p>To function as the Secretariat and full time internal advisory body in undertaking e-Governance projects</p>
e-Government Strategy 2013-2017	<ul style="list-style-type: none"> – Legal and Regulatory Committee – Reforms Steering Council 	<p>To review existing legal and regulatory framework to sustain various e-Government initiatives</p> <p>To facilitate approval and funding of e-Government projects</p>
Digital Government Transformation Strategy 2018-2022	<ul style="list-style-type: none"> – High Level Digital Government Task Force chaired by the Prime Minister – Minister-led Committees 	<p>Governance of funding for digital Government projects and review progress of Minister-led Committees</p> <p>To monitor implementation of digital transformation projects at the level of line Ministries/ Departments</p>

Source: MITCI

In parallel, in the PRB Reports, recommendations were made for the setting up of similar structures with objectives described as per Table 4. None of the structures as recommended in the PRB Report 2013 were set up during the period 2013 to 2016. The setting up of the e-Government and Computerisation Steering Committee at MITCI post PRB 2016 was based on the observations of PRB on the problem of ownership of projects. The Bureau considered that though e-Government initiatives have been the responsibility of top management, several e-Government projects which had been identified for implementation, did not materialise due to a problem of ownership of these projects. The Committee was constituted in 2016, and as at January 2020, only two meetings had been held in May and June 2016.

The importance of a Steering Committee at the level of the MITCI for all ICT projects were again emphasised by the PAC in its Report of March 2018.

Table 4: Structures and objectives recommended in Pay Research Bureau Reports

Pay Research Bureau	Proposed Structure	Objectives
PRB Report 2013	E-Government Monitoring Committee in all Ministries/ Departments Public Sector Reforms Steering Committee under the chairmanship of the Secretary to Cabinet and Head of the Civil Service	Formulate policies regarding the setting, ensure the implementation of e-initiatives and their sustainability, monitor and evaluate e-initiatives/ e-Government projects and tender advice on corrective actions Follow-up on the progress made regarding e-Government in the Public Sector
PRB Report 2016	E-Government and Computerisation Steering Committee at MITCI	Formulate policies for each Ministry/ Department/ Organisation regarding computerisation plan and modernisation of the Public Sector through the deployment of IT

Source: PRB Reports

(b) Structures set up following Public Accounts Committee Report March 2018

In its Report of March 2018, the PAC noted that there was no Masterplan for the computerisation of the Public Sector, thereby leading to an absence of a holistic approach to ICT development. Each Ministry has its own IT Department, and none was answerable or accountable to the MITCI. Also, each Ministry was autonomous in relation to ICT investment, and therefore, the control on ICT spending was found to be fragmented. CIB Project Managers were posted at various Ministries, but there was no proper line of responsibility and accountability. A lack of coordination prevailed among three different departments of the Ministry, namely the CIB, CISD and ITSU. Amongst other recommendations, the PAC proposed a centralised agency to monitor IT Strategies and an external appraisal of the whole computerisation programme for Government.

Following the publication of this Report, a Steering Committee on the MITCI's Digital Projects was constituted at the MITCI in February 2019. It comprised senior officers of the MITCI and its Divisions. As at 31 January 2020, eight meetings were held, with the last one in October 2019. However, the objective was to monitor only projects which were being floated and implemented by the MITCI, and there was no apex structure at the MITCI to oversee in a holistic way all projects across Ministries and Departments.

A Master Plan for e-Government is generally a dynamic long-term planning document that provides a lay out to guide future growth and development at national level. It is an overarching planning document with relatively more extensive analysis and recommendations when compared to the five-year plans and strategies described in paragraph 2.4.

The Ministry informed NAO that it had formulated (through the CIB) successive digital strategies which it considered to be Government masterplans, namely the e-Government Strategy in 2013 and the DGTS in 2018. Also at the end of the coverage period of the e-Government 2013-2017 Strategy following National Household Surveys, workshops, focus sessions, validation workshops, as well as validation with e-Government experts were carried out. Both strategies provide a blueprint with recommendations, budgetary requirements, and action plan for the computerisation of the Public sector in a citizen-centric and holistic manner. Both strategies were approved by Government, launched publicly, made aware to the whole of Public Sector through circulars and presented during several workshops.

(c) Working Group on Digitalisation of Public Sector set as per Budget 2018-19

In November 2018, in line with the Budget Speech 2018-19, a Working Group on Digitalisation of Public Sector Services was set up at the level of the Prime Minister's Office, comprising senior officers of MITCI, CIB, MoFED, Ministry of Civil Service and Administrative Reforms and the Ministry of Health and Quality of Life (MoHQL). The responsibilities of this Working Group included the following:

- i. ensure greater coherence in the digitalisation of Public Sector services;
- ii. address blocking factors to ensure digital transformation is a success;
- iii. monitor implementation of major projects in a timely manner;
- iv. identification of enablers for digital projects;
- v. digitalisation for business facilitation; and
- vi. set clear and well considered milestones for projects.

The Working Group invested itself essentially with the mandate of addressing blocking factors to ensure that digital transformation is successful, and to establish a Dashboard to monitor implementation of major projects in a timely manner with specific milestones. Among major projects which were followed up, were e-Health and e-Procurement.

Important business strategies, like e-Education, e-Agriculture, e-Social Security whose implementation was long outstanding, were not included in the terms of reference of the Working Group. Two meetings were held and the last one was in March 2019.

The Ministry informed NAO that the CIB had at every opportunity provided stakeholders with lists of ongoing and new projects and their statuses, along with individual project briefs for better visibility, understanding of blocking issues, timelines, objectives and benefits of projects. Clear statistics was also provided, together with a workplan to the MITCI on a regular basis to highlight key project updates and blocking factors.

However, as at January 2020, there was no follow up in respect of recommendations formulated, particularly in the setting up of a Dashboard (paragraph 3.2.1.5 refers) to monitor implementation of major projects in a timely manner, with specific milestones.

(d) Support of the MITCI to implement DGTS through PSBT Bureau

In the PSBT Strategy, optimisation and transformation of Government’s business models to bring value are recommended, while how information and communication technologies will be used to realise that value is addressed in the DGTS. Both Strategies aim at the achievement of the Whole-of-Government transformation through coherent actions. In October 2017, Committees were set up under the PSBT Strategy (paragraph 2.4.5 refers). The reporting lines, frequency of meetings and deliverables are outlined in Table 5.

Table 5: Committees, reporting lines and deliverables of PSBT Strategy

Committees	Reporting	Frequency of Meetings	Deliverables
High Powered Committee	Prime Minister	Monthly	Annual Performance and Outcome Report of the work of the High Powered Committee for the Ministerial Committee
National Planning and Results Committee	High Powered Committee	As determined by the Chair	Annual Performance and Outcome Report for the Secretary to Cabinet
Transformation Implementation Committee (TIC)	High Powered Committee	Monthly or more frequently	Annual Performance and Outcome Report for the High Powered Committee

Source: Public Sector Business Transformation Bureau

The success of the transformation strategy rests fundamentally on the efficiency and effectiveness of the TICs set up in the Ministries and Departments. These TICs, among other tasks, had to ensure effective implementation of ICT-enabled projects.

In May 2018, the PSBT Bureau requested Ministries and Departments to submit their Action Plans as per a template, comprising at least five well-defined changes/ proposals for business transformations. The template included the deliverables and actions taken with

respect to each project, and the associated risks and deficiencies identified during its implementation. In November 2018, they were called to submit a progress report on their Action Plans for the purpose of reporting to Government. By October 2019, the majority of TICs responded positively.

As of December 2019, the status was as follows:

- The PSBT Bureau had difficulties to review progress for those TICs which did not provide the information as per the template. In these cases, the Bureau was unable to ascertain whether they were functional.
- Based on the feedback of the Action Plans, a number of challenges were identified in respect of implementation of ICT-enabled projects. These included the definition of requirements and processes at Ministries and Departments level prior to embarking on any digital transformation initiative. As regards the Whole-of-Government Approach for projects like the e-Document Management System, there were inadequate coordinated and holistic initiatives for the implementation of same.
- Two meetings of the National Planning and Results Committee were held during the two-year period.
- Annual Performance and Outcome Reports were not submitted to the relevant authorities.
- The MITCI is one of the six members of the High Powered Committee. Since its set up in October 2017, the Committee had not held any sitting. Consequently, the challenges captured in the Action Plans were not addressed at strategic level.

In the DGTS, a list of actions to support the achievement of the strategic objectives and digital transformation pillar recommendations of the PSBT Strategy is enumerated, which if undertaken would address the challenges identified in the Action Plans of the TICs.

As of January 2020, in the absence of sitting of the High Powered Committee, there was no mechanism which relays the challenges identified in the Action Plans to the MITCI and concerted actions with the PSBT Bureau to address same.

3.2.1.2 Interventions in respect of evaluation of e-Government Strategy and ICT-enabled Projects

As depicted in Figure 4, it is necessary to monitor and evaluate e-Government Strategy to understand demand, assess the benefits to users of alternative proposals and evaluate the effectiveness of proposals in meeting their objectives. Evaluation is needed to argue the case for new projects and expenditure, to justify continuing with the initiatives, to allocate additional IT funds, to assess progress and to understand their impacts⁸. In that respect, prior to initiation, e-Government indicators should be designed to reflect programme goals, and a framework for monitoring and evaluation should be prepared.

⁸ As per 'e-Governance in Small States, 2013- Commonwealth Secretariat'

According to a World Bank Publication⁹, many countries have spent significant time, energy, and resources to design e-strategies, which often remained blueprints or white elephants because no systematic set of indicators had been established to monitor and evaluate their implementation. It is of paramount importance that monitoring and evaluation should not be an ex-post facto component of e-strategies, but a vital part of their design and implementation. Developing the monitoring and evaluation components of an e-strategy ensures that the strategy will be explicit, realistic, and that its implementation will be regularly assessed and realigned. Such assessments allow scarce resources to be used efficiently, particularly given the opportunity cost of deploying such resources in other poverty reduction interventions, such as healthcare or non-ICT infrastructure projects.

In the following paragraphs the interventions of the MITCI and its Divisions in respect of evaluation of e-Government Strategy and ICT-enabled Projects through formulation of indicators, capacity building and setting up of appropriate dashboard were assessed.

(a) Indicators to assess e-Plans and e-Strategies

As mentioned in paragraph 2.3, the United Nations e-Government Survey serves as a tool for countries to learn from each other, identify areas of strength and challenges in e-Government and shape their policies and strategies in this area. The e-Government Development Index developed rates the performance of national Governments relative to one another. It provides a reference with regard to how a country is proceeding with the implementation of e-Government relative to other countries and is not an absolute measurement. A relevant literature review¹⁰ indicates that the Index does not provide a framework against which a particular country can promote implementation of projects, measure progress, identify gaps and take corrective measures. To achieve this, a national e-Government Key Performance Indicators framework needs to be developed.

The formulation of the e-Plan and e-Strategies were not accompanied by Key Performance Indicators for monitoring and evaluation. Instead, they were accompanied by ‘Roadmap’, ‘Action Plans’ and status on the progress made under previous Plan or e-Strategy. In respect of e-Government Strategy 2013-2017, it was reported in the DGTS 2018-2022 that 75 per cent of the objectives of the 2013-2017 Strategy were achieved. A metric was used for tracking the implementation of 56 recommendations of the 2013-2017 Strategy during formulation of the DTS 2018-2022 in 2018. A recommendation which was not implemented scored zero mark, and one which was already implemented scored a maximum of 10 marks. A recommendation which was initiated scored one mark. Two marks were allocated when it reached a 20 per cent completion stage. Progressively, one additional mark was allocated for each 10 per cent completion in the range (30 to 90 per cent). The total marks scored was divided by 56, and the average mark scored was related to 75 per cent achievement status.

As regards implementation of Digital Mauritius 2030 and DGTS 2018-2022, the MITCI informed NAO that committees have been set up in that respect. List of Quick-win projects had also been tabled at the Committees for validation. List of projects to be considered for

⁹ Publication prepared for the World Summit on the Information Society titled ‘E-Development: From Excitement to Effectiveness’

¹⁰ ‘E-Governance in Small States, 2013’ – Commonwealth Secretariat

inclusion in the Budget financial year 2020-21 which are aligned to the DGTS Strategies have been considered.

(b) Capacity building for monitoring and evaluation of ICT-enabled Projects

Over the past years, the MITCI reported challenges in driving the e-Government Agenda which included the following:

- keeping abreast of ICT developments to deliver high quality public services that meet the citizens and business needs;
- ensuring that an integrated approach is sustained across Ministries/ Departments;
- providing more end to end e-services for citizens convenience and business facilitation; and
- improving the uptake of the e-services being provided.

As reported in paragraph 2.6.1, the MITCI is supported by a Chief Technical Officer with a mandate which includes implementation of the appropriate recommendations of the National ICT Strategic Plan, monitoring the implementation of the e-Government projects and advising on corrective measures if needed, and evaluating e-Government projects to assess impact of service delivery. Related to the above duties, the mandate of CIB management includes provision of strategic advice, managing and updating the e-Government Agenda, planning and development of e-Government Programmes, and evaluating e-Government projects to assess impact of service delivery and ensure the effective implementation of these projects.

As per the ‘Handbook for the drafting of Schemes of Service in the Public Sector’ of the Ministry of Civil Service and Administrative Reforms, the Scheme of Service of a public officer when devised, has to satisfy the requirements of an organisation, with a view to improving operational efficiency and performance. Also, before any Scheme of Service is devised, the roles, functions and contributions of the job and job holder towards achieving organisational goals and objectives are established. Though the Schemes of Services of the Chief Technical Officer and CIB Director are explicit on their responsibilities to carry out such evaluations and address required corrective actions, the MITCI argued that these tasks are outside their purview.

During financial year 2018-19, the MITCI took two initiatives as per paragraphs below to build up capacity in respect of e-Government. Neither these initiatives did materialise nor were sustained to provide the intended benefits.

Recruitment of an e-Government Expert

In November 2018, the recruitment of an e-Government Expert on a contractual basis to support the Chief Technical Officer was initiated through international advertisement. The duties of the Expert would comprise:

- assess the project governance in Ministries and Departments and make appropriate recommendations to ensure greater accountability and transparency;

- recommend how to re-organise the e-Government projects portfolio to enhance public service delivery in a coordinated manner;
- align the portfolio with Vision 2030 of the Government, the Government Programme 2015-2019 and other strategic documents and the SDGs; and
- develop a framework for project selection for funding, taking into consideration the rationale for the project, expected number of transactions on an annual basis, support mechanism and business value.

However, only one application was received which did not meet the selection criteria.

Recruitment of a Chief Information Officer

In March 2019, a Chief Information Officer was recruited through Open International Bidding. The latter's terms of reference was to support the Chief Technical Officer by strengthening in-house technical capacity of the MITCI, for the timely achievement of the different initiatives, including those in the pipeline, and to also ensure proper coordination of activities involved in the implementation of ICT projects. On 15 July 2019, the services of the Chief Information Officer were terminated.

3.2.1.5 Setting up of an appropriate dashboard

As of December 2019, 130 ICT-enabled projects were reported to be operational, 35 projects were being implemented and 55 new projects were earmarked for implementation. In relation to the monitoring of these projects, over the past four years, management meetings at the CIB were held on the average, once every two and a half months. Reports on ongoing projects were prepared as and when required and submitted to the MITCI. These reports provided details on the description of project, start date, completion and current status. Several projects were reported to be well functioning. However, no appropriate dashboard was maintained to provide details on the following:

- projects that need to be abandoned before completion - for example Computerisation at the Mauritius Accreditation Service (MAURITAS);
- projects experiencing cost overruns and delays (for example School Net II Project);
- projects implemented without perceptible benefits (for example COTS Project of the Police Department); and
- investments that are failing to meet their performance objectives (for example HRMIS of the Ministry of Civil Service and Administrative Reforms)

In the DGTS 2018-2022 and its associated Action Plan, there is a recommendation that Government should define Key Performance Indicators and measure tangible and intangible benefits derived when going digital. The outcome of this recommendation would lead to better gauge benefits, assess impact of digitalisation, better planning and decision-making based on lessons learnt. Table 6 refers.

Table 6: Need to define Key Performance Indicators to measure benefits

Paragraph of Action Plan of DGTS 2018-2022	Tasks to be undertaken	Responsible Agency
9.1	Government should define key performance indicators and measure tangible and intangible benefits derived when going digital.	All Ministries and Departments
9.1.1	Key business users/ service owners should define Key Performance Indicators for measuring tangible (cost savings, % reduction in use of paper, etc.) and intangible benefits (for example customer satisfaction) when implementing a new system /service.	All Ministries and Departments
9.1.2	Key business users/ service owners should measure Key Performance Indicators before rolling-out of new system/ service (for example existing customer satisfaction, current use of paper of their service before it is digitised).	All Ministries and Departments
9.1.3	Key business users/service owners should measure Key Performance Indicators, keep track of outcomes derived (tangible and intangible benefits) and publish the Indicators on the Performance Dashboard on a periodic basis after implementation of their system/ service.	All Ministries and Departments

Source: DGTS 2018-2022 and Action Plan

As of January 2020, records examined indicated that no progress had been realised towards defining of the key indicators and metrics to measure same, after expressing the intention in the Action Plan.

The Ministry explained that defining Key Performance Indicators and publishing performance of the services rest with key business users/service owners of all Ministries and Departments as they are the ones who own the services, have functional know-how and can mobilise their staff to work on those services. As it is the case in most projects, Ministries and Departments show a lack of commitment in implementing measures which do not emanate from their own Ministry or a high-ranking Ministry. The recommendations of the DGTS are therefore ignored as witnessed in other ‘Whole-of- Government’ projects initiated by it.

3.2.2 Adequate support to Ministries and Departments to develop and implement their e- Business Strategies / Plans

In the National ICT Strategic Plan 2011-2014, e-Government Strategy 2013-2017 and DGTS 2018-2022, Ministries and Departments were recommended to ensure that they have e-Business Strategies/ Plans, which include business process reengineering and blueprints to achieve digital transformation of their services and processes. An e-Business Strategy or Plan is a first step towards successful digital transformation as it provides a clear and coherent way of using ICT to transform business. It avoids ad-hoc implementation of ICT-enabled projects and gives priority to projects which generate greater value and business impacts.

This Section examined the support given to Ministries and Departments to develop and implement their e-Strategies/ Plans, and the findings are presented below.

3.2.2.1 Support to develop e-Business Strategies and Plans

For a Ministry and Department, an e-Business Strategy or Plan is commonly referred to as an e-Government Plan. The Plan is a definition of its ICT strategy to improve its work processes. This strategy is formulated based on the need to bridge the gap identified between the current state and the desired state of services being delivered. This usually leads to the need to prioritise processes, which when digitalised, will provide maximum benefits. The individual e-Government Plan provides information on the ICT needs of the user Ministry/ Department, the expected benefits, the financial and non-financial resources required, the associated risks and time scale for the implementation of the ICT-enabled project(s). The e-Government Plan is usually prepared either by the CIB (as per the PMMI) or by an external Consultant in collaboration with the user, depending on the scale of the project and the expertise required.

One of the key tasks of Programme Managers of CIB is to assist Ministries/Departments in the identification of opportunities for improving effectiveness and efficiency through Information Technology. As of January 2020, less than 50 per cent of Ministries and Departments had developed or were in the process of developing their e-Government Plans, and did not have an ICT Strategy. CIB's management stated that despite assistance was available, Ministries and Departments had not made beneficial use of same. It also stated that it could not compel a Ministry or Department to have a Business Plan since the latter is the driver of its projects, and a plan is based on its needs. Furthermore, the formulation of e-Business Plans is not within the Scheme of Service of Programme Managers, and is usually contracted out to Consultants , knowledgeable of the sector.

As per paragraph 6.4 of the Action Plan of the DGTS 2018-2022 formulated by CIB (referred in Table 7), all Ministries and Departments should have their e-Government Plans by year 2022. The outcome of this action would promote harmonisation across the Civil Service through simplified and streamlined procedures.

Table 7: E-Business Strategy/ Plan for each Ministry/ Department by 2022

Paragraph of Action Plan of DGTS 2018-2022	Tasks to be undertaken	Responsible Agency
6.4	Ministries and Departments should ensure that they have e- Business strategy/plans, which include business process re-engineering and blueprints to achieve digital transformation of their services and processes.	MITCI, All Ministries and Departments
6.4.1	Issue circular regarding e-Business Strategy and support available to Ministries / Departments for formulation of the strategy.	MITCI
6.4.2	Request assistance from MITCI for formulation of e-Business Strategy.	MITCI, All Ministries and Departments
6.4.3	Formulate high-level user requirements.	MITCI, All Ministries and Departments
6.4.4	Advise on mode of services to be secured for the formulation of e- Business Strategy based on a first analysis of high -level user requirements	MITCI

Source: Action Plan of DGTS 2018-2022

However, little progress has been achieved in respect of initiatives as per paragraphs 6.4.1 to 6.4.4 of the Action Plan. For example, the Police Department has not developed an e-Government Plan to cover all its areas of operation. Instead, it had over the years digitalised important processes, independent of each other, on an ad-hoc basis. These computerised systems were operating independently of each other, in silos, and not reaping potential benefits that integrated systems can offer (that is, reduction in cost by sharing common resources). In January 2020, management of Police Department acknowledged the benefits of developing and implementing an e-Government Plan for the Police Department, but could not initiate same due to lack of support and expertise. The Programme Manager of CIB allocated to the Police Department was not posted on a full time basis for such support, but was allocated to several on-going projects.

3.2.2.2 Support to Ministries and Department through 'Head, ICT'

In 2013, the PRB concurred with the view of the then Ministry of Information and Communication Technology on the need to review the arrangement to lead IT projects in Ministries/ Departments with a view to boosting e-Government in the Civil Service. The Bureau noted that wherever dedicated IT professionals have been posted, Ministries/ Departments have moved faster in adopting ICT, delivering on-line services, providing update information, among others. Consequently, the Bureau made provision for IT professionals from the then Ministry of Information and Communication Technology to be posted in every Ministry/ Department/ Organisation, and these IT professionals be designated as 'Head, ICT'. They would act as a catalyst in boosting e-Government projects and initiatives in the sector concerned. The 'Head, ICT' would be assigned duties which include assisting management in leading and coordinating ICT projects, participating in the

elaboration of the organisation's e-Business Plan, and its subsequent implementation, liaising with stakeholders for an effective implementation of the projects, and chairing committees/ meetings related to the setting up and implementation of the projects. A 'Head, ICT' would be paid an allowance in addition to his or her monthly remuneration. However, the MITCI did not implement the recommendation.

In 2016, the Bureau noted that more emphasis was being laid by Government on boosting IT, and consequently, it recommended the need to maintain the designate position of 'Head, ICT'. The Bureau revisited the PRB 2013 recommendation to ease its implementation. It recommended that an officer of the CISD, not below the grade of Systems Analyst be designated as 'Head, ICT' and posted in a Ministry/ Department/ Organisation, where no Project Manager of CIB is posted. An allowance, as recommended in 2013, would be payable again as from 2016.

As per the NAO analysis, this was a cost-effective way of supporting Ministries/ Departments to access IT expertise within the Civil Service. Existing IT staff resources would be used against payment of a much cheaper allowance, instead of recruiting Programme Managers entitled to costlier monthly remunerations (which are much more than the allowance payable). However, the recommendations were not implemented due to a dispute on the quantum of allowance payable to CISD staff. As of January 2020, after four years, the dispute had not been resolved.

3.2.2.3 Support by Posting of Programme Managers of CIB in Ministries and Departments

In 2016, the PRB remarked that a Programme Manager of CIB was assigned or allocated to each Ministry and Department. However, the Programme Manager would come into play only if the organisation intended to set up an IT project. The Bureau considered that this way of operating had delayed the progression in the implementation of IT projects. It advocated a new way of operation by recommending the posting of, instead of assigning or allocating, Programme Managers and Lead Programme Managers in Ministries/ Departments. This was in line with their duties specified in their scheme of service. The role of the Programme Managers of CIB would then consist of identifying ways and means to computerise work processes with the collaboration of senior officers of the Ministry/ Department. Once a computerisation project had been identified, the CIB Officer would be responsible to lead the project in collaboration with support staff from the CISD. CIB Officers would operate for most of their time on the site/s where they were posted, until successful completion and implementation of the project. Such a mechanism when adopted, would contribute to bring change in the organisation.

To meet that arrangement, the Bureau recommended the CIB to initiate the increase of its staffing with support from the then MoFED. As a short term measure, it recommended the designate position of 'Head, ICT', to address the problem of shortage of CIB Officers.

From January 2016 to December 2019, 10 additional funded posts for CIB Officers were provided in the CIB Budget. The posting of CIB Officers has recently started only in a few Ministries, for example in the MoHW in respect of the e-Health Project. During the audit, one of the areas examined was related to the constraints reported by the CIB in posting its Officers more effectively in Ministries and Departments. Details on the allocation of CIB Officers to projects and other tasks associated with its mandate were requested with a view to identifying to what extent shortage of staff constrained the posting of CIB Officers. However, these details were not provided during the audit.

The Ministry explained that the ratio of ICT staff to non-ICT staff at CIB, as well as in other Government agencies in Mauritius is 1:300 while the world average is 1:12, indicating an acute shortage of staff.

3.2.2.4 Support towards Implementation of e-Agriculture, e-Social Security, e-Health and e-Education Plans

An e-Government Plan for a Ministry or Department is a strategic document which defines how the implementation of ICT-enabled project(s) will satisfy its business requirements. ICT-enabled projects, when implemented on an ad-hoc basis in the absence of an e-Government Plan, usually operate in silos and do not benefit from synergies arising out of collaboration. The scope of an e-Government Plan and the synergies that it can provide in a Ministry/ Department are described in Table 8.

In 2015, Government agreed that the then Ministry of Information and Communication Technology should be consulted on all matters related to technology, communication and innovation, including e-Government projects with a view to achieving a harmonised and integrated development of ICT in Mauritius. Further, the e-Government and Computerisation Steering Committee at MITCI and Working Group on Digitalisation of Public Sector Services were expected to follow the formulation and implementation of these e-Government Plans which were of national importance.

Table 8: Scope of an e-Government Plan and associated synergies

Scope of an e-Government Plan	Synergies related to Application, Services , Infrastructure and Data
<ol style="list-style-type: none"> 1. Identify information needs, the services delivered by the organisation and assess the existing ICT infrastructure 2. Analyse existing procedures/processes, and make recommendations for review 3. Define the target users, propose digitalised solutions and prioritise proposed projects 4. Address change management involving people, process, technology and infrastructure 5. Provide time frames for the implementation of the digitalisation plan 6. Define a comprehensive strategy for the planning, design, implementation and integration of the projects identified. This would include infrastructure requirements, staffing structures, deliverables, methodologies, implementation schedules and budgetary requirements 7. Advise on the setting up of project governance and management structures 8. Work out ICT training needs analysis of different categories of personnel 9. Work out costs estimates 	<ol style="list-style-type: none"> 1. <i>Applications (Software)</i> A significant number of requirements across different units which are similar and can be catered to by similar application systems 2. <i>Services</i> User and customer services can be pooled, and exploiting economies of scale 3. <i>Infrastructure</i> With applications being common, they could all be run off the same core hardware and network infrastructure resulting in further savings 4. <i>Data</i> A single database to store similar data used by different units provide benefits, such as ease of maintenance and cost reduction

Source: NAO (Extracted from e-Agriculture Plan)

Four e-Government Plans (e-Agriculture, e-Social Security, e-Health and e-Education) of national interest were formulated before 2015, but were not yet implemented as of January 2020. Their status, business impact and support provided by the MITCI and its Divisions are presented as Case Studies below.

(a) *Support towards implementation of e-Agriculture*

The MAIFS is responsible for all matters pertaining to agriculture, and decides on overall policies and agricultural development generally. Agriculture plays an important role in the national economy. Although no more the largest contributor to national production and wealth, the agricultural sector still makes a stable contribution to the economy. In 2009, the MAIFS initiated the development of an integrated and centralised e-Agriculture System to address the similar requirements of ICT in different organisations under its purview. Some 10 years after, not much progress has been achieved as described in Case Study 1.

Case Study 1: Preparation and implementation of e-Agriculture Plan

In 2009, the Ministry of Agro-Industry and Food Security (MAIFS) awarded a consultancy service contract to prepare the e-Agriculture Action Plan for some Rs 4 million which was completed in 2013. The e-Agriculture Project was to be implemented in three phases spanning over a period of three years, involving more than 10 Departments/ Units of the MAIFS, with the following objectives:

1. One-Stop-Shop – single point of access for all information and services related to agriculture;
2. High levels of efficiency and effectiveness through process reform;
3. Cost reduction through economies of scale and scope;
4. Customer convenience through multi-channel service delivery;
5. Internal capacity building to enable usage of technology systems and delivery of services; and
6. ICT as an aid to help decision making.

However, due to the re-organisation within the MAIFS, the implementation of the Project was put on hold until 2016. The original project value of Rs 52 million was revised to Rs 57.25 million in 2017 when it was re-activated. Fund for the project was staggered over four financial years, that is, from 2017-18 to 2020-21. In April 2017, the CIB completed the review of the original Technical Specifications prepared in 2013 to reflect current requirements. The original document contained obsolete modules, and technology had evolved in the meantime.

During the period April 2017 to March 2018, the Procurement and Supply Department of the MAIFS had difficulties in preparing the bidding documents prior to vetting by the Departmental Bid Committee of the MAIFS. Several meetings were held by the Department with CIB to sort a list of technical issues in which the MAIFS did not have the expertise and required the support of the MITCI. Concurrently, several ICT-enabled projects were being implemented independently of each other, such as the Animal Resources Information System, Land Lease Management System and the National Single Window of the Plant Protection Office. As at 30 June 2019, the Bidding Documents were already finalised for eventual launching, but the earmarked funds in 2018-19 had already lapsed. There was no provision for same in Budget 2019-20.

As at December 2019, the MAIFS was still discussing on the amendments that need to be brought to the e-Agricultural Plan to avoid duplication introduced by the projects already implemented. Still, the main issues were about whether there were justifications to make the amendments and benefits to be gained with the implementation of the e-Agriculture Plan.

Source: NAO Analysis

(b) *Support towards implementation of e-Social Security*

The Ministry of Social Integration, Social Security and National Solidarity (MoSISSNS) is responsible for the promotion and enhancement of social protection and national solidarity. It also empowers persons with disabilities, elderly persons and local communities to enhance their quality of life. It is responsible for the provision of a range of services under different schemes/ programmes, such as National Pensions Scheme, National Savings Fund and National Solidarity Fund. Beneficiaries of the funds include needy and destitute persons, elderly, widows and orphans, persons with disabilities and employees contributing to the National Pension Scheme and National Savings Fund. As of December 2019, there were some 222,000 beneficiaries for Basic Retirement Pension, some 35,000 for income support and some 32,000 for Basic Invalid Pensions. Case Study 2 below provides a status on the implementation of an e-Social Security Plan initiated in 2012 aimed at improving work processes with an emphasis on enhancing productivity, quality and service delivery.

Case Study 2: Preparation and implementation of e-Social Security Plan

In 2012, the Ministry appointed a Consultant at a cost of some Rs 3.95 million to prepare an e-Government Master Plan. The Plan, submitted in 2013, provided for a citizen centric approach and a long term vision of the Ministry. The project value approved by the then MoFED was Rs 225 million with an implementation period of five years. In 2014, Government approved its implementation at a revised project value of Rs 526 million, based on a cost sharing between the Ministry and National Pensions Fund. In 2016, the project value was again revised by the Consultant to Rs 558 million, but was put in abeyance following the budgetary measures regarding the transfer of collection of contributions (National Pensions Fund, National Savings Fund, and Human Resource Development Council Levy) to the Mauritius Revenue Authority.

More than two years later, in September 2019, the Ministry requested CIB to review the Plan as it was more than five years old, and there was a need to incorporate light changes in the portfolio of the Ministry and operational procedures. The CIB considered that review inappropriate as a bidding document was ready since 2016, and such changes would be captured during implementation of the project (at the Software Requirement Specification Stage).

As at December 2019, relevant approval to kick start the deferred project had not been initiated. The long outstanding prevalent risks and main issues associated with non-satisfactory operational and service delivery are as follows:

Old Systems with risk of failure, lack of capacity and flexibility

The existing ICT system is more than 25 years old. Though an upgrade was carried out in 2001, that technology became obsolete 10 years later. Several subsequent enhancements were brought resulting in a 'Patchwork' system requiring annual maintenance of some Rs 10 million. Loopholes in the system have either remained undetected or unresolved as at January 2020. The servers on which the legacy social security system is running are old and with serious risks of failure.

Silos Within the Ministry

Each Department offering services to citizens is currently operating in a silo manner. If an application is made by a citizen for basic pension, the application is directed from a Local Office to the Benefits Section, whilst if the citizen makes a second application for Social Aid, the whole set of data for the citizen is recaptured by the Local Office to be processed on a separate

application, and this application is re-directed to the Local Office for processing. There are three different core systems (Benefits, Contributions and Local Office) currently managing applications from citizens, implying that citizen data and benefits currently being paid out to citizens are isolated in those respective applications.

Lengthy Timeframe for Delivery of Services

The current process of 'Application to Delivery of Services' is not coordinated among the various Departments, and ultimately not citizen centric. Each service has its own set of paper forms with accompanying instructions, on the basis of which information requested is specifically necessary to calculate the particular contributions or grant the entitlements of social aid benefits.

Overpayment of Pensions

Annually, there were overpayments of pensions to beneficiaries due to undetected deaths, re-marriage of widows, prolonged absence from Mauritius and processing errors. However, with the implementation of the Info Highway Platform for Public Sector data exchange, including citizen and business data, among Ministries and Departments, the risk of overpayment has been reduced.

No Single Interface for Citizens

Citizens are currently required to identify themselves every time a particular service is being requested. This information might, in some cases, already be present within another Department of the Ministry. In case of missing documentation or lack of information, applicant has to come to office multiple times to successfully complete the authentication process and acceptance of application.

Source: NAO Analysis

(c) Support towards implementation of e-Health Plan

In December 2019, the World Health Organisation (WHO) ranked the national health system of Mauritius 84th out of a list 190 countries. Since 2013, the WHO has been encouraging member states to adopt e-Health System as healthcare is one the world's most information intensive industry. Every day, this industry produces massive volumes of data which, if properly used, can improve clinical practice and outcomes, guide planning and resource allocation and enhance accountability. There will be no quantum leap forward in health care quality and efficiency without high quality, and user-friendly health information compiled and delivered electronically. The then MoHQL, embarked on an e-Health Project in 2013. Case Study 3 describes the initiation and progress made on the e-Health Project as at December 2019.

Case Study 3 Preparation and implementation of e-Health Plan

In 2013, the then MoHQL decided to implement the e-Health Project (prepared by a Consultant) on a Government to Government basis with tentative completion by 2018. The Project was to be implemented in phases, with benefits to health care providers and population at large. However, no much progress was achieved up to 2017 as discussions were still going on the proposed project.

In May 2017, Government approved the implementation of the e-Health Project costing some Rs 700 million as per document prepared by the CIB. The Project would start on a pilot scale at Dr Jeetoo Hospital, and only if successful, it would be replicated to all Regional Hospitals and Medi-Clinics. Its implementation would span over 30 months, and comprised eight modules (Patient Administration, Clinical module for Unsorted Out-Patient and Emergency Departments, Sorted Out-Patient Department, Pharmacy, Operation Theatre, Intensive Care Unit, Radiology and Bed and Ward Management). Half of the cost would be in terms of software, and the remaining hardware. Area Health Centres and Community Health Centres would not be covered as most of them did not have the appropriate IT infrastructure and physical conditions, and some of the Centres were housed in rented buildings.

In August 2017, the Ministry entered into an agreement with a Consultant for consultancy services, and an overseas Line of Credit amounting to some Rs 650 million was provided in Budget 2017-18. During period August 2017 to February 2019, clarification exercises were ongoing to finalise a Pre-qualification Document which would be used to shortlist potential bidders in order to select a potential contractor for the Project. The MoHW projected that by July 2019 a successful contractor would be selected to start the implementation of the Project. Instead of going in phases, decision was taken by all the stakeholders, that Phase I and Phase II would be implemented concurrently. This led to the expectation that by December 2019, the whole e-Health Project would be made live. At the same time, data protection issues associated with the project were being finalised with the Data Protection Office.

As at 31 December 2019, as per Ministry's record, there has been no meeting held at the level of the Ministry since the last one of February 2019. In May 2019, the CIB recommended the setting up of a specific Steering Committee to drive the e-Health Project. Same has not yet been constituted.

Source: NAO Analysis

(d) Support towards implementation of e-Education Plan

In 2011, CIB was approached by the then Ministry of Education and Human Resources (MoEHR), through the then MICT to assist it in the preparation of an e-Government Master Plan (e-Education Plan). This Plan addressed the harnessing of ICT to enhance the operations and service delivery of the Ministry. ICT were viewed as a resource for innovative schooling and as a tool for whole school development. Case Study 4 presents the progress made since then.

Case Study 4: Preparation and implementation of e-Education Plan

CIB submitted the e-Education Plan in 2012, which when implemented would have cost some Rs 740 million over a period of five years. The Plan comprised eight Programmes which included the Revamping of Network and ICT Infrastructures for the Ministry's Headquarters, Educational Zones and School, Deployment of e-Pedagogy Software, Enhance Collaboration with Public and Dissemination of Information, as well as Knowledge Sharing amongst Educators and Students. As per records, the Plan did not reach the stage of Government approval.

Under the support of the World Bank, 'An ICT in Education Strategy for Mauritius' document was prepared in 2018 which was still at draft stage for consideration by the MoETEST. During the past four financial years ended 30 June 2019, the Ministry spent some Rs 706 million on ICT-enabled projects, representing about one third of total expenditure of Government on ICT for the same period. These include projects which are not derived from an approved e-Strategy or Plan of the Ministry.

Source: NAO Analysis

3.2.3 Appropriate mechanisms to prioritise and digitalise processes

According to OECD¹¹, several Governments are preparing clear business cases to justify investments and prove the impact of ICT initiatives. A business case for an ICT project include clear responsibilities and roles for all relevant stakeholders, clear consequences for failure to meet agreed milestone, conditional release of funding and financing mechanisms that commit projects to achieving benefits. Different methodologies using appropriate metrics in the business case help to identify costs, benefits and beneficiaries. The Action Plan 2018-2022 recommends the use of business cases to increase the probability of projects achieving value for money.

Presently, such methodology is not being used for projects examined. Instead the PRF under the Capital Project Process Manual described in paragraph 2.7.1 is being used to ensure that projects have been prioritised and assessed before financial clearances are given by the MoFEPD. Two scenarios were examined, with respect to projects below Rs 25 million and project more than Rs 25 million but less than Rs 100 million. In both scenarios, the proposals secured the required funding despite they fell short of important metrics to measure risks and benefits.

3.2.3.1 Projects less than Rs 25 million submitted by the MITCI

Financial clearances provided by the MoFEPD for projects of the MITCI falling within this band for financial years 2017-18, 2018-19 and 2019-20 were examined. Three projects satisfying MoFEPD's definition of Capital Projects as per the CPPM, were treated as recurrent expenditures. No PRF was submitted by the MITCI, and instead, simple briefs were provided for these projects. The projects were 'Implementation of Blockchain on LAVIMS' (Rs 20 million), 'Implementation of a National Authentication Framework' (Rs 15 million) and 'Smart Mobile Apps Project' (Rs 5 million). MoFEPD explained that no detailed assessment was carried out so long as the projects were aligned to the DGTS 2018-2022, and would be funded within the budgetary envelope of the MITCI. This explained for no documentation seen in MoFEPD's files relating to assessment and approval for these projects. Also, once a one-off financial clearance is given for such

¹¹ OECD Digital Toolkit 2018 - Principle 9 - Developing Clear Business Cases.

projects, there is no oversight of the MoFEPD unless there is a change in scope necessitating financial clearance for an increase in project value. However, these projects relate to new technologies and with significant risk profiles and subject to other contingencies. A brief, in substitute for a PRF, did not provide the assurance.

3.2.3.2 *Projects more than Rs 25 million but less than Rs 100 million (Mauritius Police Force Project)*

The Mauritius Police Force (MPF) had not developed an e-Government Plan to cover all its areas of operation. Instead, it had over the years digitalised important processes, independent of each other, on an ad-hoc basis. Absence of such a Plan did not provide visibility on which processes need to be digitalised in priority to yield the highest business impact, and in the longer term, what would be the quantum of investment for ICT-enabled projects.

Case Study 5 describes how the MPF secured funds on an urgent basis for a critical system based on a PRF with support of CIB.

Case Study 5: Project Request Form for 'Automated Fingerprint Identification System'

In 1999, the MPF introduced an Automated Fingerprint Identification System to cater for the management of fingerprints and crime records. In December 2017, due to technical problems encountered with the System, the MPF initiated its replacement. CIB prepared the specifications for the new system, and the cost was estimated at some Rs 20 million. However, when the tender was launched, no responsive bid was received. Subsequently, the estimated cost was revised to some Rs 70 million to reflect current market prices. As at December 2019, the System was still being used for core Police duties, despite being outdated, with deficiencies and without maintenance support.

In November 2019, the MPF submitted a PRF and a specification document for the Project 'Automated Fingerprint Identification System' estimated to cost Rs 86 million. Observations on the PRF are as follows:

- The Project would be implemented on a turnkey basis whereby the successful bidder would design and build the system. There is no mention whether personnel of MITCI or CIB or MPF have necessary expertise to supervise the Project.
- The Project would be managed through a monitoring committee composed of CIB, ITSU and Officers of the MPF.
- No cost-benefit analysis has been carried out, except for a statement that the new system would bring in more efficiency.
- No risk has been identified for the Project, except that there might be delay in implementation.
- There were no metrics identified in relation to how the intended benefits would be measured post-implementation.

The project was considered favourably as regards financial clearance for implementation by MoFEPD.

Source: NAO Analysis

The PRF, used as an appraisal document to secure funding, includes a minimum number of criteria to recommend the implementation of an ICT-enabled project from a financial perspective. Also, it is a generic template for all types of projects. However, ICT-enabled projects are technical, complex and risky requiring more rigorous set of criteria for appraisal to secure necessary funding.

3.3 Support towards the setting up and operation of effective project governance structures

As per good practices, project governance is about guiding and monitoring the process of converting investment decisions into value for an organisation by way of delivering the intended benefits. It operates in continuous sequences from inception through various decision points and milestones to operation and benefit delivery. The optimal shape of the governance, management and monitoring structures changes along the sequences, as well as between projects. It is characterised by clarity around roles, responsibilities, accountabilities and controls, in particular, decision making processes, and involves appropriately skilled participants at all levels.

The initial strategic reasons of top management to initiate, approve, fund and provide resources for a project are reflected in the decisions during project governance. Also, important is the requirement of project governance bodies and structures to recognise and manage risk in a way that is most likely to achieve the project's desired outcomes. In case of project failure, the impacts are mitigated through effective project governance.

This section examined the level of support provided by the MITCI and its divisions for the setting up of an appropriate governance structure to monitor projects, manage risks, and evaluate whether intended benefits were achieved. The findings are as follows:

3.3.1 Recommended project governance structure within organisational governance

By definition, a project is 'a temporary endeavour undertaken to create a unique product, service, or result. The temporary nature of projects indicates that a project has a definite beginning and end. The end is reached when the project's objectives have been achieved or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists'¹².

Ministries and Departments are accountable for delivering against the resources allocated to them. They have organisational governance structures which monitor and challenge the effective application of these allocated resources. However, these organisational structures generally do not provide the necessary framework to deliver a project¹³, even though temporary in nature. Proper implementation of projects requires flexibility, high level of continuous focus and timely decision making, which the hierarchical nature of organisational governance in Government does not necessarily enable. Consequently, project governance structures are established separate from day-to-day operations, and

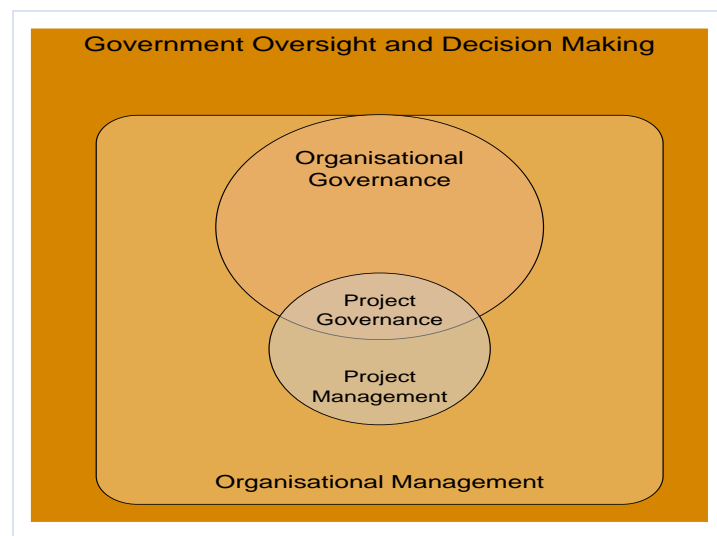
¹² 2013 Project Management Institute - A Guide to the Project Management Body of Knowledge (PMBOK VII ® Guide) – Fifth Edition.

¹³ Project Governance – Technical Guide 2012, Department of Treasury and Finance, Victoria, Government of Australia

draw the key decision makers out of the organisation structure in a focused context. After a project is completed, the accountability of the project outcome is transferred to organisational governance.

Project governance is a subset of organisational governance which ultimately is subject to overall Government oversight and accountability as illustrated in Figure 5.

Figure 5: Relationship between project and organisational governance



Source: Project Governance – Technical Guide 2012, Government of Australia

As per good practices, an effective project governance requires the following as minimum:

- a project sponsor or a senior responsible owner who is responsible and accountable for the project – usually a senior and experienced executive;
- a Project Steering Committee (PSC) that provides strategic direction and monitors the project (detailed tasks and responsibilities are as per Appendix VI);
- a Project Manager/ management team who will manage the project on a day-to-day basis, report to the project sponsor and deliver the outputs; and
- an Operations Manager/ operations team who will manage the project outputs after project closure, including the change management processes for effective implementation, and who is responsible for the realisation of the benefits.

Equally important in this governance structure is effective accountability which requires everyone associated with the project to know:

- what they are responsible for;
- the boundary of their authority;
- when tasks must be achieved; and
- communication, reporting and monitoring lines.

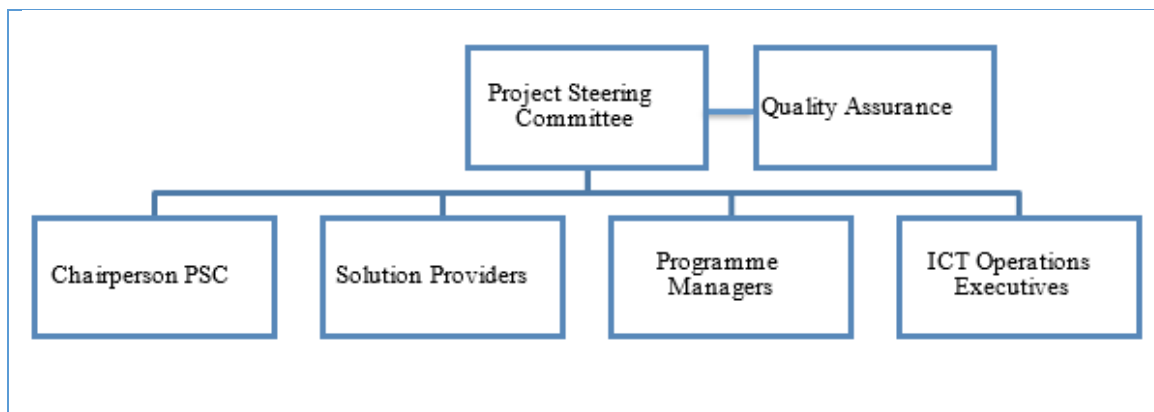
The paragraphs below examined to what extent the PMMI provides for an appropriate project governance structure within organisational governance as per the minimum requirements referred above.

3.3.1.1 Guidance on setting up of a Project Steering Committee

As per good practices, a Project Sponsor usually chairs the PSC and is the link between the organisation’s senior executive body and the project. In addition to being an experienced organisational executive, well versed in the details of the organisational stakeholder and client requirements and relationships, the Sponsor needs to have sound project management capability. The main tasks and responsibilities of the PSC include the provision of overall strategic guidance for the project and project assurance, responsibility for realisation of outcomes/ benefits and approval of a range of key activities and documents. A list of additional tasks and responsibilities is at Appendix VI.

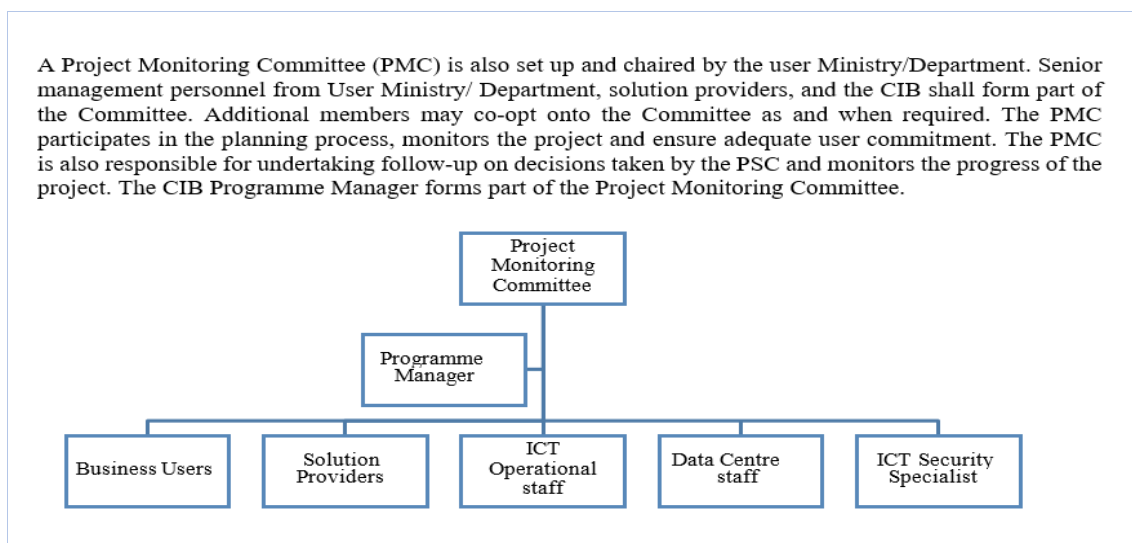
Extracts of the structure, composition and responsibilities of PSC and Project Monitoring Committee (PMC) from the PMMI are as per Figure 6 and Figure 7 respectively.

Figure 6: Structure, composition and responsibilities of Project Steering Committee



Source: Project Management Manual for ICT Projects

Figure 7: Structure, composition and responsibilities of Project Monitoring Committee



Source: Project Management Manual for ICT Projects

When compared to the requirements of best practices as described above, the guidance provided by the PMMI was insufficient in defining the tasks and responsibilities of the PSC and PMC.

In its reply, the Ministry described the PMMI as a document which is meant to be concise with enough material for a quick reading, while abstracting users from complex technicalities but at the same time introduces the important steps in the implementation of ICT projects.

3.3.1.2 *Guidance in respect of Project Manager/ Management Team tasks*

As per the PMMI, in respect of project execution, the user Ministry/ Department in collaboration with CIB monitors activities carried out during the Project Implementation Phase. Programme Managers of CIB form part of project management teams by providing their expertise. However, the tasks and responsibilities of Programme Managers are not clearly spelt out in all important stages or activities during project execution. For example, ‘Software Development Activities’ is a critical activity requiring expertise of Programme Managers. Paragraph 2.3.2 of the PMMI (reproduced as per Figure 8 below) does not define the responsibilities and task of Programme Managers associated with this activity.

Figure 8: Software development activities as per Project Management Manual for ICT Projects

2.3.2 Software Development Activities

In case of tailor-made software, the following activities have to be carried out:

- Preparation/amendment of Software Requirement Specifications (SRS) and Software Design Description (SDD) by software vendor;
- Approval of SRS and SDD by User;
- Preparation of User Acceptance Test by software vendor;
- Software development/full-fledged testing and correction of defects/issues by software vendor;
- Software installation by software vendor;
- User training on application by software vendor; and
- Acceptance testing by user.

Source: Project Management Manual for ICT Projects

3.3.1.3 *Guidance in respect of project closure and realisation of benefits*

As per the PMMI, project closure marks the end of a project and is documented in a Project Closure Report (PCR). The main objective of closing a project is to ascertain the extent to which all expected products and services have been handed over and obtain formal acceptance of the deliverables. Project closure also aims at confirming that maintenance and operation arrangements are in place, recommendations for follow-up actions made, and lessons learnt from the project noted. Closure of a project is confirmed by the PSC.

Following project closure and subsequent follow-up actions, a post-implementation evaluation exercise is performed. Such an exercise will normally be carried out six to 12 months after a project is closed. The purpose of the post-implementation evaluation exercise is to evaluate the extent to which the initial objectives or aims have been met.

However, the responsibilities of the User Ministries/ Department and CIB in these two activities were not defined.

3.3.2 Adequacy of the current project governance structure

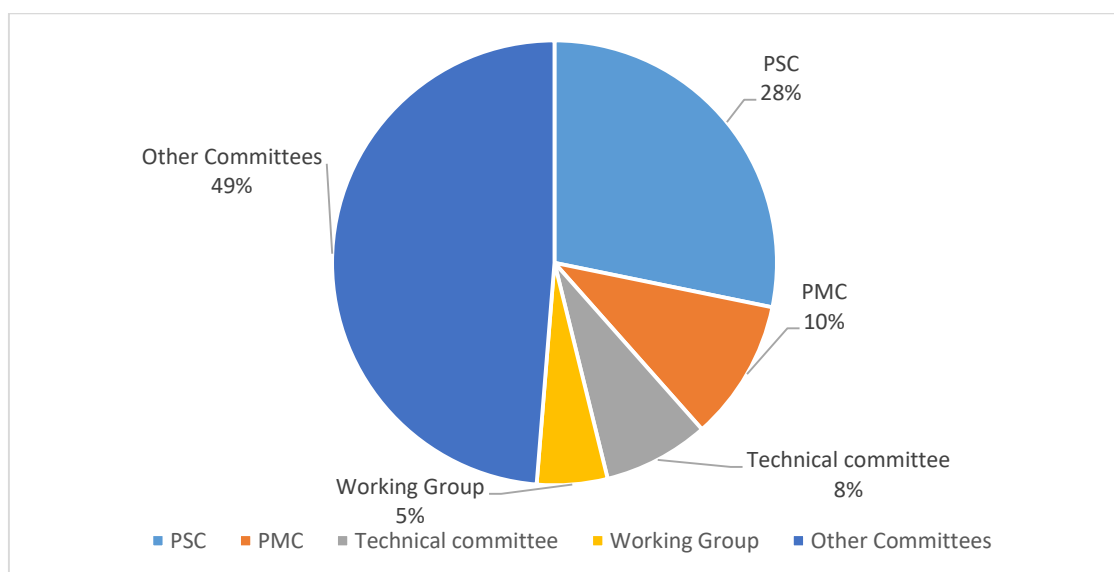
Implementation of ongoing projects in relation to the governance structure recommended in the PMMI was examined. Findings on the setting of PSC, the accountability and areas of responsibility of stakeholders, and ascertainment of benefits and ability to mitigate project failure are presented in the following paragraphs.

3.3.2.1 Current Set Up of Project Steering Committee for Ongoing and Projects Nearing Completion

As per good practices, the PSC and its task and responsibilities should be set during the early stage of project implementation because project governance starts right from project inception. The setting up of the PSC for a sample of 35 ongoing projects or near completion was examined, with focus on their naming, referencing and terms of reference. Details in respect of 10 of the ongoing projects are as per Appendix VII and Figure 9.

All the meetings were chaired by middle to top management of the Ministries and Departments. In less than one third of the 35 projects, the Committee was named as ‘Project Steering Committee’. In the remaining cases, it was either referred to as a ‘Meeting’ or ‘Committee’ or ‘Project Monitoring Committee’ or ‘Working Group’. In only three projects, the meetings or committees were numbered or sequenced to help towards ensuring completeness and audit trail. Included in Appendix VII is the Project ‘Land Lease Management System’ which is one of the 10 projects of the MAIFS under the purview of a single committee referred as ‘ICT Project Monitoring Committee’ of the Ministry. The terms of reference of this ‘ICT Project Monitoring Committee’ is not defined, meetings not numbered and issues pertaining to several projects were frequently discussed within a single meeting. This Committee has also the purview of the e-Agriculture Project referred to in Case Study 1.

Figure 9: Naming of meetings and committees to govern projects



Source: NAO Analysis

In a few cases, the tasks and responsibilities were defined during the first meeting of the PSC. Even though they were defined, they were not aligned to that recommended by good practices. For example, the first PSC for the MITCI's project 'National Authentication Framework' held on 23 January 2020, it was mentioned that 'that the Steering Committee would oversee the administrative side of the project. Technical meetings between CIB, GOC, Mauritius Post Limited, the supplier and other members would be held separately to discuss on technicalities and implementation coordination as often as required'. It was not stated what were the activities related to administrative aspects (Appendix VI refers) and whether decisions taken in the Technical Meetings would be approved by the PSC.

As an alternative to defining the tasks and responsibilities of a PSC right from the first project meeting, the MITCI has adopted a practice of including them in the bidding documents for selecting a vendor. For example, in January 2020, the MITCI awarded the contract for the project 'Setting up of New Certificate Authority' for an amount of some Rs 44.2 million. As per records, before award of this contract, there was no PSC constituted. The composition, tasks and responsibilities of the PSC as stipulated in the bidding documents, and highlighted in yellow font by CIB, is reproduced in Figure 10 below.

Figure 10: Composition and responsibilities of Project Steering Committee for Project 'New Certificate Authority'

11.2 Steering Committee

A **Steering** Committee will be set up to guide and oversee the project. This Committee will include, inter alia, representatives from:

- Ministry of Technology, Communication and Innovation (MTCI);
- Central Informatics Bureau (CIB);
- IT Security Unit (ITSU);
- Government Online Centre (GOC);
- Successful Bidder; and
- Other relevant third-party suppliers (during integration phase) as and when required.

The responsibility of the **Steering** Committee will include reviewing the deliverables submitted by the successful Bidder and make recommendations and suggestions. All deliverables will be submitted to the **Steering** Committee for endorsement.

Source: Bidding documents of 'Setting up of New Certificate Authority'

As mentioned in paragraph 2.10 and Figure 3, 'Procurement of Hardware and Software' is included in Project Execution (third stage) of the PMMI Framework, after Project Initiation (first stage) and Project Planning (second stage). As per the PMMI (page 62, Table 1 on mapping of project processes into Project Management Process Groups), and Knowledge Areas of PMBOK Guide 2013, Project Procurement Management is dealt at Project Planning stage. This is the task of an appropriately constituted PSC at planning stage, well before the selection and award of a contract during execution stage. Poor procurement planning may lead to bottlenecks, potential increases in costs and delays. The implementation of the project 'Fleet Management System' at the MoHW, described in Case Study 6, had serious flaws in the bidding documents which were not properly addressed at planning stage, leading to the project being stalled as at January 2020.

Case Study 6: Set up of a 'Fleet Management System' at the Ministry of Health and Wellness

In 2016, the then MoHQL (now the MoHW) initiated the implementation a Fleet Management System for a more efficient use of its vehicles, and to facilitate transport planning, monitoring fuel consumption and for better management of servicing of its vehicles. Initially, the Fleet Management System Project involved equipping 92 vehicles of the Ministry with Global Positioning Devices, with provision to extend the System to additional vehicles. The Project was handled through meetings chaired by senior management, comprising officers from CIB, Procurement and Supply Division and the Chief Information Officer among others. The initial contract value amounted to some Rs 5.8 million, followed by a service and maintenance contract for the System amounting to an additional Rs 5.6 million over the ensuing five years.

The MoHW reported that System provided benefits, such as easy tracking of vehicles, and this had discouraged drivers to misuse same, and better planning of routes leading to efficiency and productivity and reduced complaints in respect of requests for ambulance services, since its implementation. During 2018, the System could be extended to only 46 vehicles, that is a total of 138. As per provision of the Public Procurement Act, direct procurement to the same supplier is allowed up to a limit of only 50 per cent of the initial contract amount, and hence, only an additional 46 vehicles (50 per cent of 92) could integrate the System. There were flaws in the initial bidding documents for the procurement of the System. Mention was made therein that the System must provide for connection of additional vehicles to it and provision was made for the supply and installation of the Global Positioning System equipment for subsequent increase in fleet size. However, how procurement would be subsequently effected to provide such services on additional vehicles was not detailed out.

In 2019, extension could not be carried out to the remaining 172 vehicles of the fleet. This meant that a new bidding exercise for the 172 vehicles had to be carried out, potentially leading to the selection of a new supplier. In that case, the fleet of 310 vehicles would be managed by two different suppliers and systems, and the consequences would be as follows:

- duplication of information system for the same purpose, as well as duplication of hardware resources and system resources at the GOC;
- possible incompatibility between the current system and a probable new one;
- users would have two interfaces for reporting; and
- additional interfacing, infrastructure and maintenance contracts costs

In October 2019, the Procurement Policy Office advised the MoHW to initiate urgent remedial actions to address the serious problem of poor procurement planning. The Office recommended the MoHW to separate components that could be procured through competition and those through direct purchase. As of January 2020, discussions were ongoing on how to launch a new bidding exercise for the 172 vehicles.

Source: NAO Analysis

3.3.2.2 *Accountabilities, roles and responsibilities*

Research¹⁴ on implementation of ICT-enabled projects indicates that much of the causes of project failure are actually unrelated to the ICT Department itself or to the technology. More often, it is the unwillingness or inability of executives to engage in effective decision making. A Project Manager is responsible for structuring project delivery in an appropriate manner. This person is the key manager of the day-to-day aspects of the project, as well as for developing and updating the project management plan, and also to resolve planning and implementation issues, and manage progress and the budget.

In all the projects examined, there was no 'Project Manager' designated who had the exclusive delegated authority to manage the project. Instead, there was a team of Public Officers collaborating on specific project issues based on their expertise as determined by their Schemes of Services and mandate of their organisations (paragraph 2.6 refers). For example, the role of a Programme Manager of CIB, as per Appendix A of the PMMI 'Organisations and Roles', is to work in collaboration with officers dedicated to projects at the user-side at Ministries/ Departments for the implementation of e-Government projects. The role of ITSU is not defined in Appendix A, but mentioned in paragraph 2.3.1 'System Procurement' as 'Incorporation of IT security considerations worked out by ITSU in the technical specifications' of the PMMI. As regards CISD officers, mention is made in Appendix A that the CISD is responsible for providing ICT support services, and is mainly concerned with the operational aspects of ICT projects. The operational aspects of ICT projects are not defined. Among other support services mentioned, the commissioning of IT equipment is included.

There was no detailed definition of accountability, roles and responsibilities for a project management team, as referred in paragraph 3.2.1, for an effective governance structure. This may lead to each team member adopting a silo attitude, encouraged by an environment where roles, responsibilities and accountabilities have not been defined in detail. Good practices¹⁵ recommend that team building with appropriate capabilities is one core dimension which ensures that ICT projects deliver the expected value on time and within budget. This aspect is crucial for projects which are risky, requiring new, complex and costly technology and cut across several Ministries and Departments. Case Study 7 on the Project HRMIS illustrates the importance of a management team with appropriate capabilities to manage such projects.

¹⁴ Gartner, Inc, 'Where the Buck Really Stops for Government IT Project Failure', Analyst(s): John Kost, Rick Howard. Last reviewed in August 2015

¹⁵ Delivering large-scale IT projects on time, on budget, and on value - Featured Article Number 27, Fall 2012, Mc Kinsey and Company

Case Study 7: Implementation of Project 'Human Resource Management Information System'

In November 2013, the then Ministry of Civil Service and Administrative Reforms awarded the contract for the implementation of the Oracle HRMIS across the Civil Service for a project value of Rs 206.4 million to a private Company. The HRMIS has five modules (Human Resource, Payroll, Self-Service, Learning Management and Performance Management System) that had to be completed by November 2016. There were delays and the completion date was revised from November 2016 to December 2019.

In June 2017, management reported that the various Committees that were set up to support the Steering Committee for the project were working in silos. There were issues with project governance, communication, coordination and alignment during implementation of the project. As at 30 September 2019, some Rs 408.8 million had already been spent on the Project, and none of the modules were functional. As at January 2020, the Payroll Module 'parallel run' which started in July 2018 was still ongoing due to occurrence of unresolved technical issues.

Since 2013, there were no formal terms of reference and agreement between the Ministry and the CIB for the development and implementation of the Project. In October 2019, some six years after, the CIB informed the Ministry of Public Service, Administrative and Institutional Reforms (MPSAIR) that it had neither knowledge in HR and Payroll processes nor programming expertise in Oracle HR. According to CIB, the only way to ensure that the System has been properly configured is via User Acceptance Test from business users (HR, Finance and Accountant General). However, the User Acceptance Test was not successful. Given the specialised nature of the Oracle HRMIS, CIB recommended that the services of an independent expert, who is well versed in Oracle HR solution, be procured to assess objectively the situation, look into outstanding issues and recommend the way forward that is deemed feasible for the Project.

Included in the sum of Rs 408.8 million, was an amount of some Rs 235 million paid for licences for the five modules since 2013. As of January 2020, the Ministry has received legal advice to renew three of the licences up to August 2020, pending a final decision is taken regarding the viability of the HRMIS Project.

Source: NAO analysis

3.3.2.3 Support Towards Assessment of Benefits Delivered

As per good practices¹⁶, benefits are assessed at three different stages of an e-Government project, namely project selection, monitoring and evaluation. The first stage consists of the creation of a business case to justify the project, which has been examined in paragraph 3.2.3. The second stage monitors costs and the benefits realisation plan during project implementation. A third stage occurs after the completion of the project and evaluates whether planned benefits and costs have been realised.

Two major indicators can be used to determine if a technology-enabled project is a success. The first indicator concerns success in delivering the technological (ICT) component of the project on time, within budget, and within scope which has been discussed in paragraph 3.4.2. The second indicator refers to success in delivering the promised project benefits and

¹⁶ OECD E-Government Project 'Benefits Realisation Management' - 35th Session of the Public Governance Committee

is measured in terms of a project's contribution to the business objectives of the organisation, achieving planned benefits to the organisation and to users and delivering an adequate benefit/cost ratio. This aspect is examined in this paragraph through a Case Study.

CIB did not carry out evaluation of completed ICT-enabled projects, and in the PMMI, no mention is made which stakeholder(s) is responsible for this exercise. As discussed in paragraph 3.2.1.2, evaluation of ICT-enabled project forms part of the mandate of the MITCI and CIB, and their responsibilities do not end with the issue of PCR.

The Ministry explained that CIB would be in a clear position of conflict of interest if it evaluated ICT-enabled projects which it had conceived, designed and provided technical specifications.

Case Study 8 illustrates that though some Rs 385 million had been spent in the project 'Crime Occurrence Tracking System (COTS)' at the Mauritius Police Force (MPF), no perceptible benefits were being derived.

Case Study 8 'Crime Occurrence Tracking System' - Mauritius Police Force

The COTS Project consists of three phases, namely Pilot, Final and Disaster Recovery Phases. The Pilot Phase was implemented on a small scale after which the Final Phase was completed in 2015, whereby the System was replicated across the entire Police Force. The Disaster Recovery Phase was still outstanding at December 2019. Some Rs 385 million had already been spent, including maintenance cost of some Rs 145 million. The objective of this Project was to empower the MPF with a tool for effective and efficient tracking of crime occurrences in the country using ICT solutions. It encompasses 'Computerisation of Occurrence Book and Master Registers', 'Tracking of Movement of Case File/ Dossier', 'Generation of Statistical Information and Maintenance of Confidentiality' through access to authorised officers only.

COTS was expected to interface with different external agencies/ units, like the Director of Public Prosecutions Office, Judiciary, National Transport Authority, Prime Minister's Office, Prisons' Department, Civil Status Division, Traffic Branch, and Passport and Immigration Office with which the MPF has regular interactions as far as crime occurrence is concerned. The expected benefits from this Project were:

- Higher efficiency – the new System would eliminate a lot of duplication of work which is inherent in the manual system. This would greatly reduce the time spent by Police Officers in paper work.
- Enhanced effectiveness - the new System would enable centralised tracking of all criminal offences lodged at all Police Stations. This would provide crime statistics in real time and would have a positive impact on the time taken to finalise enquiries. The possibility to perform advanced analysis of crime statistics will also empower Police Officers to be more proactive in law enforcement.
- Improved level of service – the new System would improve the time taken for Police Officers to respond to complaints, as well as process enquiries, thereby resulting in better level of service to the public.
- Increased collaboration among Justice Players – the linking of the MPF with the Judiciary and the Prisons Departments would increase the collaboration between these independent organisations, and hence, resulting in a more effective justice system.

The following was recommended in a PCR issued by CIB (unsigned by the MPF) in August 2016.

‘The MPF should ensure that all modules of the COTS are used effectively and efficiently by the various user departments in order to reap the optimum benefits of the installed System. MPF should carry out regular surveys at different sites to determine the usage level and gather feedback from users on the System. This will help to identify user issues, and other possible enhancements to the System. MPF should also ensure that proper technical support from the supplier is being obtained during the warranty and maintenance periods. Performance is a key factor to ensure end-user satisfaction of the System. Therefore, the System performance should be regularly monitored as and when more users access the System and any slowness issues raised with the supplier’.

Since then, there has been no evaluation to ascertain whether the intended project benefits have been achieved.

The following observations were made in the NAO Audit Report for the year ended 30 June 2018:

- COTS was not optimally used though it was in a technically functional state. Out of 56 functionalities of the System, only three were used extensively. Manual system was still maintained regarding movement of files in many Police Stations. Though cases were electronically submitted by Junior Officers (that is Police Constables) at Police Stations to their respective Station Managers (that is Police Sergeants), these cases were not processed forward to the Station Commanders (that is Chief Inspectors) and Divisional Commanders (Superintendents and Assistant Commissioners).
- As regards reports generation, the expected reports were not available in electronic format, and required lengthy and tedious searches in the manual system. Monitoring through instant access to Case Files was not being done through COTS, but manually. There were complaints regarding slowness of the System leading to latency during log in, navigation across fields and modules.
- None of the interface with the external agencies was in a functional state to enhance collaboration among the Justice Players.

Site visits were carried out at the MPF in July and December 2019, and it was confirmed that maximum benefits were still not being derived from the System.

Source: NAO Analysis

3.4 Support towards adoption of appropriate methodologies to deliver ICT-enabled projects as per their defined time frames, budgeted costs and specifications/quality

A Project Management Methodology comprises logically related practices, methods and processes that determine how best to plan, develop, control and deliver a project throughout the continuous implementation process until successful completion and termination. It is a systematic and disciplined approach to project design, execution and completion. The purpose of a Project Methodology is to allow for controlling the entire management process through effective decision making and problem solving, while ensuring the success of

specific processes, approaches, techniques, methods and technologies. A Methodology provides a skeleton for describing every step in depth, so that a project management team will know what to do in order to deliver and implement the work according to the schedule, budget and client specifications

The project governance aspects of ICT-enabled project management have already been discussed in paragraph 3.3. As for the findings on the Project Management Methodology, they are presented in the following paragraphs.

- 3.4.1 Whether there were appropriate Project Management Methodologies and guidelines developed by the MITCI and its Divisions to successfully and repeatedly manage ICT-enabled projects end-to-end within a structured and systematic approach.
- 3.4.2 Whether there were adequate project management support to deliver ICT-enabled projects timely, within budgeted costs and of quality
- 3.4.3 Management of project risks
- 3.4.4 Information security and-control aspects of system being implemented

3.4.1 Appropriate Project Management Methodologies and guidelines to successfully and repeatedly manage ICT-enabled Projects end-to-end within a structured and systematic approach

As described in paragraph 2.10, a project management framework derived from leading international methodologies has been customised by CIB to fit the local context, taking into consideration the unique characteristics of the Civil Service in Mauritius. As per the PMMI, this framework comprises five phases, namely Project Initiation, Project planning, Project Execution, Project Closure and Post Implementation and Evaluation. These stages are described, together with accompanying structures and responsibilities in the PMMI. The roles and responsibilities are described in Appendix A of the Manual, while templates of documents for specific outputs are described in Appendix B of the Manual. A recapitulation under whose responsibilities the different activities are as per the PMMI is presented in Table 9.

Table 9: Responsibilities for different activities as per Project Management Manual for ICT Projects

	Min/ Dept.	CPB	CIB	ITSU	CISD	Users	Vendor
Project Initiation	√						
Project Brief	√		√				
Approval of Project sought	√						
Project Planning							
<i>Project Scoping</i>	√		√				
<i>Fact Finding Exercise</i>	√		√				
<i>Preparation of e-Government Plan</i>	√		√				
System Procurement							
<i>Definition of requirements</i>	√						
<i>Preparation of technical specifications</i>			√	√			
<i>Bidding documents</i>	√						
<i>Floating of tender documents</i>	√	√					
<i>Evaluation of proposals</i>	√	√					
<i>Major Contracts - Approval</i>		√					
<i>Award of contract</i>	√						
<i>Signature of SDA (tailor-made)</i>	√						√
<i>Site preparation</i>	√						
<i>Delivery of equipment and installation</i>							√
<i>System Commissioning</i>	√				√		√
SDA (in case of tailor-made software)							
<i>Preparation/amendment of SRS /SDD</i>							√
<i>Approval of SRS and SDD</i>						√	
<i>Preparation of User Acceptance Test</i>							√
<i>Software development/full-fledged testing and correction of defects/issues</i>							√
<i>Software installation</i>							√
<i>User training on application</i>							√
<i>Acceptance testing</i>						√	
Program Manager's Deliverables							
<i>Gantt charts with milestones</i>			√				
<i>Project Plan</i>			√				

Source: NAO Analysis

In addition to the role and responsibilities of CIB Programme Managers not defined for a critical activity like 'Software Development Activities', there is also no mention of their involvement in tasks, like 'Business Process Engineering' and 'Parallel-run'.

The last stage in the framework of the PMMI is the 'Post-Implementation Evaluation'. Following project closure and subsequent follow-up actions, a post-implementation evaluation is expected to be carried out six to 12 months after a project is closed. The purpose is to evaluate the extent to which the initial objectives or aims have been met.

The PMMI does not mention within whose responsibility this important stage lies. In all the projects examined, no evaluation exercise has been carried out by CIB. Only one evaluation has been carried out by the User Ministry (MoHW) on its own, in respect of the Fleet Management System Project in October 2017.

Though recommendation is made in the PMMI for a systematic and structured approach to repeatedly manage ICT-enabled projects, the Manual does not provide guidance on important roles and responsibilities of CIB. As regards the end to end approach, the non-execution of 'Post-Implementation Evaluation' misses out the opportunity to ascertain whether the intended benefits have been achieved.

3.4.2 Adequate project management support to deliver ICT-enabled projects timely, within budgeted costs and of quality

In order to assess the level of support provided to user Ministries/ Departments with focus on projects completion period, costs and specifications, the following areas were examined:

- Appropriate documentation in respect of support and monitoring of projects; and
- Support to avoid delays on completed and ongoing projects.

The findings are presented below.

3.4.2.1 Appropriate documentation in respect of support and monitoring of projects

Several documents are created during project management. Some of them are critical to the successful completion of a project, while others are merely intended for organising the work flow. Documents, like Project Management Plan (PMP) and Risk Management Plan have an integral place within the structure of project management. The templates for some 13 project documents are provided in the PMMI as guidance. Equally important are 'Notes of Meetings' of PSC, PMC and other Committees for projects which record discussions and decisions taken.

As per the PMMI, the MITCI and its Divisions had to ensure whether projects were being implemented appropriately, taking consideration the preparation of the PMP, System Requirement Specifications, System Design Description, User Acceptance Testing and PCRs, amongst others.

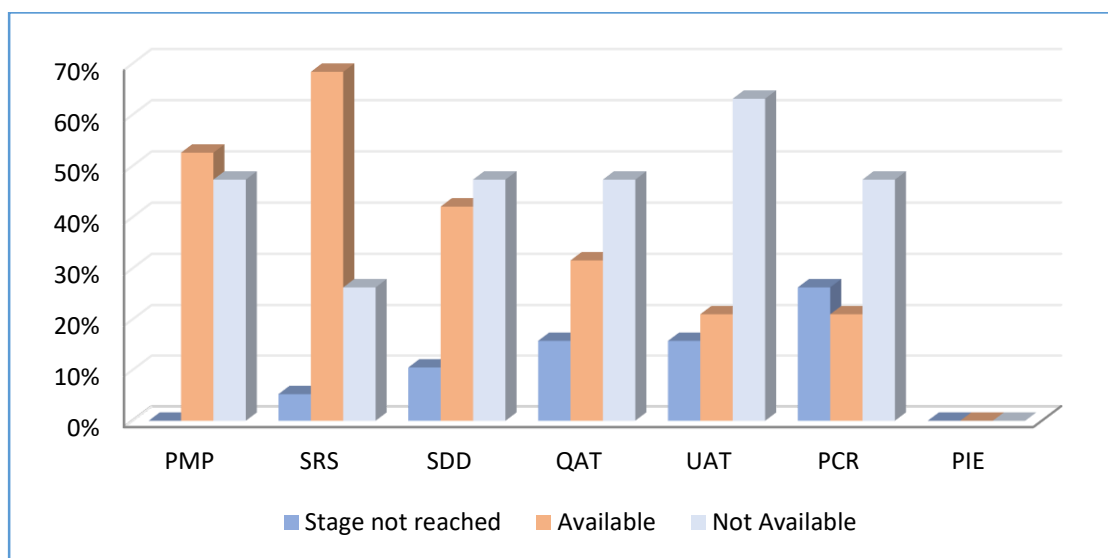
(a) CIB's Management Oversight through 'Notes of Meetings'

The CIB was not always keeping copies of all the 'Notes of Meetings' of ongoing projects or those nearing completion in Project Files. Though these documents were important for monitoring, providing feedback and oversight by CIB's management (for example Lead Programme Managers) Project Managers involved in projects examined stated that they were not always provided the 'Notes of Meetings' by user Ministries/ Departments for the meetings attended.

(b) *Project Management Documentation maintained by CIB*

An analysis of seven types of project documentation kept by the CIB for each project out of a sample of 19 ongoing/ completed projects (details as per Appendix VIII) is illustrated in Figure 11 below.

Figure 11: Project Management Documentation



Source: NAO analysis as per CIB records

PMP - Project Management Plan SRS- Software Requirement Specifications
 SDD – Software Design Description QAT- Quality Assurance Tests UAT- User Acceptance Test
 PCR – Project Closure Report PIE - Post-Implementation Evaluation

Their purposes and details on their availability in CIB records for project monitoring purposes are described below:

- i. *Project Management Plan.* In the PMMI, neither a template nor the assignment of the responsibility for preparing same is recommended. In all the projects examined, it was contractually assigned to the supplier/ vendor. This is a Project Manager road map and guiding document. It is considered to be the single most important document for a Project Manager. It outlines how the project will be managed, and includes the project schedule, budget, quality standards, project team requirements, project control, and anything else that is necessary to communicate how the project will be managed. It should be approved by the project sponsor/ PSC, and changes made according to the official change control procedures specified within. The document also describes the approach and methodology, sets the project baseline schedule, states the reporting and reviewing mechanisms, explains how project risks will be averted or mitigated, and generally covers all project management aspects. On average, for every two projects examined, in only one case a copy of PMP was either mentioned to be available or physically available in the records of the CIB.
- ii. *Software Requirement Specifications.* This document helps users to describe accurately what they wish to obtain, and software vendors/ suppliers to understand exactly what

the users want. It is a contractual document prepared by the vendor that needs to be approved by users through the PSC. On the average, for every two cases examined, in only one case the SRS was mentioned to be available or a copy physically available in the records of the CIB.

- iii. *Software Design Description.* This contractual document prepared by the vendor/supplier shows how the software system will be structured to satisfy the requirements identified in the SRS. If not properly done, there will be a gap between the designed system and what was actually expected. On the average, for every one case where the SDD was mentioned to be available or physically available, there was one case in which it was not mentioned to be available or a copy physically available in the records of the CIB.
- iv. *Quality Assurance Test.* This includes test plans, with test data used and test results. It should be done offsite by the vendor/ supplier who should submit same before carrying out the User Acceptance Test. For every two projects which had reached this stage, in only one case, the test data and results were mentioned to be available or a copy physically available in the records of the CIB.
- v. *User Acceptance Test Script and Certificate.* Each test case defined in the UAT Plan is executed by the user, and the results are filled in the UAT Script. The Certificate is issued by the user to certify acceptance of the Application Software. On the average, for every one case where these documents were mentioned to be available or a copy physically available, there were three cases in which they were not mentioned to be available or copies physically available in the records of the CIB.
- vi. *Project Closure Report.* In this document, the success of the project is assessed, best practices for future projects identified, all open issues are resolved, and the project formally closes. It is prepared by CIB and submitted to the user Ministry/ Department for consideration and approval as witnessed by signature of senior management therein. For every three projects which had reached this stage, in only one case the document was available. In several cases, the PCR did not bear any approval of the user Ministry/ Department. This included the PCRs of Projects COTS of the MPF and 'Fleet Management System' of the MoHW.
- vii. *Post-Implementation Evaluation.* No evaluation was carried by the CIB following project closure.

Availability of copy of these records at CIB substantiated the close monitoring of projects, and appropriate level of support to Ministries and Departments. Non-availability of some important documentation, like PCR might indicate that one important activity has been missed out. As per good practices¹⁷, failure to conduct thorough project close out could potentially put an organisation at a considerable amount of risk, prevent the organisation from realising the anticipated benefits from the deliverables of the project, result in significant losses to the organisation, and undermine the Project Manager and project management team's credibility.

¹⁷ Aziz, E. E. (2015) - Project Closing: the small process group with big impact. Paper presented at PMI® Global Congress 2015—EMEA, London, England. Newtown Square, PA: Project Management Institute

CIB explained that all artefacts, bidding documents, letter of award, contractual documents, signed agreements, deliverables, document, source code, passwords are submitted to, stored and maintained by the owner of the project that is, user Ministries/ Departments. Ownership of Project Documentation and Notes of Meetings rest with Ministries/ Departments.

(c) *Recording of approval of key stages and related documentation in 'Notes of Meetings'*

In only a few projects from the sample examined in Appendix VIII, approval in respect of all key stages were recorded in the 'Notes of Meeting' of individual projects. Key stages include approval of PMP, SRS, SDD, UAT and PCR. For example, in the case of Project 'Computerisation of MAURITAS Accreditation Management System' the following were noted:

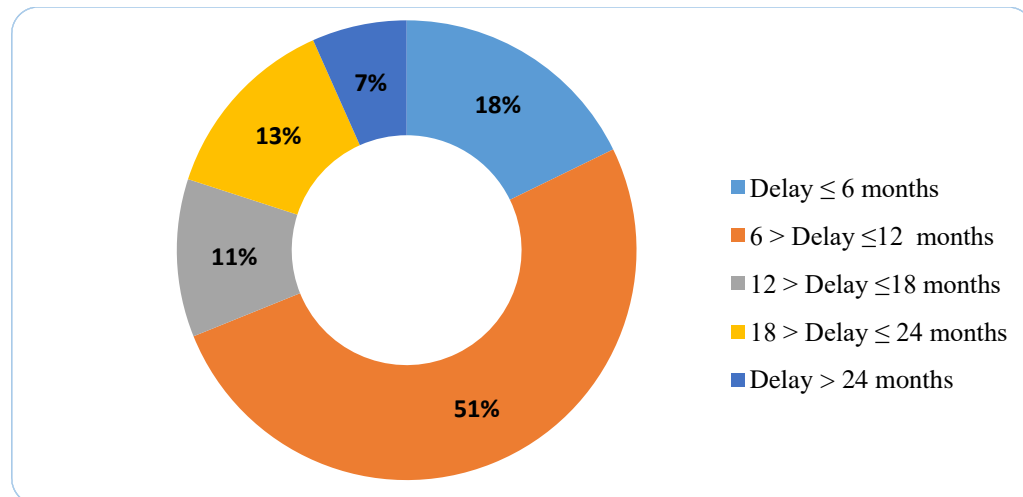
- i. The meeting to drive this project was named 'Computerisation of MAURITAS Accreditation Management System'. The meetings were chaired by top management, were serially numbered and the minutes were comprehensive, with details of discussions carried out. However, there was no mention of whether it was a PSC.
- ii. There was no PMC held to discuss technical issues as recommended in the PMMI. These technical issues were discussed outside the official meetings, mostly through mails.
- iii. Though the PMP, SRS and SDD were discussed during meetings, there was no mention in the 'Notes of Meeting' that these documents were approved to the satisfaction of all during these sittings.
- iv. The contract was awarded in June 2018 and should have been completed by December 2018. As at 31 July 2019, the application was still at testing stage and several technical issues remained unresolved. On 1 August 2019, MAURITAS granted the vendor an extension up to 21 August 2019 to complete the Project. During period December 2018 to July 2019, there was no mention that completion period was being revised, and that no liquidated damages would be applied.
- v. The contract made provision for application of liquidated damages of one per cent of the contract value, but there was no precision as regards the circumstances and conditions in which the liquidated damages would be applicable.
- vi. The vendor failed to deliver by 30 September 2019 and was instructed to stop all interventions on the Project. In October 2019, MAURITAS sought legal advice to terminate the contract on the grounds that the vendor failed to understand the process flow of MAURITAS (user requirements), did not provide adequate resources on the project, issues were not addressed in a timely manner and the UAT was not successful.

As of January 2020, liquidated damages could not be applied, and the contract had not yet been terminated.

3.4.2.2 Support to avoid delays on completed and ongoing projects

An analysis of the status of 55 completed and ongoing projects for period March 2018 to November 2019 revealed that the delivery of 45 completed and ongoing ICT-enabled projects has significantly been delayed. In most of the projects under development, the actual time taken to implement the projects exceeded the budgeted time as shown in Figure 12. In some cases, tenders were launched at time when the project was initially expected to have been completed.

Figure 12: Delays in project implementation



Source: NAO analysis

The delays were mainly attributed to:

- Finalisation of bidding documents by Procurement and Supply Departments took a lot of time as technical issues required additional discussions and clarifications with CIB and the Public Procurement Office. Case Studies 1 and 6 are examples where much time had been spent on clarifications of technical issues;
- Much time was spent on UAT and rectifications, as in several cases, the designed systems did not meet user requirements; and
- In other cases, serious technical issues arose during warranty periods even after successful UAT.

The Ministry informed NAO that though procurement aspects did not fall under the purview of CIB Programme Managers, the latter usually assisted the Procurement and Supply Officers in preparing the appropriate bidding documents over and above the preparation of the technical specifications. Also, delays in including technical specifications into a standard bidding document could not be attributed to CIB Programme Managers. According to the Ministry, a knowledgeable Procurement and Supply Officer would complete a bidding document in a matter of few days, whereas in practice the bidding document takes months to be finalised.

The causes for failure of UATs in some projects and steps taken to avoid and rectify same were examined and presented below. A common observation in these projects was that prototypes¹⁸ of the systems built by vendors based on the SDDs repeatedly failed to match user requirements. In some cases, the support from the MITCI and its Divisions on this prototype aspect was proactive and raised early warnings through close monitoring to avoid delays on the projects, while in other cases, it was not so.

As mentioned in Case Study 6 relating to the implementation of the project HRMIS, CIB argued that only at UAT stage it can be confirmed that an application was properly developed and configured to provide the required output. If the UAT is unsuccessful, then the vendor has to make such modifications as needed on the application to enable it to pass the test. In case the UAT is repeatedly unsuccessful, then abandoning the application is the most likely option. In that case, much time and resources have been wasted, and intended benefits not realised. A new project had to be started.

The UAT and further tests during and after warranty period are important to ensure that users' requirements are met. Findings in respect of four projects are presented below, emphasising how close collaboration and monitoring between user Ministries/ Departments and MITCI / its Divisions are requisites during SRS, SDD, UAT and PCR.

(i) *Project 'Computerisation of MAURITAS Accreditation Management System'*

In the case of the Project 'Computerisation of MAURITAS Accreditation Management System', the Project should have gone live by November 2018 following contract award in June 2018. By January 2019, the SRS and SDD had already been approved by MAURITAS, indicating that the service provider had understood the user requirements and had produced the appropriate software design. There was a first round of testing of the developed prototype starting in January 2019, when it was found that the System was not according to requirements of MAURITAS. Corrections were made by the service provider and then, there was a second round of testing in June 2019. It again failed the test. Steps that were found satisfactory in January 2019 testing were no longer satisfactory in the June 2019 testing.

During several meetings, the service provider had been reporting that progress on the implementation on the deliverables was progressing satisfactorily and had reached 87 per cent by July 2019. During an assessment carried out by MAURITAS on the same date, it was estimated to be only some 20 per cent, and payments totalling some Rs 335,000 were already made. The prototypes of the system developed by the service provider based of the SDD had serious flaws right from January 2019.

In September 2019, as the UAT was being dragged on unnecessarily, decision was taken to terminate the contract. Also, as the way forward, MAURITAS would conduct a research on successful similar system implemented in other countries, and submit a concise project write up on the Computerisation Project for consideration by the parent Ministry.

¹⁸ Prototype refers to a basic version of a system which is built, tested, and then reworked until an acceptable prototype is finally achieved from which the complete system or product can now be developed.

(ii) *E-Judiciary System and Revenue Collection and Case Management System*

The e-Judiciary was implemented some 10 years ago, and provided services, such as online lodging of cases, exchange of pleadings and making the file in shape for hearing. It started at the Commercial Court, and should have been rolled over to the Supreme Court. Due to ageing of the hardware installed, coupled with the high maintenance cost (some Rs 18 million annually), it was decided to revamp this Project (e-Judiciary Phase 1), and roll it with the Project ‘Revenue Collection and Management System Phase I and II’, being concurrently implemented at the Supreme Court.

The Revenue Collection and Case Management System Phase I should have been completed in December 2018. In December 2019, this System did not go live, as several technical issues had not been resolved by the service provider. The Revenue Collection and Case Management System Phase II were expected to go live by March 2020, but it had been delayed. As of January 2020, a revised Project Plan and SDD had not been submitted. Data migration issues were still unresolved. The e-Judiciary Phase 1 was expected to go live by July 2019. As at December 2019, several technical issues were unresolved to enable it do so.

However, there was little visibility on precisely when both Systems would be operational. Given the risk that the old systems could crash anytime, the renewal of the maintenance agreement was envisaged. Due to the criticality of the e-Judiciary System and the delays in the implementation of the revamped version, the Judiciary decided to renew the maintenance contracts for the existing system for the period 16 October to 31 December 2019. The hardware, software and operational maintenance support for that period was agreed at some Rs 4 million.

A review of the Project Files indicated that there were close monitoring on issues, like the prototypes developed, SRS, SDDs, Quality Assurance Tests and UATs. However, successful rectifications took a lot of time, and successively deferred the projects’ completion dates.

(iii) *Command and Control Centre Project for CISD*

In January 2019, the CISD awarded a contract for a Command and Control Centre at the CISD, the GOC and 10 pilot sites, with completion date April 2019. The Centre would enable the CISD to monitor all the different servers, machines and networking equipment located in various Ministries and Departments. A PSC was set up to steer the project. All the meetings were sequentially numbered and were comprehensive in terms of discussions recorded. The SRS and SDD were discussed and approved at the level of the PSC. The UAT was successfully completed, and the system went live in June 2019. Commissioning was then successfully completed, but soon during warranty, a series of technical issues arose. There were repetitive downtime, crash of the Centre and absence of redundancy and resiliency in the system. The CISD, being conversant with ICT and owner of the Project, continuously reminded the service provider to rectify same in all the PSC meetings that followed. Finally, the latter identified the flaws in the initial design that were causing the faults. The system was designed on a one-tier architecture, when it should have been on a two-tier. Rectifications were brought by the service provider at no additional cost. Figure 13 shows a photograph of the Control and Command Centre in operation during a site visit in January 2020.

Figure 13: Command and Control Centre in operation at the CISD



Source: CISD

(iv) *E-Work Permit System of Ministry of Labour, Human Resource Development and Training*

The Ministry of Labour, Human Resource Development and Training initiated an e-Work Permit System in 2013 costing some Rs 14.5 million. It was intended to replace an existing old work permit application system and be a modern fully online system to improve the work processes through online applications, linkages with stakeholders, online payments and printing of permits on cards. The expected completion date was July 2014.

During implementation of the project, a PSC and PMC were constituted which did not meet regularly. The scheduled completion date was revised to January 2015, by which date the SRS and PMP had not yet been approved. In March 2015, the SDD submitted in 2014 was still being considered. Without an approved PMP and SRS, the service provider had already embarked in the design and testing of the e-Work Permit System.

In September 2016, CIB submitted a PCR which was approved by the Ministry of Labour, Human Resource Development and Training, and the System was launched on a pilot basis in July 2017. In September 2017, users reported that the e-Work Permit System did not correspond to their needs as initially agreed in the UAT, which was submitted together with the PCR one year earlier. As of January 2020, the System was on parallel run, and online payment of fees has not yet been activated.

3.4.3 *Management of project risks*

As mentioned in paragraph 1.2, implementations of ICT-enabled projects are regarded as high-risk ventures due to their complexity and a comparatively high failure rate in terms of being delivered on time, to budget and to specifications. Common risks include inadequate or incorrect capture of user requirements, incorrect designs, and systems not functioning as per specifications and service providers' failure during project implementation. Therefore, before starting a project, a detailed assessment of the key risks that are likely to arise in relation to the project should be conducted, with a view to implementing appropriate risk mitigation strategies. Table 10 describes potential risks faced during a project lifecycle and the related mitigation strategies/ actions required.

Table 10: Potential risks during a project life cycle and related mitigation strategies

Stage	Risk Areas	Risks	Effects	Mitigation Strategy
Initiation	Strategy and Vision	Strategic Risk	Projects are not prioritised.	Prepare an Information Plan
			No proper feasibility study carried out - Intended benefits not achieved.	Prepare Business case
Planning	Strategy, Business Process Reengineering	Strategic Risk	Risk assessment is not carried out. Risk Mitigation Strategies are not developed	E-Government Plan, Project Implementation Plan
Implementation	Project Management Methodologies	Implementation Risk	Project Management Methodologies not implemented effectively. Delays in project. Shortfall in quality	PSC
Monitoring	Project Governance	Governance Risk	Ineffective project governance. Silos Approach - Lack of Whole-of-Government Approach.	Project Status Report
Execution/ Operations	Project Governance	Governance Risk	Maximum intended benefits not ensured. Absence of an effective handover.	PCR and Post Implementation Evaluation.

Source: NAO Analysis

As per PMBOK, Project Risk Management describes the processes involved with identifying, analysing and controlling risks for the project. It includes Planning Risk Management, Identification of Risks, Performing Qualitative and Quantitative Risk Analysis, Planning Risk Responses and Controlling Risks. Planning risk management starts as early as initiation stage.

Currently, the onus of preparing a Risk Management Plan is on the service provider as it is one of the contractual obligation in the bidding documents. For all the projects examined, the Risk Management Plans were prepared by the service providers after contract award. These were prepared with their perspectives of the projects and did not cover risks outside their purview. For example, for the Project ‘Computerisation of MAURITAS Accreditation Management System’, MAURITAS approved a Risk Assessment Plan of the service provider in February 2019 at time when UAT was about to start. The Plan covered risks, like server malfunction, network issues, hacking, and malware infection.

The perspective of risks of the project sponsors, PSC and other stakeholders are much wider. Risks, such as repeated failures of UAT, system performance issues, user requirements not fully met, supplier failures due to receivership or bankruptcy, unavoidable termination of contract are likely probable and with high impact. For example, in the case of MAURITAS, repeated UAT failures dragged on over some nine months, liquidated

damages could not be applied, and service provider debarred from access to premises and contract still not terminated due to legal issues. MAURITAS has no alternative plan on how to embark on a new digitalisation project with minimum delay in case the ongoing one failed.

Case Study 9 presents the scenario where the service provider in respect of the School Net II Project went into receivership during project execution after being paid some Rs 83.6 million.

Case Study 9: Supplier's failure in School Net II Project

In December 2015, the MITCI awarded a contract to a service provider for the implementation of School Net II Project for a sum of some Rs 122.5 million. The project consisted of deployment of high speed broadband for internet access, wireless connectivity and access to pedagogical content to secondary schools students in Mauritius and Rodrigues.

CIB had prepared the technical specifications of the Project, and had to oversee its implementation in collaboration with the client Ministry, the then Ministry of Education and Human Resource (MoEHR) and other stakeholders. Also, CIB had to follow progress of each milestone. The MITCI handled the bid exercise, contract administration, monitored project progress and processed payments to the service provider. The MoEHR had to provide access to school sites and ensure their readiness, and to arrange for technical staff to provide support when the System would go live.

There were delays on the project. Following an addendum to the contract, the completion date was revised from August to November 2017. In January 2018, the MITCI informed the service provider of application of liquidated damages of some Rs 12.2 million for breach of contract, and that there was an overpayment of some Rs 1.4 million. As at that date, some Rs 83.6 million had already been paid on the contract. There has been no progress on the contract since November 2017. In January 2019, the company went into receivership. In June 2019, the Receiver Manager of the service provider informed MITCI that the service provider was under insolvency and could not effect any payment.

In June 2019, the Ministry of Education and Human Resources, Tertiary Education and Scientific Research (MEHRTESR, ex-MoEHR) did not accept to take over the stalled project upon request of the MITCI. Some of the reasons stated were the high probability of obsolescence, non-compatibility with other software and/or equipment, and difficulty in enlisting a third party to take over the project. Rather the MEHRTESR requested the MITCI to extend the on-going Framework Agreement for Connectivity Services for Skygovnet to all state secondary and private schools.

In November 2019, the MITCI initiated discussion with the Receiver Manager, as per legal advice, to complete the project by another party. As of January 2020, discussions were still in progress on a proposal of the Receiver Manager.

Meanwhile the MEHRTESR reported that due to lack connectivity in the schools, several projects could not be implemented. These included the Electronic Attendance System, the Student Support Programme, the Higher School Certificate Professional Project, the SMS e-Attendance Project, the setting up of school websites, the deployment of Office 365, the SRM Child Allowance Scheme and the School Companion App.

Source: NAO Analysis

The Ministry of Education, Tertiary Education, Science and Technology and MITCI had different perspectives of the failed project and approaches to salvage the investment of some Rs 83.6 million as soon as possible to deliver the intended benefits. There was little visibility on when this could be achieved in the absence of a Risk Management Plan that should have been prepared at project planning stage.

3.4.4 Information security and system control

As per the PMMI, user Ministries/ Departments have to develop and review an appropriate Information Security Management System with the assistance of ITSU. At the bid preparation stage for a project, Programme Managers of CIB define all the technical specifications, except those relating to IT security aspects. These IT security aspects are handled concurrently by Programme Managers of ITSU who are members of PSC and have to ensure that these aspects are catered in the SRS and SDD developed by the Solution Provider. The following had been observed during project implementation:

- ITSU Programme Managers are members of PSCs until project completion. As part of their mandate, they are expected to carry out security audits once the systems become operational. In only 19 per cent of already operational systems, security audits have been carried out to provide the assurance that controls embedded in the projects at design stage were functional. In only nine per cent of systems recently rolled out, security audits had been carried out;
- There is an area of potential conflict of interests where the entity who designed the controls was subsequently required to assess and provide assurance on the sufficiency and functionality of these controls. This arrangement did not ensure segregation of duties, necessary to provide an independent assessment of IT controls; and
- The Scheme of Service of ITSU Programme Managers includes IT audit functions, but not drafting of IT security aspects in technical specifications of bid documents. The Scheme of Service of CIB Programme Managers did not include IT audit functions but include the need to provide security norms in information systems developed.

As such, there were overlaps in the two mandates which have not been exploited to ensure segregation of duties and release more resources for IT security audits.

The Ministry explained that in relation to number of computerisation projects, the percentage of audits performed was low. Involvement in computerisation projects takes a large proportion of ITSU's resources at the expense of conducting the other activities for which it is mandated. Nonetheless, for major projects in terms of complexity and of high value, a component of Information System audits was already incorporated in the RFP. The ITSU then reviewed the audit reports and advised the User Department accordingly. However, based on International Audit Standards that stipulates that independence, objectivity and impartiality of the audit function had to be maintained, involvement at all the stages of project management cycle did constitute an element of conflict. The risks that the current practice presented included:

- No adherence to international security standards. Non-compliance may lead to non-attainment of international accreditation;
- Complete security risk assessment not enforced in Government; and
- Increasing number of incidents not being promptly tackled leading to loss of image for Government.

CHAPTER FOUR

CONCLUSION

This Chapter concludes against the audit objective based on the analysis and findings supported by audit evidence as elaborated in the previous Chapter.

Significant expenditure has been incurred on the e-Government Programme during the past decade leading to more than 100 ICT-enabled projects in operation, and some 35 in progress or near-completion. Different strategies and plans were developed aimed at paving the way towards e-Government through these projects, where the focus was on benefits realisation, and contribution to the achievement of the Sustainable Development Goals by fostering innovation and bridging digital divide. These projects were generally costly, risky, and spanned over several years and were implemented against the backdrop of rapidly changing technology.

The MITCI and its Divisions have taken laudable initiatives to move forward the e-Government Agenda. Several projects currently in operation had been delivered on time, within budget and according to specifications.

However, the support provided by the MITCI and its Divisions had been challenged in areas relating to formulation and implementation of e-strategies, and adoption of appropriate project governance structures and project management methodologies. Several on-going projects will have to be abandoned before completion, some are experiencing cost overruns and delays, and others have recently been implemented without any perceptible benefits.

MITCI and its Divisions have not always closely aligned their interventions with the recommendations of plans and strategies which they have themselves commissioned or formulated. A Steering Committee for the follow up on the effective implementation of the Digital Government Transformation Strategy to ensure that expected results are delivered was not set up. Several structures proposed to provide oversight on digitalisation and enhance cross silos coordination were not functional since their announcement. The other committees either met occasionally or ceased all activities after a few meetings. Also, several aspects of the ‘Whole-of-Government’ approach, like close collaboration among different stakeholders, which are crucial for implementation of these projects were not prevalent.

In respect of evaluation of progress made towards digitalisation, no appropriate performance indicators have been set to measure performance and provide the necessary feedback for corrective actions. Less than 50 per cent of Ministries and Departments have developed e-Business Plans necessary to provide an integrated approach of digitalising core processes. The remaining Ministries and Departments are not adequately supported to develop and implement their e-Business Plans.

Project governance has not received the required attention to increase the likelihood of project success. In the Project Management Manual for ICT Projects, no guidance has been made for an adequate project governance structure within organisational governance in Ministries and Departments. The tasks and responsibilities of the Project Steering

Committees, Project Monitoring Committees and CIB Programme Managers are not clearly spelt out to facilitate monitoring and decision-making.

As regards the project management methodology developed for implementing projects, it fell short in areas, like assigning responsibilities within the project management team, monitoring of software development activities and post-implementation evaluation.

In areas in which the MITCI and its Divisions' interventions had been challenged, their level of support were not effective enough to deliver the intended benefits of ICT-enabled projects within time, cost and to specifications. Though there were factors outside their control (like financial constraints, shortage of staff, resistance to change and inadequate collaboration of user Ministries and Departments) which affected negatively implementation of these projects, they could have done better if they had focused more effectively on issues which were within their mandate and resources were available.

CHAPTER FIVE

RECOMMENDATIONS

This Chapter presents the recommendations based on the findings and conclusion.

5.1 General

The support provided by the MITCI and its Divisions is crucial in implementing the ICT-enabled projects, which in turn contributes towards driving the e-Government Agenda and the ultimate achievement of the Sustainable Development Goals. In the three areas examined, namely formulation and implementation of e-Strategies, adoption of appropriate project governance structures, and project management methodologies, the effectiveness of their support has been challenged. In order to increase the effectiveness of their support, the MITCI and its Divisions need to focus in priority on increasing the proximity of their interventions with users, building capacity to keep pace with new technologies, favouring a system that evaluates and provides feedback on their output, concentrating on project governance and considering the review of their Project Management Methodology Manual.

In the light of above, hereunder are the specific recommendations presented in respect of the three focus areas, namely formulation and implementation of e-Strategy, project governance, and project management methodology.

5.2 Formulation and implementation of e-Strategies

1. The MITCI has a key role to play in all the structures recommended in its ICT Plans, Strategies and PRB Reports. These structures would have enabled oversight by the MITCI on areas under its purview, but were not functional since their announcement. The least that the MITCI can achieve now in that respect, is the re-activation of the e-Government and Computerisation Steering Committee recommended in the PRB Report 2016 to address the issue of lack of ownership of ICT-enabled projects by Ministries and Departments.
2. The Public Sector Business Transformation Strategy deals with several parts of e-Government projects which comprise human resources management, business process re-engineering, administrative and legislative needs. The MITCI and its Divisions, though possessing the required technology and expertise, need proper functioning of these invisible parts to implement ICT-enabled projects successfully. Key structures set up under the Public Sector Business Transformation Strategy were not functional as they should have been, and that deprived the Public Sector Business Transformation Bureau the means to channel challenges identified in the Action Plans of the Transformation Implementation Committees for necessary interventions at strategic level. As the MITCI is one of the key players at strategic level, it should intervene to kick start the operation of these structures.
3. The design of e-Strategies consumes time, energy and resources, and should not remain as blueprints. Instead, they should be evaluated concurrently with implementation so that they may be re-aligned, if necessary. The key performance indicators which should have been developed as per the Action Plan accompanying the Digital Government

Transformation Strategy, should be defined, and used to measure progress realised and trigger corrective actions.

4. Under the 'Expert Skill Scheme', the MITCI had obtained the necessary resources to build capacity through the hiring of Consultants, to support its interventions. However, it did not take appropriate advantage of this facility. It should consider renewing the recruitment process to bridge expertise gap identified at the Ministry.
5. Though the MITCI and its Divisions cannot compel Ministries and Departments to develop e-Government plans, they should push forward this strategic agenda by providing the necessary technical support. The inability of the MITCI to sort out the issue of allowance in respect of the 'Head, ICT' recommendation of PRB has been a missed opportunity to support Ministries and Departments in the most economical way. It would have been cheaper to provide technical support by existing staff against payment of allowances, instead of waiting for recruitment of additional Programme Managers at higher costs to perform same tasks.
6. The MITCI should reconsider the posting of CIB Programme Managers to Ministries and Departments as per PRB Recommendations. This should be accompanied by an assessment of resources available against their actual deployment on tasks and responsibilities of the CIB.
7. The implementation of four e-Government plans (Health, Education, Agriculture and Social Security) has remained at planning stage and has been dragging on for more than five years. The longer the delays in their implementation, the greater is the likelihood of these plans requiring subsequent cost revisions, and the higher the risk of intended benefits not realised. MITCI should consider finalising these plans as one of its priorities.
8. In respect of the e-Health Project, with a project value of some Rs 700 million, the plan prepared by CIB proposed that the Project be first run as a pilot phase, initially in one Hospital, before its final roll out to the remaining Health Institutions. In 2019, the Ministry of Health and Wellness took the decision to go directly to full roll out without a pilot phase. For such large, complex and risky investment, good practices recommend that adopting a pilot phase is a more prudent approach. The MITCI should advise and ensure that the structure put in place to drive the Project should comprise appropriate expertise and experience in case the Ministry of Health and Wellness is still favouring a full rollout approach.
9. In the Digital Government Transformation Strategy, it is recommended to have recourse to 'business cases' which use appropriate metrics to identify costs and benefits, establish clear responsibilities and roles among criteria to justify and prioritise investments in ICT-enabled projects. However, in respect of projects submitted for financial clearance through briefs or Project Request Forms, the justifications regarding risk assessment and appropriate structures to drive these projects provided by user Ministries and Departments were insufficient. Though the PRF is a template of the MoFEPD and pending the 'business case' approach is adopted, the MITCI and CIB should support user Ministries and Departments to prepare Project Request Forms that use sufficient metrics to assess the likelihood of project success at financial clearance stage.

5.3 Project Governance

1. Project governance is about guiding and monitoring the process of converting investment decisions into value for an organisation by way of delivering the intended benefits. It operates in continuous sequences from inception, through various decision points and milestones to operation and benefit delivery. The Project Management Manual for ICT Projects issued in 2017 to strengthen governance structure does not provide enough guidance on accountability, roles and responsibilities at all project stages. A Project Governance Framework based on international benchmarks (such as COBIT 5¹⁹) that takes the achievement of business objectives into consideration, in addition to software project management methodology should be included in the Project Management Manual for ICT Projects.
2. The MITCI should set up the recommended Committees to monitor the use and impact of the Manual, and also to ensure continuous update of the document to bridge the gaps identified in this Report.
3. The terms of reference of the Project Steering Committee should be set right from the planning stage, instead of stipulating them at contract award stage.
4. CIB and other Divisions of the MITCI should ensure that they have the necessary expertise and experience prior to the start of a project.
5. The prime objective of an effective governance structure is to provide the assurance that an ICT-enabled project is a success. Two major indicators can be used to determine success. The first one concerns the ability to deliver the technological component of the project on time, within budget, and within scope. This is achieved through a Project Closure Report which is the responsibility of the CIB, but is not being satisfactorily executed in compliance with good practices. The second indicator refers to success in delivering the promised project benefits and is measured in terms of a project's contribution to the business objectives of the organisation, achieving planned benefits to the organisation and to users. This is measured through a Post Implementation Evaluation. CIB should prepare the Project Closure Report and carry out the Post Implementation Evaluation for all projects in collaboration with user Ministries and Departments.

5.4 Project Management Methodologies

1. As regards project management methodologies, the Project Management Manual for ICT Projects lacks guidance on roles and responsibilities of CIB on important tasks, such as Software Requirement Specifications, Software Design Description and Project Implementation Evaluation. Project management documentation kept by CIB was incomplete. Approvals of key stages of projects were not recorded in the 'Notes of Meeting' of committees and meetings. Definition of roles and responsibilities, maintaining complete project documentation and recording of approval of key stages

¹⁹ COBIT 5 principles are applicable to program and project management. The principles provide for application of a single integrated framework, enable a holistic approach, separate governance from management, cover an enterprise IT and meet stakeholders needs.

should be reconsidered by CIB to provide assurance that all stages during project implementation were closely supported and monitored.

2. The tasks regarding Software Requirement Specifications, Software Design Description and User Acceptance Tests are usually led by the service provider. However, the execution of these steps mostly become challenging due to inadequate technical specifications, inaccurate capture of business processes, design and prototyping. Even though test procedures are under the responsibility of the service provider, the lack of knowledge of users in technology or development processes increases the risk of failure. CIB should provide closer support to user Ministries and Departments in these areas.
3. The highly technical aspects of some projects presented difficulties for the Procurement and Supply Department, and this led to longer time in preparing bidding documents, resulting in delays on projects. Programme Managers of CIB should enhance their support and proximity with officers of the Department during this process.
4. The responsibilities for managing projects risks were left out to vendors, despite their perspective of risks were narrower than that of MITCI, CIB and user Ministries/ Departments. For example, a vendor cannot be expected to assess its own risk of going into receivership and formulate mitigation measures in that respect. A wider perspective of risks should be considered. The Ministry and CIB should support the preparation of a comprehensive Risk Management Plan at planning stage.
5. To ensure segregation of duties and avoid conflict of interest, Programme Managers of the IT Security Unit should focus only on security audits during project implementation stage. This would release more resources to carry out such audits on rolled out projects, as few security audits have been carried out over the past years. Programme Managers of CIB, who according to their Schemes of Service have competence on security norms in information systems, may handle the technical specifications on IT security aspects (currently being done by IT Security Unit), while preparing the technical specifications in bidding documents.

Additional Responses of Ministry

- i. Most Ministries/Departments do not have a Steering Committee to monitor all of its ICT projects/initiatives falling under its Vote at the holistic level.
- ii. ICT is regarded as a peripheral support in Ministries and Departments instead of as an enabler of strategic value.
- iii. ICT function is restricted to computer rooms in Ministries/Departments in contrast with Administration, Human Resource, Finance, Procurement or Registry functions which have full-fledged Departments/Units with staff of varying hierarchies and amenities. In many cases, Ministries/Departments do not receive full-time ICT support or service as the scarce ICT staff share responsibilities at multiple Ministries/ Departments.

- iv. Services which receive a lot of citizen pressure (for example. Mauritius e-Registry, Online Motor Vehicle Licence at National Land Transport Authority, e-Health, e-Services, etc.) do not have a dedicated team who take ownership of those services, unlike the Citizen Support Portal (Prime Minister's Office), Tax Payer Portal (Mauritius Revenue Authority) or National e-Licensing System (Economic Development Board). These services are backed up by a multi-disciplinary team comprising administrative, functional, as well as a myriad of technical staff to ensure day-to-day sustainability, follow-up and results.
- v. Some 25 - 30 ICT staff (CIB) ensure implementation of Digital Government in Mauritius, whereas in digitally advanced countries like Singapore, its Digital Government agency, GovTech, is manned by a digital workforce of 2,500 staff.
- vi. No training has been provided on new technologies (for example Artificial Intelligence, Blockchain, IoT, Analytics, Digital Marketing) although it is expected that CIB staff should advise, write technical specifications and RFPs and monitor project implementation on these technologies.
- vii. Although ICT is widely accepted as an enabler for the transformation in Strategies and Policies, ICT is not seen as a priority for Ministries and Departments. There is a lack of ownership in the conception, implementation and evaluation of ICT projects, coupled with lack of understanding on the part of user Ministries and Departments.

Audit Questions and Sub-Questions

Audit Question 1: Assess whether the interventions of the MITCI and its Divisions were adequate to support ministries and government entities to develop and implement their e-strategies, and to digitalise their prioritised processes?

- Sub-Question 1: *Were there appropriate structures at strategic level to support, monitor and assess impact of the interventions of the MITCI and its Divisions?*
- Sub-Question 2: *Were there adequate support to ministries and departments to develop and implement their e- business plans in order to align their information strategies with their business objectives?*
- Sub-Question 3: *Were there appropriate mechanisms to ensure that processes were prioritised before digitalisation?*

Audit Question 2: Assess whether the interventions were appropriate to support the setting up and operation of effective project governance structures in order to drive ICT- enabled projects successfully?

- Sub-Question 1: *Was there a recommended project governance structure to keep projects on track, manage the risk of failures, and guide towards achievement of benefits?*
- Sub-Question 2: *Was this project governance structure adequate to provide oversight, authority, assessment of projects at key stages and to implement necessary corrective actions?*
- Sub-Question 3: *Was there adequate support to evaluate achievement and sustainability of intended benefits?*

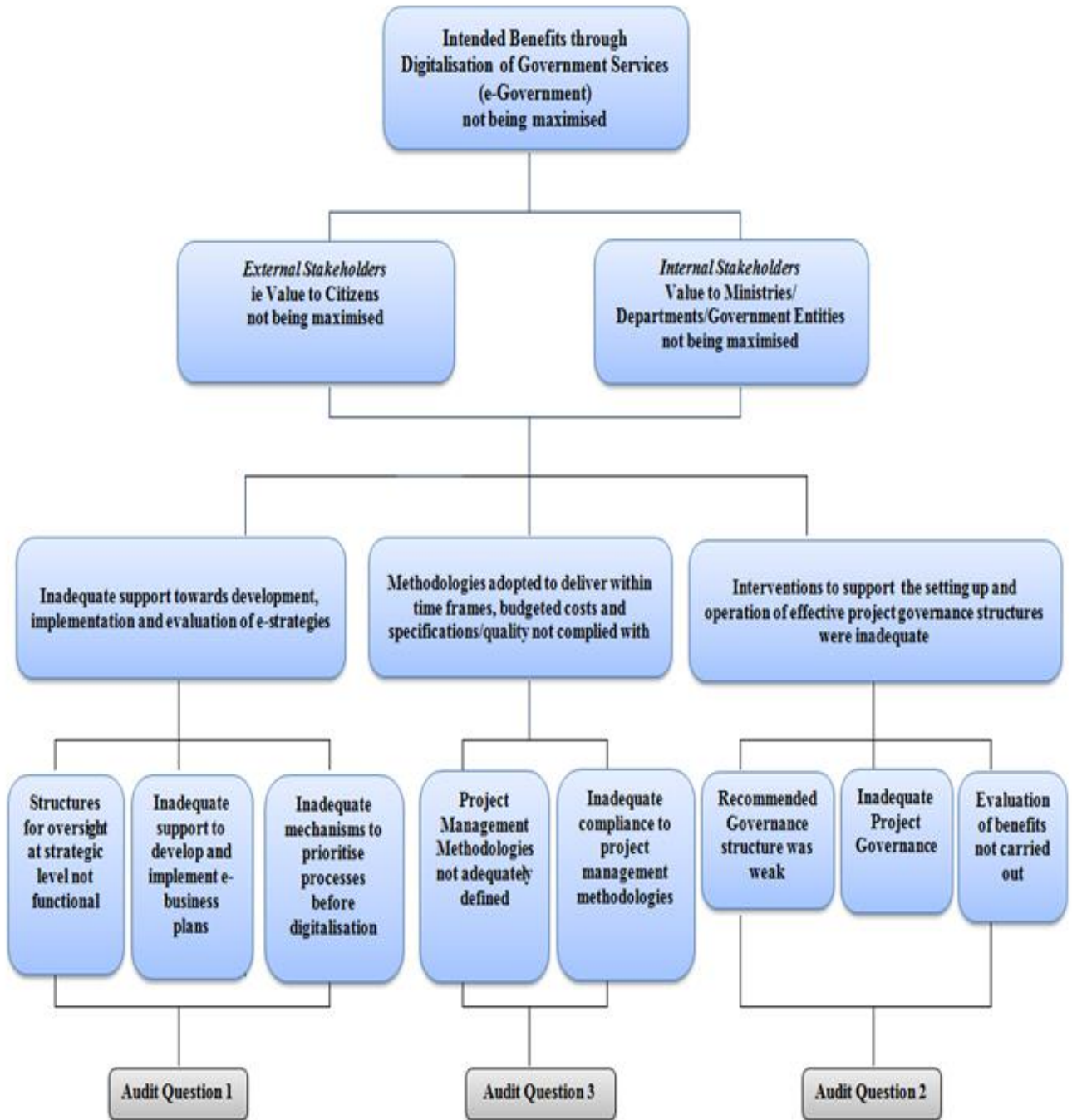
Audit Question 3: Assess whether appropriate methodologies were adopted to deliver ICT projects as per their defined time frames, budgeted costs and specifications / quality?

- Sub-Question 1: *Were there appropriate Project Management Methodologies and Guidelines to successfully and repeatedly manage ICT-enabled projects end-to-end within a structured and systematic approach?*
- Sub-Question 2: *Was there adequate compliance to appropriate Project Management Methodologies to ensure delivery of ICT-enabled projects timely, within budgeted costs and of quality?*

Continued

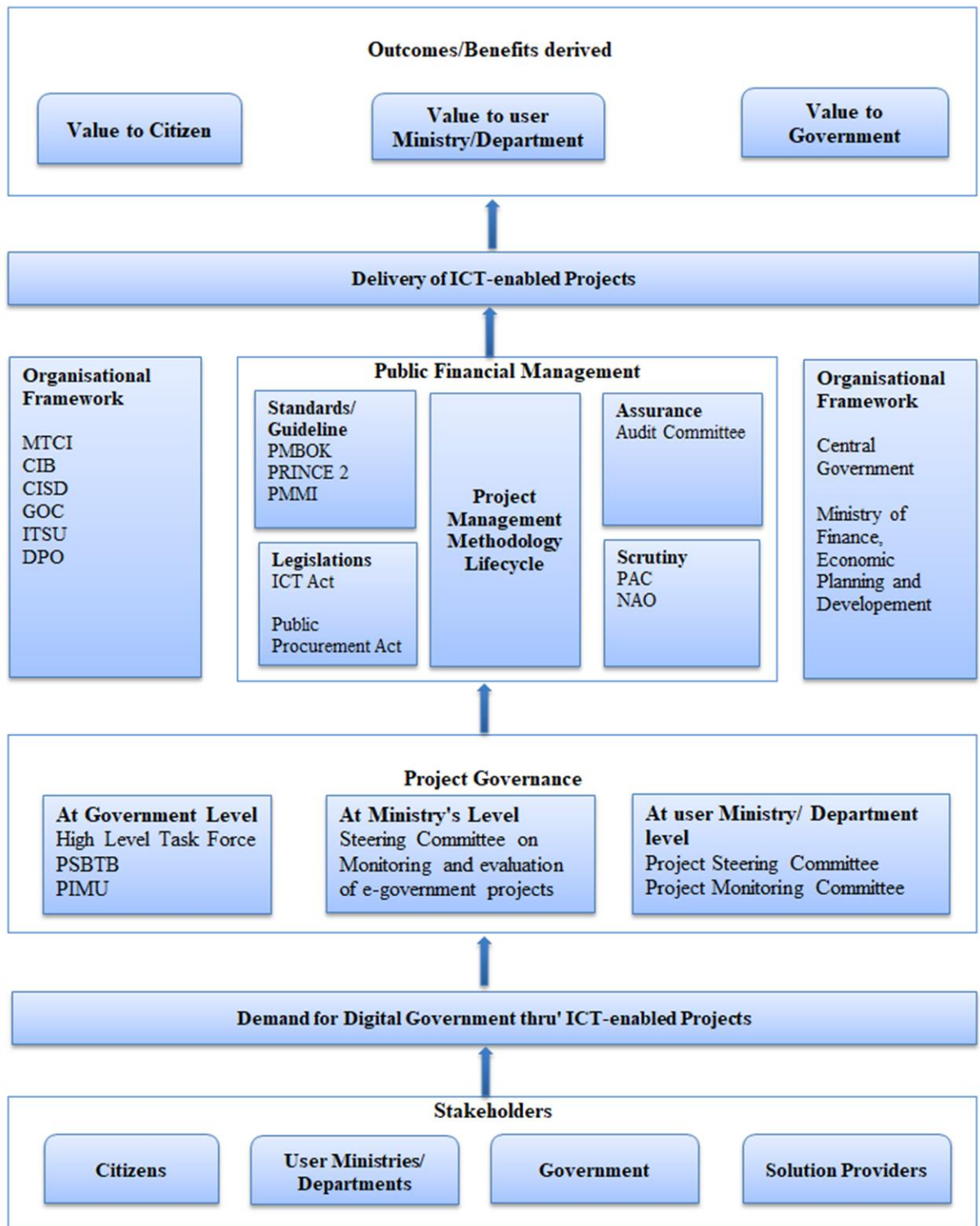
Tree Diagram

Delivery of e-Government Services through ICT- enabled Projects



Source: NAO Analysis

Whole-of-Government Approach to e-Government Programme



Source: NAO Analysis

ICT-ENABLED OPERATIONAL PROJECTS

© CIB 2019



Source: MITCI

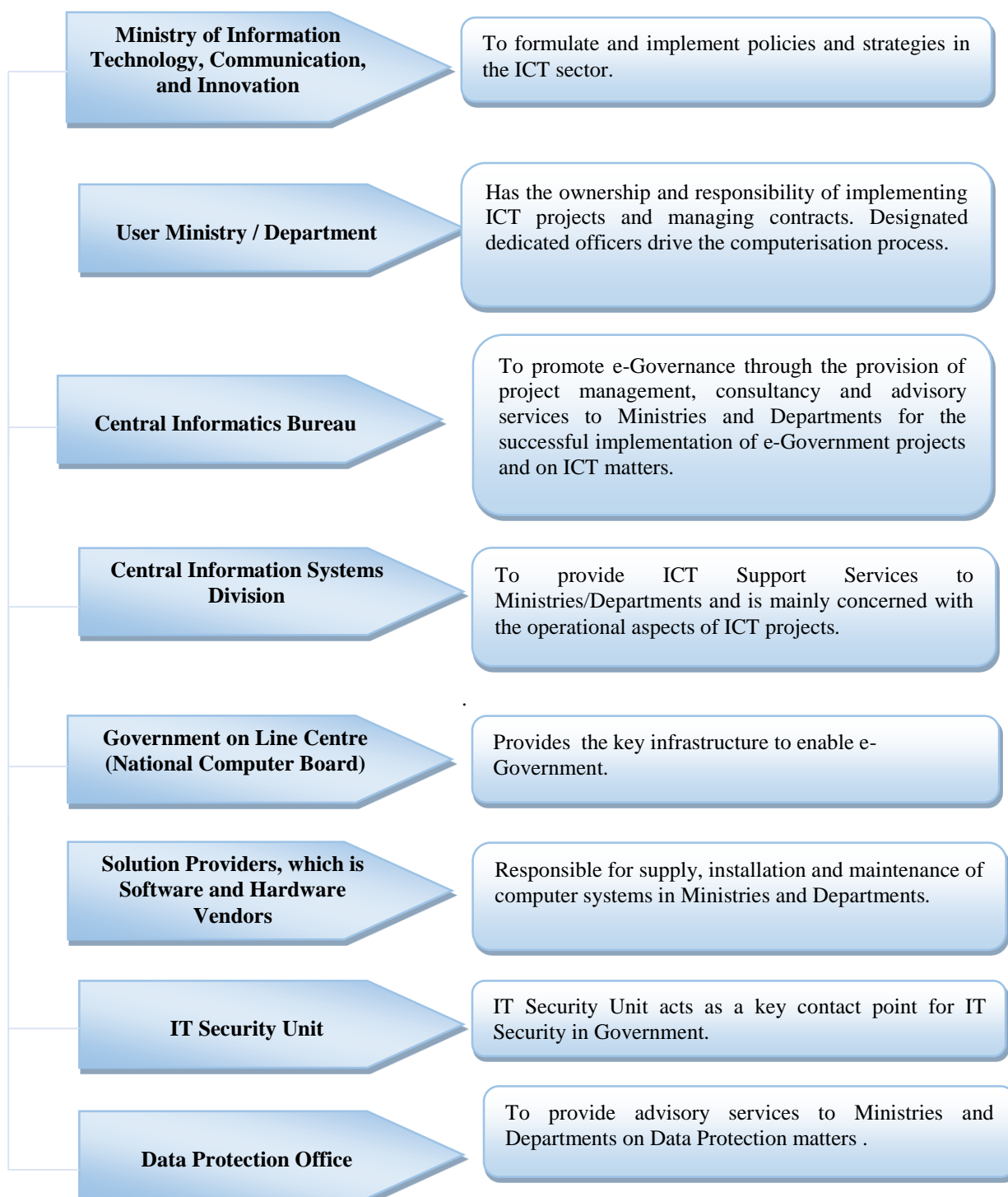
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Appendix III (Continued)

Sustainable Development Goals - ICT Applications in use and in pipeline

SDGs	ICT Applications in Use and in Pipeline	SDGs	ICT Applications in Use and in Pipeline
 <p>1 NO POVERTY</p>	e-Services available on Government Portal, Citizen Support Unit (CSU), Social Integration Management Information System (SIMIS), <i>e-Social Security, Agriculture and Mobile Apps</i>	 <p>10 REDUCED INEQUALITIES</p>	e-Services available on, Government Portal, Citizen Support Unit (CSU) Disability System, Contributions System, <i>e-Social Security</i>
 <p>2 ZERO HUNGER</p>	Agricultural Production and Market Information System (APMIS) by FAREI, <i>e-Agriculture and Mobile Apps</i>	 <p>11 SUSTAINABLE CITIES AND COMMUNITIES</p>	Public Service Commission – Online e-Recruitment, Smart Traffic Mobile App, Traffic Watch, Citizen Support Unit, Fleet Management System
 <p>3 GOOD HEALTH AND WELL-BEING</p>	Inventory Integrated Hospital Management and Patient Care System, Blood Transfusion System, Central Health Laboratory, <i>e-Health Laboratory Information Management System</i>	 <p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p>	Open Data - National Open Data Portal, 3D printing by National Computer Board, e-Procurement, <i>e-Procurement-by-Default</i>
 <p>4 QUALITY EDUCATION</p>	High Speed Connectivity in Primary Schools, e-Register, School Companion Mobile App, <i>Acquisition of Equipment for Early Digital Learning Programme – Primary</i>	 <p>13 CLIMATE ACTION</p>	Geographical Positioning System (GPS) /Geographical Information System (GIS), Open Data - National Open Data Portal, Emergency Alert Mobile App
 <p>5 GENDER EQUALITY</p>	Domestic Violence System, Child Protection Register., Family Welfare Mobile App, Initiation to Coding by National Computer Board (NCB), <i>Digitisation of Social Welfare Centres</i>	 <p>14 LIFE BELOW WATER</p>	Open Data - National Open Data Portal
 <p>6 CLEAN WATER AND SANITATION</p>	Internet of Things (IoT) in Bagatelle Dam, Citizen Support Unit (CSU)	 <p>15 LIFE ON LAND</p>	Open Data - National Open Data Portal, <i>e-Agriculture</i>
 <p>7 AFFORDABLE AND CLEAN ENERGY</p>	e-Services available on Government Portal, Energy Efficiency Information Management System (EEMO)	 <p>16 PEACE, JUSTICE AND STRONG INSTITUTIONS</p>	New Court House Application, Computerised Library System, e-Judiciary, Digital Court Recording System and Web Interface, Videoconferencing System at Bail and Remand Court (BRC), Citizen Support Unit (CSU), ICAC, <i>Revenue Management System and backend Revamping e-Judiciary</i>
 <p>8 DECENT WORK AND ECONOMIC GROWTH</p>	e-Work Permit, Labour Market Information System Mauritius Jobs, Registry, Mauritius Job Website (mauritiusjobs.mu), Open Data - National Open Data Portal	 <p>17 PARTNERSHIPS FOR THE GOALS</p>	Data Sharing Platform – Info Highway, <i>e-Licensing Platform</i>
 <p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	Cooperative Division e-Registration Portal, Companies and Businesses Reg Integrated System, National Open Data Portal, Data Sharing- Info Highway, <i>BlockChain, National Authentication Framework, e-Licensing Platform</i>		

**Roles and responsibilities of stakeholders
in the implementation and delivery of ICT-enabled Projects**



Source: NAO Analysis

Schemes of Service - Roles and responsibilities and duties of officers of CIB towards management and implementation of e-Government Agenda

Director CIB

Roles and Responsibilities

To be responsible to the head of Ministry for the management of the CIB and the implementation of the e-government agenda.

Duties

1. To be responsible for:
 - a) The management and updating of the e-Government Agenda, including the co-ordination of the strategic aspects of the operation; and
 - b) Planning the development and implementation of e-Government Programmes.
2. To evaluate e-Government projects to assess the impact on service delivery and ensure the effective implementation of these projects.

Lead Programme Manager

Roles and Responsibilities

To be responsible for the effective overall implementation, management and co-ordination of e-Government projects.

Duties

1. To lead, supervise and oversee the work of a team of Project Managers in the implementation of e-Government projects in Ministries/Departments;
2. To oversee the planning and monitoring of e-Government projects and ensure implementation thereof;
3. To maintain up-to-date documentation on progress, time frame and investment relating to e-Government projects and to submit reports thereon, as and when required;
4. To assist in the introduction of best practices in the implementation of e-Government projects in the Civil Service; and
5. To ensure that security measures in respect of e-Government projects are complied with.

Continued

Programme Manager

Roles and Responsibilities

To provide project management services and technical advice to Ministries/Departments

Duties

1. To assist Ministries/Departments in the identification of opportunities for improving effectiveness and efficiency through information technology;
2. To provide guidance and consultancy services on the choice of appropriate IT services;
3. To prepare specifications and evaluate project proposals in collaboration with end-users;
4. To establish and achieve project deadlines within allocated budget and acceptable levels of activity;
5. To assist in planning, implementation and evaluation of information systems;
6. To recommend information systems policies, standards and security norms;
7. To manage IT solution providers;
8. To recommend appropriate training for information systems personnel and other users; and
9. To perform such other duties directly related to the main duties listed above or related to the delivery of the output and results expected from the Programme Manager CIB, in the roles ascribed to him.

Note

1. Programme Managers, CIB will be expected to work in close collaboration with one another and may be posted to Ministries/Departments in connection with the implementation of projects.
2. Programme Managers, CIB should maintain on-going awareness of developments in the field of Information Technology

Appendix VI

Project Steering Committee (PSC) responsibilities as per ‘Project Governance - Technical Guide 2012, Government of Australia’

	Tasks	Approval of Project Documentation by PSC
1	Providing overall strategic guidance for the project and project assurance	Project mandate or charter
2	Responsibility for the project’s feasibility, business plan and realisation of outcomes/benefits	Business case, Tender documents, Contracts
3	Approving the appointment of, and providing advice, support and direction to the Project Manager/Director	
4	Ensuring probity	
5	Endorsing the PMP and major subsidiary documents relating to the project	PMP, including delivery brief, budget, project schedule, project risk management plan/framework, risk register and treatment activities, outcomes management plan, outputs or deliverables, schedule and budget constraints, change management plan, stakeholder or community engagement/ communication plan, procurement strategy
6	Oversighting the risk management process and management of risk within the project, including viable contingency plans or fall back strategies which are regularly updated	
7	Ensuring that there are commercial options and flexibility to suspend or terminate failing projects. The ability to suspend or terminate contracts at given points may result in a higher base cost, but the ability effectively de-risks the project. Like insurance, it is a cost worth paying if you need to call on it	
8	Ensuring the project is ‘fit for market’ prior to engaging with suppliers	
9	Setting the delegation and monitoring of project tolerances for time, quality and cost, as well as escalating when necessary	
10	Authorising any major deviations from the agreed scope, budget and schedule within tolerances, including (if appropriate) approval (or recommendation) for expenditure of contingency and risk-based budget	
11	Identifying need for strategic intervention, including termination, where appropriate	
12	Signing off the completion of each project phase, including the deliverables, and giving approval to start a subsequent phase	
13	Overseeing the communication of information about the project to stakeholder groups as necessary	
14	Resolving conflicts between the project team, asset managers and suppliers, or escalating issues that have significant implications for the project	
15	Closing the project after successful delivery, including lessons learnt and document finalisation	
16	Endorsing reports on project progress to other people or groups, for example, a client entity or the leadership team	Status reports
17	Taking responsibility for any Whole-of-Government issues associated with the project	

Naming of meetings and committees to govern projects

SN	Project	Terms of Reference for PSC / PMC	Terms of Reference in Tender Document	Project Steering Committee (PSC)	Project Monitoring Committee (PMC)	Numbered Notes of Meetings	Other committees in lieu of PMC / PSC	Approval of previous Notes of Meeting	Status
1.	Automated Fingerprint Identification System (MPF)	NO	Mention that PSC will be set up	Not applicable	Not applicable	Not applicable	'Notes of Meeting' to discuss financial matters	Not applicable	Ongoing
2.	New Certification Authority (MITCI)	NO	Yes, but not detailed	YES	NO	NO	NO	NO	Ongoing
3.	MAURITAS Accreditation Management System (Industry)	NO	NO	NO	NO	YES	Notes of meeting of Computerisation of MAURITAS Management System	YES	Ongoing
4.	Development of Software for Cooperative Credit Societies and Cooperative Credit Unions	NO	NO	NO	NO	NO	Notes of meeting on Software Development	NO	Ongoing
5.	Enhancement of computerisation of Registry of Associations	NO	Not Available	NO	NO	NO	Notes of meeting for the computerisation of ROA	NO	Ongoing
6.	Digital Recording system (Min of Labour)	NO	NO	NO	NO	NO	Notes of Meeting	NO	Ongoing
7.	National Authentication Framework (MITCI)	YES	YES, but not detailed	YES	NO	NO	Notes of Meeting	Only one PSC meeting	Ongoing
8.	Command and Control Centre (CISD) 9MITCI)	NO	NO	YES	NO	YES	Technical meeting to discuss SRS	YES	Completed
9.	e-Work Permit System (Ministry of Labour)	N/A	N/A	YES	YES	PSC - YES PMC - NO	YES	PMC - YES PSC - NO	Completed
10.	Land Lease Management System (MAIFS)	NO	N/A	NO	YES	NO	NO	NO	Completed

Project Management Documentation

Sn	Project Name	Ministry/ Department	Status	Project Management Plan	Software Requirements Specifications	Software Design Description	Quality Assurance Test	User Acceptance Testing	Project Closure Report	Post Implemen- tation & Evaluation
1.	MAURITAS Accreditation Management System	Industry, Commerce	Ongoing	A	A	A	A	NA	SNYR	SNYR
2.	Mauricloud	MITCI	Ongoing	NA	NA	NA	NA	NA	NA	NA
3.	Certification Authority	MITCI	Ongoing	NA	SNYR	SNYR	SNYR	SNYR	SNYR	SNYR
4.	National Authentication Framework	MITCI	Ongoing	NA	NA	SNYR	SNYR	SNYR	SNYR	SNYR
5.	Computerisation of ARC System Processes	MoFED	Ongoing	NA	NA	NA	SNYR	SNYR	SNYR	SNYR
6.	Revamping of Registry System	AGO	Ongoing	NA	A	NA	NA	NA	NA	NA
7.	Development of Software for Cooperative Credit Societies /Unions	Cooperatives	UAT in progress	NA	NA	NA	NA	NA	SNYR	SNYR
8.	Land Lease Agreement Management System	Agro	Completed	A	A	NA	NA	A	A	NA
9.	Command and Control Centre	MITCI	Completed	A	A	A	A	NA	NA	NA
10.	Development of Mobile App for Farmers	MITCI	Completed	A	A	A	A	A	NA	NA
11.	Smart Projects (Mobile Apps)	MITCI	Completed	A	A	A	A	A	NA	NA
12.	Computerisation of Registry of Associations	Labour	Completed	A	A	NA	NA	NA	NA	NA
13.	e-Work Permit	Labour	Completed	NA	A	A	A	A	A	NA
14.	e-Document Management System	MOBEC	Completed	NA	A	NA	NA	NA	NA	NA
15.	Revamping the Digital Recording System	Supreme Court	Ongoing	NA	A	NA	NA	NA	NA	NA
16.	Revenue Management Case Collection System	Supreme Court	Ongoing	A	A	A	A	NA	NA	NA
17.	Revamping of the e-Judiciary System Phase 1	Supreme Court	Ongoing	A	A	A	A	NA	A	NA
18.	Motor Vehicle Licence	NTA	Ongoing	A	A	A	NA	NA	NA	NA
19.	Fleet Management System	MoHW	Completed	A	A	A	NA	NA	A	NA

Legend: A- Available, N/A- Not Available, SNYR- Stage Not Yet Reached

Source: NAO analysis

National Audit Office

Air Mauritius Centre, John Kennedy Street, Port Louis, Mauritius
Tel: (230) 212 2096 Fax: (230) 211 0880 Web: <http://nao.govmu.org>