



Department of Communication and Information

Policy Framework and Monitoring and Evaluation Framework

29 March 2018

Prepared by





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Analysys Mason Limited
North West Wing, Bush House
Aldwych
London WC2B 4PJ
UK
Tel: +44 (0)20 7395 9000
london@analysismason.com
www.analysismason.com
Registered in England No. 5177472

1 Executive summary

This document is the report from Tasks 1, 3 and 4 of the work Analysys Mason has been commissioned to support on institutional strengthening of the Department for Communication and Information (DCI), Papua New Guinea.¹

This report contains:

- a policy-making framework
- a monitoring and evaluation framework
- example monitoring and evaluation criteria for policies and ICT programmes.

The frameworks for policy making and monitoring and evaluation have been developed based on a benchmark of international best practice, workshops with the DCI, and learnings from the study tour visits that the DCI team and Analysys Mason carried out with ICT policy-making units in Singapore and the Republic of Korea (South Korea).

1.1 Policy-making framework

The DCI has a strong policy knowledge base but does not currently have a formal policy-making framework or experience of implementing a full policy-development cycle. To help build the DCI's capacity for policy making, Analysys Mason has developed a structured framework, based on international best practice.

An overview of the proposed policy-making framework is presented in Figure 1.1 below, while Figure 1.2 provides a summary of key actions and outputs at each stage of the policy-making cycle. Full details are provided in Section 3.

¹ See Section 2.2 for details of each task.

Figure 1.1: Policy-making cycle [Source: Analysys Mason, 2017]

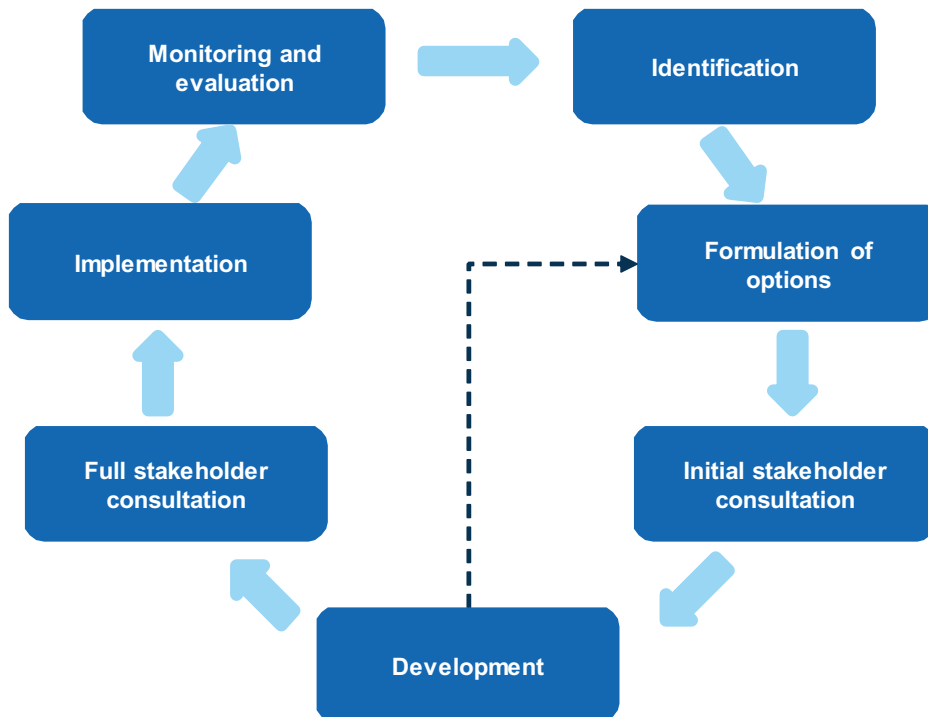


Figure 1.2: Summary of actions and outputs in the proposed policy-making framework for the DCI [Source: Analysys Mason, 2017]

Stage of policy cycle	Actions	Outputs
Identification	<ul style="list-style-type: none"> Market review Stakeholder identification Legislative review Evidence gathering Orientation for monitoring and evaluation 	Concept paper <ul style="list-style-type: none"> Identification of problem of interest Summary of evidence and benchmark of international approaches Summary of market context and wider background Policy statement and objectives
Formulation of options	<ul style="list-style-type: none"> Impact analysis Implementation plan Alignment analysis Options analysis 	Initial consultation document <ul style="list-style-type: none"> Summary of concept paper Summary of potential options, and options analysis
Initial stakeholder consultation	<ul style="list-style-type: none"> Release of consultation document to key stakeholders for discussion Receipt and collation of written/verbal feedback 	Summary of consultation responses <ul style="list-style-type: none"> Feedback received from key stakeholders Selection of the most appropriate policy option for development
Development	<ul style="list-style-type: none"> Full details of policy Impact assessment Implementation plan Identification of key dependencies Assessment of future readiness 	Policy paper (draft) <ul style="list-style-type: none"> Draft policy document with full details of policy, impact assessment and implementation plan Draft monitoring and evaluation plan Full consultation document <ul style="list-style-type: none"> Details of policy and expected impacts

Stage of policy cycle	Actions	Outputs
		<ul style="list-style-type: none"> Key questions for stakeholders and consultation timeline
Full stakeholder consultation	<ul style="list-style-type: none"> Release of consultation document for full consultation Receipt and collation of written/verbal feedback Release of full Consultation Paper to stakeholders 	Consultation report <ul style="list-style-type: none"> Summary of feedback received from stakeholders Summary of DCI's proposed response to feedback
Implementation	<ul style="list-style-type: none"> Evaluation of feedback Finalisation of policy Gaining approval from appropriate bodies (including legislation if appropriate) Release of final policy document 	Policy paper (final) <ul style="list-style-type: none"> Final implementation strategy Final monitoring and evaluation strategy Policy implementation Budget allocation
Monitoring and evaluation	<ul style="list-style-type: none"> Implementation of monitoring and evaluation strategy, including policy impact "Lessons learned" evaluation, including policy development, policy impact, and monitoring and evaluation process 	Monitoring and evaluation reports <ul style="list-style-type: none"> Tracking of activities and outcomes related to policy Evaluation of policy-making process Evaluation of policy impact

1.2 Monitoring and evaluation framework

The delivery of monitoring and evaluation activities is the final stage of the policy-making framework described above. However, monitoring and evaluation activities require careful planning and review, and this process is therefore detailed in a separate framework. Given the DCI's lack of experience in this area, Analysys Mason has proposed a detailed monitoring and evaluation framework, based on international best practice.

This framework consists of five steps, and can be applied to policies and ICT programmes delivered by the DCI. A summary of the proposed monitoring and evaluation framework is presented in Figure 1.3 below, and full details can be found in Section 4.

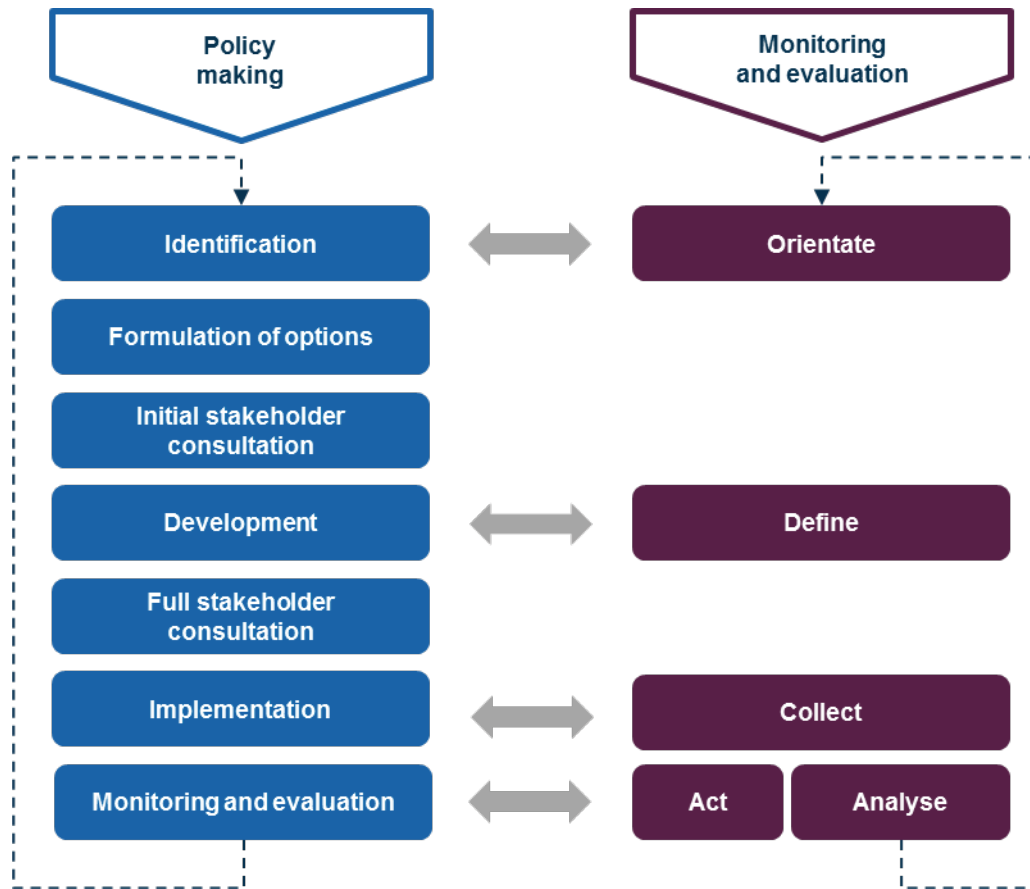
Figure 1.3: Summary of the monitoring and evaluation framework [Source: Analysys Mason, 2017]

Stage	Questions	Outputs
Orientate	<ul style="list-style-type: none"> What are the policy objectives? When will the monitoring and evaluation take place? 	<ul style="list-style-type: none"> List of objectives Timeline for monitoring and evaluation
Define	<ul style="list-style-type: none"> What are the objectives of the policy? What data is already available? What data can realistically be collected? What quantifiable targets can be set based on the available data? 	<ul style="list-style-type: none"> List of targets, key performance indicators (KPIs) and other quantifiable monitoring tools Data to be collected for each KPI or target
Collect	<ul style="list-style-type: none"> Who will collect the data? How often will data be collected? 	<ul style="list-style-type: none"> Data for analysis

Stage	Questions	Outputs
	<ul style="list-style-type: none"> How will the data be stored and kept secure? 	
Analyse	<ul style="list-style-type: none"> How will the DCI ensure sufficient time is allocated for data analysis? What progress has been made against targets and KPIs What is the status of the objectives? Is the analysis providing useful information? Can the monitoring and evaluation process be improved? 	<ul style="list-style-type: none"> Quantitative results for the KPIs and targets
Act	<ul style="list-style-type: none"> Are there particular areas of strength or weakness? Do aspects of the policy or programme need to be altered? How will the KPIs and analysis be reported? What actions will the DCI take to ensure that learnings are acted on? 	<ul style="list-style-type: none"> Report on status of the project/policy being reviewed Recommended actions based on the outcome of the review

The monitoring and evaluation framework and the policy-making framework should be treated as an integrated process. The overlap between the two frameworks is summarised in Figure 1.4 below, showing at what stage in the policy-making framework the relevant monitoring and evaluation tasks should be carried out.

Figure 1.4: Summary of the relationship between the policy-making framework and the monitoring and evaluation framework [Source: Analysys Mason, 2017]



Analysys Mason has also prepared example monitoring and evaluation strategies for selected policies and ICT programmes in Papua New Guinea:

- Selected aspects of the IGIS programme (see Section 4)
- Internet & Email policy (see Annex B)
- Rural Communications Project (see Annex B)

Shown in Figure 1.5 below is an example of the suggested monitoring and evaluation template, using the example of the IGIS programme. Please note that all data in the template is included for illustrative purposes only.

Figure 1.5: Illustrative monitoring report for the IGIS policy [Source: Analysys Mason, 2017]

Project: IGIS policy						
Project start date: 1/1/2017			Expected completion date: 31/12/2018			
Date of report: 31/7/2017			Reporting period: 1/4/2017–31/7/2017			
Percentage of budget spent to date: 22%			Value of budget spent: PGK1 233 565			
Progress summary: 15 sites (5% of total targeted) have been connected. This is behind the expected value of 10% due to delays in procuring the necessary server equipment. The training programme is running behind schedule due to recruitment issues, but training is expected to start within four weeks. At this stage, no changes to the implementation plan are suggested, although further delays in network roll-out will necessitate a revised implementation schedule.						
ID	KPI	Baseline	Value in previous period	Value in current period	Target	Notes
KPI1	Percentage of the project budget spent	0%	10%	22%	100%	Project spend is in line with expectations
KPI2	KPIs being met	–	0%	12.5%	100%	Connection of sites is behind schedule Training programme is behind schedule
KPI3.1	Government sites to be connected to IGIS	0%	0%	5%	25%	15 sites, or 5% of total, have been connected to the network
KPI3.2	Government sites to be connected to IGIS	0%	0%	5%	100%	At this stage, 10% of sites were planned to be connected
KPI4	Sites to be provided with teleconferencing facilities	0%	0%	100%	100%	All connected sites have teleconferencing equipment installed

2 Introduction

2.1 Background

Papua New Guinea (PNG) is a diverse country with rich natural resources. Its economy is primarily driven by two sectors: agriculture, forestry and fishing; and minerals and energy extraction.² Future economic growth will rely on unlocking the potential of other sectors, and developing a modern economy through the effective use of information and communication technology (ICT). Improved use of ICT can also drive efficiencies across government, and enable the delivery of better services to the citizens of PNG.

The ICT environment in PNG is currently less developed than in many of its peers in Asia–Pacific, and this has constrained the development of all sectors of the economy. PNG’s national plans and development strategies show some recognition of the importance of ICT (as summarised in Annex C), but the constrained development can be partly attributed to a historical lack of government focus on ICT development, with insufficient resources committed to the formulation and implementation of effective ICT policy.

A report commissioned by the Department of Communication (DCI) and the World Bank in 2013 (‘the 2013 report’) found that the DCI’s policy-making unit was under-resourced and lacked some of the skills necessary for the development and implementation of effective ICT policies.³ The report identified the need to strengthen the institutional capacity of the DCI, enabling it to more effectively promote ICT as well as social and economic development in PNG.

Consultancy firm Analysys Mason has been engaged to support the institutional strengthening of the DCI.⁴ Analysys Mason’s engagement involves 12 Tasks, as discussed in the inception report.⁵ The project objectives can be grouped into four categories:

- **Framework development** – building a framework to effectively develop, monitor and evaluate policy and programmes related to ICT
- **Capacity development** – advancing the DCI’s understanding of policy making and its role in the PNG government, and providing tools to help shape policy
- **Policy development** – reviewing and finalising existing DCI policies

² See <http://www.worldbank.org/en/country/png/overview>

³ *Capacity building for policy making*, M Babatunde Fafunwa for the DCI, October 2013.

⁴ This forms part of the Rural Communications Project supported by funding from the World Bank.

⁵ The inception report was delivered to the DCI on 23 May 2017, and summarises Analysys Mason’s tasks and deliverables agreed as part of the project – *Inception Report, ref. no. 2009803-185*

- **External engagement** – progressing the DCI’s capacity to engage with external stakeholders (including telecoms operators, other government departments, and members of the public in PNG).

2.2 Content of this report

This report outlines relevant frameworks recommended for adoption by the DCI. It constitutes the deliverable from Tasks 1, 3 and 4 of Analysys Mason’s engagement. Figure 2.1 below summarises Tasks 1, 3, and 4 as presented in the inception report for this project.⁵ (Task 2, the development of an overarching ICT policy roadmap, is covered in a separate report.)

Figure 2.1: Summary of Tasks 1, 3 and 4 [Source: Analysys Mason, 2017]

Task	Task title	Outline of task
T1	Review, adopt and implement the ICT policy-making framework	<ul style="list-style-type: none"> • The aim of this task is to raise the standard of ICT policy making in PNG by reviewing, adopting and implementing the ICT Policy Making Framework identified in the 2013 report • We will review the DCI’s existing approach to policy making and will recommend how its policy-making process can adopt the recommended framework, including being: developmental, future-oriented, evidence-based, proactive, participatory, and subject to review • Recommendations will consider: leadership, self-improvement and stakeholder interaction; alignment with long-term government objectives (including national ICT policy objectives)
T3	Monitoring and evaluation framework for government ICT programmes	<ul style="list-style-type: none"> • The aim of this task is to develop a framework document that the DCI can use in review meetings to ensure that projects and programmes are on track to meet their intended outcomes • We will consult the DCI to establish a shortlist of programmes and projects to be included in the framework • We will undertake a high-level review of KPIs for each project to ensure they are measurable, well defined, realistic and achievable • We will develop a framework document recording: the KPIs to be used in review meetings, key steps and actions to be taken at each review meeting, a stakeholder plan outlining responsibilities, and a timetable outlining the frequency of review meetings for each project
T4	Monitoring and evaluation framework for government ICT policy	<ul style="list-style-type: none"> • The aim of this task is to develop a framework document that the DCI can use in review meetings to ensure that policies are on track to meet their intended outcomes • We will undertake a high-level review of KPIs for each policy to ensure they are measurable, well defined, realistic and achievable • We will develop a framework document recording: the KPIs to be used in review meetings, key steps and actions to be taken at each review meeting, a stakeholder plan outlining responsibilities, and a timetable outlining the frequency of review meetings for each policy

This report outlines a single monitoring and evaluation framework for Tasks 3 and 4, as the same principles can be applied to both government ICT programmes and policies.

This report draws on the following information sources:

- consultations with the DCI and other key stakeholders
- a review of policies and procedures provided by the DCI
- desk-based research into international best practice on policy making
- data from existing ICT projects and programmes in PNG
- learnings from the study tours held in Singapore and South Korea in September 2017.⁶

2.3 Structure of this report

The remainder of this report is laid out as follows:

- **Section 3** presents the outputs of Task 1 – a review of the ICT policy-making framework outlined in the 2013 report, along with a roadmap for implementing this framework
- **Section 4** presents the outputs of Tasks 3 and 4 – a monitoring and evaluation framework for ICT policies, programmes and projects.

The report includes four annexes containing supplementary material:

- Annex A reviews the policy-making framework proposed in the 2013 report
- Annex B contains suggested monitoring and evaluation criteria for selected policies and programmes
- Annex C provides a summary of ICT within the PNG national development strategies
- Annex D provides a selection of tools that the DCI can use during various stages of policy making, and monitoring and evaluation.

⁶ Key learnings from the study tours were delivered to the DCI in a report on 29 September 2017, *Study Tour Findings, ref. no. 2009803-731*.

3 Review, adoption and implementation of the proposed ICT policy-making framework

One key gap that the 2013 report identified in the DCI's capacity was the lack of a formal policy-making framework. The 2013 report proposed a framework for use by the DCI (presented in Annex A). In Task 1 of our work for the DCI, Analysys Mason has reviewed that framework, and, carried out a study of international best practice to inform our recommendations for updating the framework.

This section presents the outputs of Task 1, and provides:

- an overview of international best practice in policy making (Section 3.1)
- an update of the policy-making framework incorporating our findings on international best practice (Section 3.2)
- a roadmap for adoption and implementation of the proposed policy-making framework, including gap analysis, actions and timings (Section 3.3)

Following consultations during workshops with the DCI in Port Moresby and Singapore, the DCI has approved the updated policy-making framework as appropriate for implementation.

3.1 International best practice in ICT policy making

To inform Analysys Mason's review of the ICT policy-making framework proposed in 2013, we carried out a review of international best practice in policy making. Based on this review, Section 3.2 below makes some recommendations for revisions to the policy-making framework to be implemented by the DCI.

There is no single accepted definition of the role of policy, although a useful description is provided in the 2003 report, *A Practical Guide to policy Making in Northern Ireland*:

“Policy-making is the process by which governments translate their political vision into programmes and actions to deliver outcomes – desired change in the real world. [It] is about establishing what needs to be done – examining the underlying rationale for and effectiveness of policies – and then working out how to do it and review on an ongoing basis how well the desired outcomes are being delivered.”

Policy makers take a range of approaches to policy making, but there are several widely accepted principles of good practice. In the subsections below we present selected examples of international approaches, along with examples of policy-making frameworks adopted in other countries.

The study tours carried out in Singapore and South Korea highlighted the important role that leadership from the top levels of government plays in helping to drive adoption and

implementation of ICT policies. ICT-related policies are often cross-cutting, affecting multiple sectors of the economy and requiring a range of implementation partners. Prime ministerial or presidential leadership underscores the importance of these policies and can help to lower or remove barriers to their implementation.

3.1.1 Core principles of good policy making

The European Commission (EC) developed a set of guidelines for better policy making as part of its 2015 project to improve the quality of public administration across Europe.⁷ The EC defined seven core principles of good policy making, providing a checklist against which the development of a policy can be appraised. Each principle can also be broken down into questions to be asked at each stage of the policy-making process, to check that best practice is being followed.

The seven principles are summarised in Figure 3.1 below.

Figure 3.1: Principles of good policy making [Source: Institute of Government, UK and the EC, 2011 and 2015]

Core principle	Key questions
Clear goals	<ul style="list-style-type: none"> • Has the issue been adequately defined and properly framed? • How will the policy achieve the high-level objectives of the government?
Evidence-based ideas	<ul style="list-style-type: none"> • Has the policy process been informed by evidence that is high quality and up to date? • Has account been taken of evaluations of previous policies and international best practice? • Has there been an opportunity for innovative thinking? • Have policy makers sought out and analysed ideas from other administrations?
Rigorous design	<ul style="list-style-type: none"> • Have policy makers tested whether the policy is realistic, involving a stakeholder consultation? • Have policy makers addressed common implementation problems? • Is the design resilient to changes in circumstances?
External engagement	<ul style="list-style-type: none"> • Has there been a full stakeholder consultation? • Have policy makers identified and responded to comments provided?
Thorough appraisal	<ul style="list-style-type: none"> • Have the various options been robustly assessed? • Are they cost effective over the appropriate time period? • Are they resilient to changes in the external environment? • Have the risks been identified and weighed fairly against potential benefits?
Clear roles and accountabilities	<ul style="list-style-type: none"> • Have policy makers judged the appropriate level of government involvement? • Is it clear who is responsible for each part of the policy, who will hold them to account, and how they will hold them to account?
Feedback mechanisms	<ul style="list-style-type: none"> • Is there a realistic plan for obtaining timely feedback on how the policy is being realised in practice? • Does the policy allow for effective evaluation, even if government is not doing it?

⁷ *Quality of Public Administration – A Toolbox for Practitioners – Theme 1: Better policy-making*, European Commission, 2015.

Core principle	Key questions
	<ul style="list-style-type: none"> • Is the evaluation independent of the policy-making team?

These principles were all reflected in the policy-making frameworks discussed with the Infocomms & Media Development Agency in Singapore and the National Information Society Agency in South Korea during the study tours.

3.1.2 The policy cycle

A core concept in policy making is the policy cycle. The policy cycle is a model intended to illustrate and guide the process of policy making, rather than provide a prescriptive roadmap for policy making. Many versions of the policy cycle have been adopted internationally, with a varying number of steps, but the underlying themes remain the same.

The policy cycle outlined below was developed by the Institute of Government in the UK, and subsequently built upon by the EC and recommended for adoption by the 28 EU Member States:⁷

- **Identify problem:** A problem of interest must be clearly identified, the underlying causes analysed, and the necessity of a government intervention concisely explained. The objectives of the intervention should be established at this stage, to allow potential responses to be evaluated against these objectives.
- **Formulate policy:** A response to the problem is formulated by identifying several scenarios, each of which is a potential solution to the problem of interest. For each solution, an outline implementation plan is prepared, an impact analysis is performed, and an options analysis is conducted, considering the advantages and disadvantages of each solution with respect to the objectives of the policy. An initial stakeholder consultation should be conducted on the options analysis.
- **Decide policy:** After the options analysis and initial stakeholder consultation, the feedback is collated and the solutions presented to the decision-making body. The preferred solution is selected at the appropriate level (for example, departmental or parliamentary), and then refined into a full policy, including a detailed impact analysis and implementation plan. The full policy document should be released for consultation among appropriate stakeholders, to obtain feedback and help refine the policy.
- **Implement policy:** After this consultation, the policy is finalised based on feedback received during the consultation. The final policy document can then be released and implemented. The implementation should be monitored at all stages using appropriate tools to measure progress against the desired outcomes.
- **Evaluate policy:** At set periods during the policy's implementation phase, it should be evaluated against its original objectives to identify whether the policy has been successful. An evaluation should also consider lessons learned from the policy process, to identify potential changes to the policy or recommendations for new policies (i.e. what went well and what

could be improved upon). The monitoring and evaluation of the policy thus feeds back into the identification of new policy requirements, completing the policy cycle.

It is important to note that the policy-making cycle illustrates the ideal case, in which each step is undertaken in sequence. When developing policy in the real world, however, time pressures or resource constraints can require a pragmatic approach to the process. The process of identifying the problem, formulating a solution and stakeholder consultation can also require several iterations before a final policy is ready to be implemented. External factors can also have a significant impact on policy making, such as sudden market changes or strong resistance from key stakeholders.

While various policy-making frameworks have been adopted by different policy makers around the world, with different terminology used to describe each stage, examples that Analysys Mason has assessed in the EC, Singapore, South Korea and the UK all share the same general structure outlined above.

3.2 A policy-making framework for the DCI

Based on the above review of international best practices, Analysys Mason suggests that a number of modifications are made to the policy-making framework proposed in the 2013 report, in order to provide the DCI with a framework that:

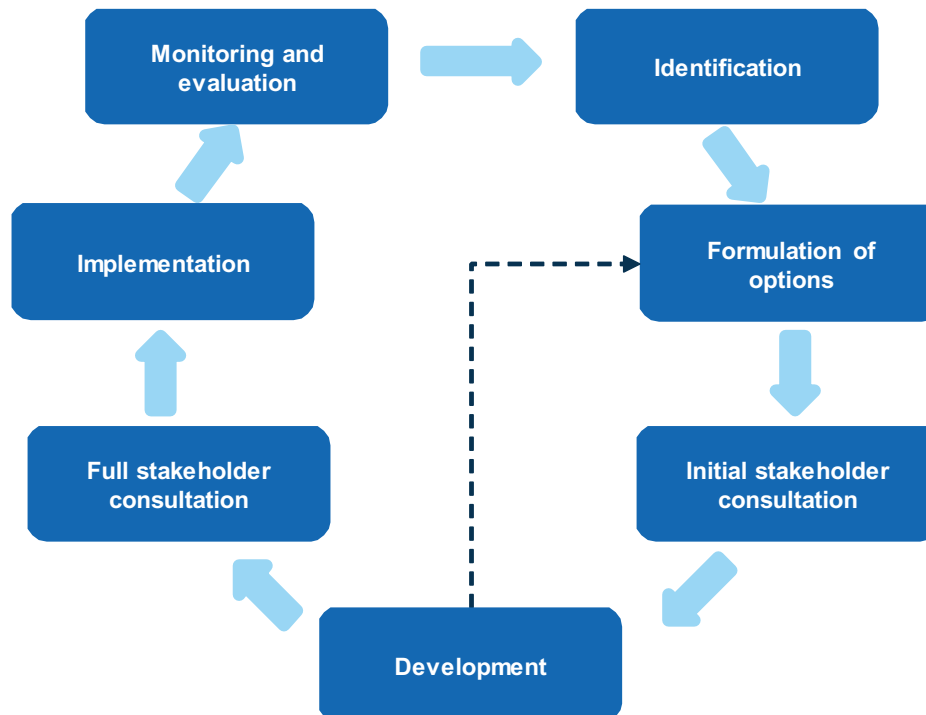
- incorporates a policy cycle in line with international best practice
- is sufficiently detailed to provide clear direction at each stage, and
- allows the DCI flexibility in its approach to policy making.

The proposed policy-making framework builds on the framework developed by the EC (discussed in Section 3.1.2 above). To provide clarity to the DCI on the consultation process, two explicit consultation stages are included:

- an initial consultation stage involving only key stakeholders
- a full consultation involving all appropriate stakeholders.

An overview of the proposed policy-making framework is illustrated in Figure 3.2, with a description of each step in the framework provided below.

Figure 3.2: Policy-making cycle [Source: Analysys Mason, 2017]



It is important to note that the policy-making cycle illustrates the ideal case, in which each step is undertaken in sequence. When developing policy in the real world, time pressures or resource constraints can require a pragmatic approach to the process. The process of identifying the problem, formulating a solution and stakeholder consultation can also require several iterations before a final policy is ready to be implemented (illustrated by the dashed arrow in Figure 3.2). External factors can also have a significant impact on policy making, such as sudden market changes or strong resistance from key stakeholders.

3.2.1 Identification

The first step in policy making is to identify the problem of interest, the underlying causes, and the wider context within which the problem sits. At this stage, the DCI should perform:

- **A market review:** an analysis of the relevant market in the ICT sector, establishing market size, development and trends, key players, and any relevant risks or opportunities
- **Stakeholder identification:** identification of key stakeholders in the market of interest (e.g. telecoms operators, the National Information & Communications Technology Authority (NICTA), other government ministries, etc.)
- **A legislative review:** a review of existing legislation, policies and strategies related to the market of interest, including multilateral agreements
- **Evidence gathering:** an international benchmark of approaches to the problem of interest, gathering information from a wide range of sources

- **Orientation for monitoring and evaluation:** identification of policy objectives to support the development of a monitoring and evaluation strategy.

It is important for the DCI to develop a strong evidence base from high-quality sources during this stage, to provide a foundation for policy making. The use of wide-ranging, high-quality evidence increases the DCI's ability to learn from international experience and reduces the risk that its policy solutions will "re-invent the wheel". Possible sources of evidence include:

- government of PNG sources, such as the National Statistical Office and NICTA
- international bodies, such as the World Bank
- current and historical policy approaches applied internationally (a benchmark of approaches to the problem of interest and resulting outcomes)
- the DCI's own ICT statistics database (which has yet to be specified and procured)
- custom primary research commissioned by the DCI
- other relevant studies by academia, think-tanks or industry.

The identification stage of the policy-making framework overlaps with the orientation stage of the monitoring and evaluation process (see Section 4.3.1 for more details). At the end of the identification stage, the DCI should have documented a clear set of objectives for the policy, as well as a policy statement clearly outlining the proposed impact of the policy. This statement, and the objectives, will feed directly the monitoring and evaluation process and should form the basis for developing detailed KPIs for monitoring and evaluation. The policy statement and objectives should also be referenced throughout the rest of the policy-making process.

Output: Concept paper:

- identifying the problem
- summarising evidence gathered about the problem and potential solutions
- summarising the initial market and legislative reviews
- outlining a policy statement and policy objectives (the orientation phase of monitoring and evaluation).

This paper will be for the DCI's internal use only.

3.2.2 Formulation of options

The second stage of policy making is the formulation of a range of potential solutions to the identified problem. Using evidence gathered during the identification stage, the DCI can evaluate the effectiveness of previous attempts to solve the problem. This information can then be integrated with the market knowledge developed by the DCI during the identification stage to inform the process of developing potential policy solutions.

It is important that the DCI considers an appropriate range of policy options and that there is scope for creative thinking. Typically, two or three options will be taken forward and developed further.

However, depending on the context it may not be necessary to develop multiple options, e.g. in the case of some straightforward policy objectives.

It should be noted that the options considered should include the ‘do nothing’ option, which acts as the baseline scenario if no market intervention is made. It is also worth noting that a key part of the policy-making process is the decision whether to intervene in a market in the first place.

“The option of not intervening [...] should always be seriously considered. Sometimes the fact that a market is working imperfectly is used to justify taking action. But no market ever works perfectly, while the effects of [...] regulation and its unintended consequences, may be worse than the effects of the imperfect market”⁸

For each policy option to be taken forward, the DCI should develop preliminary versions of:

- **An impact assessment:** a summary of the expected short- and long-term impact of the proposed policy intervention, including the impact on each of the identified key stakeholders. This should also include a high-level forecast of the expected capital and operating costs, and the anticipated impact that the policy will have on government revenue
- **An implementation plan:** a brief implementation plan should be prepared, outlining timescales for implementation of the policy, and key delivery roles and accountabilities
- **An alignment analysis:** potential policy options should be analysed for compatibility with the strategic goals of PNG.

Depending on the context, it may not be appropriate for the DCI to develop all of the above analyses in detail. However, in all cases the DCI should prepare an analysis of the advantages and disadvantages of each policy intervention, to provide a point of comparison between the proposed solutions and the ‘do nothing’ option. The DCI can then combine the analyses for each policy into an initial consultation document. This document should also include an introduction to the problem of interest and a summary of the market review undertaken in the identification stage, to provide context.

If required, the DCI can prepare redacted versions of the initial consultation document, allowing certain stakeholders to provide comments whilst protecting sensitive information.

Output: An initial consultation document, containing:

- a summary of the initial concept paper to provide context
 - the identified policy solutions
 - a summary of the preliminary impact analysis, implementation plan, and alignment analysis
 - an options analysis comparing the potential options.
-

⁸ *A Practical Guide to policy Making in Northern Ireland, 2003.*

3.2.3 Initial stakeholder consultation

The initial consultation document developed by the DCI during the formulation of options stage should be shared with key stakeholders. This consultation has two aims:

- 1 It gives key stakeholders an opportunity to provide feedback on the DCI's initial proposals. This feedback can help the DCI broaden its understanding of the advantages and disadvantages of the proposed policy options. It also provides an early indication of whether any resistance to the proposals should be expected from key stakeholders.
- 2 It provides the opportunity for key stakeholders to engage in forward planning (see Annex D for a full discussion). Forward planning allows stakeholders to anticipate the proposed policy changes and begin developing the capacity to adapt to them.

Stakeholders should be given a suitable period to understand the proposed changes and provide sufficiently detailed feedback to the DCI. A period of two weeks for the initial consultation period is likely to be sufficient for most policies.

Consultation feedback may be in the form of written comments, or captured through one-to-one meetings with stakeholders (in which case written feedback should also be invited). If the policy-making process faces time pressure, the initial stakeholder consultation can be run as an open workshop with multiple stakeholders. Stakeholders should be given sufficient time to review the consultation document before attending any meetings or workshops.

Once the consultation is complete, the DCI should produce a summary of all feedback, including recommendations for any feedback that should be incorporated in the policy. Whilst the DCI does not have to act on all the responses received, it should give each piece of feedback fair consideration as it updates the potential policies and the options analysis, and provide rationale for any feedback which is not acted upon.

If no satisfactory policy option has been identified following the initial consultation, the DCI should consider returning to the identification or formulation of options stages before continuing with the policy development.

After stakeholder feedback has been incorporated and the concept paper updated, the DCI should select the most appropriate option and develop a summary, including rationale supporting the policy, to present to the appropriate body⁹ for approval to move forward.

Outputs:

- Summary of consultation responses and impact on policy development
 - Selection of most appropriate policy for development.
-

⁹ We understand this is likely to be either the Minister for Communication or the National Executive Council (NEC).

3.2.4 Development

Once a single policy option has been approved for further development, the DCI should develop the full policy, update the assessments from the formulation of options stage, and prepare a policy paper which includes:

- **An impact assessment:** This detailed impact assessment should consider both financial and non-financial outcomes. It should include a forecast of the anticipated effects on the market, a more-detailed forecast of capital and operating costs (if appropriate), an updated forecast of the effects on government revenue, and the anticipated effect on consumers¹⁰
- **An implementation plan:** A detailed plan should be prepared for the implementation of the policy, outlining expected timescales, key milestones, stakeholder roles and accountabilities (see Section 4 for more details on monitoring and evaluating policies)
- **A monitoring and evaluation strategy:** KPIs for monitoring the policy should be established, and a schedule agreed for data collection and the preparation of monitoring and evaluation reports throughout the implementation process
- **A key dependencies assessment:** The key dependencies for successful implementation of the policy should be identified. These may include required changes in regulation, critical actions by key stakeholders, etc.
- **A future readiness assessment:** There should be an assessment of the key risks to the successful implementation of the policy, which may take the form of a SWOT analysis, or a consideration of potential scenarios that could adversely affect the policy.¹¹ This assessment should consider the key dependencies identified earlier.

After these assessments have been completed, the DCI should prepare a draft policy paper. This paper should explain the context for the introduction of the policy and the relevant parts of the evidence base gathered during the identification and formulation phases. It should contain the full policy, the implementation plan, the monitoring and evaluation strategy, and a summary of the impact analysis. This document will form the basis of the final policy document to be presented for approval and implementation.

A full Consultation Paper should then be prepared, for a full stakeholder consultation. This document should contain the full draft policy and any information from the impact assessment, implementation plan, and monitoring and evaluation strategy requiring stakeholder input. Key questions for stakeholders should also be included in the Consultation Paper. The Paper should clearly outline the methodology for responding to the consultation, and the consultation timeline.

¹⁰ See Annex D (Ofcom Impact Assessments) for further discussion of impact assessments.

¹¹ See Annex A for further details on SWOT analyses (assessment of strengths, weaknesses, opportunities and threats).

Any commercially sensitive information can be redacted as required before release to the chosen stakeholders.

Outputs:

- **A draft Policy Paper** containing details of the selected policy solution, including the impact assessment, implementation plan, monitoring and evaluation strategy, key dependencies, and future readiness assessment
 - **A full Consultation Paper** containing the policy and selected information from the assessments. Key questions for stakeholders should be included, along with the method for responding and the timeline for the consultation. This paper may be redacted to protect confidential or commercially sensitive information.
-

3.2.5 Full stakeholder consultation

The Policy Paper prepared during the development stage should be released for full stakeholder consultation, including with the public if the policy relates to a matter of public interest. The consultation should be clearly advertised to appropriate stakeholders within government, to industry and to the public. Appropriate stakeholders should be identified based on the expected impact of the policy. For example:

- A policy on cyber safety may require consultation with a wide range of stakeholders in government, industry, and the general public
- A policy that relates to infrastructure sharing between telecoms operators may only require consultation with relevant government departments and key industry stakeholders.

The DCI should prepare a series of questions that respondents to the consultation should answer, focusing on areas the DCI feels are likely to be contentious or require stakeholder input. The DCI should also provide an opportunity for an open response, in case stakeholders wish to raise issues that are not covered by the DCI's questions.

There should be clear instructions, and a single point of contact, for submitting responses, both online and in paper format. The DCI should provide sufficient time for stakeholders to read, understand and respond to the policy paper. We suggest a standard period of four weeks, although if the DCI expects a policy to have a larger impact or be controversial more time should be allowed.¹²

Once the stakeholder consultation period has closed, DCI should consider comments received from stakeholders and provide a consultation report. This written summary should:

- provide an overview of the consultation responses

¹² As an example of international best practice, Annex D provides a case study on the consultation principles followed by the UK's communications regulator, Ofcom.

- explain the effect the consultation has had on the proposed policy
- discuss changes made to the policy.

The consultation report should be released to stakeholders who were invited to participate in the full consultation phase.

Output: A consultation report containing:

- an overview of consultation responses
 - a summary of the DCI's responses to stakeholder comments
 - a discussion of the effect of the consultation responses on the proposed policy.
-

3.2.6 Implementation

Following the consultation, the DCI can finalise the policy based on feedback from stakeholders and prepare the final version of the Policy Paper, including the implementation plan and the monitoring and evaluation framework. At this stage, the DCI should finalise the roles, responsibilities, and accountabilities for each step in the implementation plan.

The final Policy Paper must then be submitted to the Minister, and if appropriate the NEC, for final approval. Aspects of the policy considered during the approval process should include the implementation plan, the monitoring and evaluation strategy, and legislation (if appropriate). Once approved, the final Policy Paper should be circulated to stakeholders and the implementation plan used as the basis for enacting and applying the policy.

Previous policies enacted by the DCI and approved by the NEC have suffered from a lack of resources for implementation, and poorly defined roles, responsibilities and accountabilities. To support the implementation process, the policy document should include clearly defined roles, responsibilities and accountabilities to ensure implementation officers have a clear understanding of their expected performance. The DCI should also ensure that sufficient budget has been allocated to implement the policy.

Output: A final Policy Paper for approval by the Minister, and if appropriate the NEC, including the implementation plan, roles and accountabilities, and a monitoring and evaluation strategy. The DCI should also ensure that sufficient budget has been allocated for the implementation process.

3.2.7 Monitoring and evaluation

The final policy should be regularly monitored during its implementation, and evaluated at set periods after its implementation to ensure that the policy is achieving the objectives outlined during the formulation stage – and not creating unintended side effects. This process is discussed in more detail in Section 4.

In addition to the policy itself, the DCI should also review the process of policy making during the evaluation stage, in a “lessons learned” exercise. This stage of the evaluation looks at what went well during the process and what improvement could be made when developing future policies. This is a crucial part of developing a policy-making toolkit that evolves based on previous experiences.

The policy-making framework described above can be used to monitor and track progress during the policy-making process. Milestones for the completion of each stage of the policy-making cycle can be set, and the progress of each policy through the process can be tracked to provide the DCI with an overview of its policy pipeline (as shown in Figure 3.3 below).

Figure 3.3: Example tool for monitoring progress of policy making [Source: Analysys Mason, 2017]

Policy	Identification	Formulation	Initial stakeholder consultation	Policy development	Full stakeholder consultation	Implementation
1	In progress	In progress	In progress	In progress	In progress	Complete
2	In progress	In progress	In progress	Complete	In progress	In progress
3	In progress	In progress	Complete	In progress	In progress	In progress
4	Complete	In progress	In progress	In progress	In progress	In progress

KEY: In progress Complete

Output: Monitoring and evaluation reports according to the strategy contained in the approved final policy.

3.3 Roadmap for implementing the proposed policy-making framework

Workshops that Analysys Mason held with the DCI in July and September 2017 confirmed that the DCI’s existing policy-making process already includes many aspects of international best practice, but the process is not formalised and there are clear areas for improvement. The DCI also lacks experience in end-to-end policy making, as resource constraints have meant that external consultants are often engaged to support the development of policy documents. To support implementation of the new policy-making framework, we have carried out a gap analysis between the DCI’s current approach and the proposed framework. The gap analysis involved:

- outlining the current process and actions
- establishing the relationship to the new policy-making framework
- identifying gaps between the current approach and the new framework.

A summary of this gap analysis is shown in Figure 3.4 below.

Figure 3.4: Gap analysis between the DCI's current approach and the new policy-making framework [Source: Analysys Mason, 2017]

Framework step	Actions currently performed	Gaps identified
Identification	<ul style="list-style-type: none"> • Concept paper developed for a single option • Problem identified • Evidence gathered 	<ul style="list-style-type: none"> • Limited initial analysis and benchmarking • Objectives not always clearly established
Formulation of options	<ul style="list-style-type: none"> • Identification of expectations for policy • Terms of Reference (ToR) document developed for policy development (typically using external consultants) • ToR approved by Minister 	<ul style="list-style-type: none"> • Lack of detailed analysis of impact or alignment • No initial implementation plan developed • One option identified at this stage rather than multiple options • No evidence of an iterative process between ToR and concept paper to identify the most suitable options
Initial stakeholder consultation	<ul style="list-style-type: none"> • Stakeholders invited to comment during this stage 	<ul style="list-style-type: none"> • Unclear whether an initial stakeholder consultation is held
Draft policy development	<ul style="list-style-type: none"> • External consultants engaged to support process • Draft policy document produced in line with ToR 	<ul style="list-style-type: none"> • Lack of detailed analysis of impact or costs • No key dependencies identified • No monitoring and evaluation strategy developed • No future readiness assessment • No key questions for consultation with stakeholders
Full stakeholder consultation	<ul style="list-style-type: none"> • Only key stakeholders invited to comment during this stage • All comments responded to in full 	<ul style="list-style-type: none"> • Limited evidence of the process for identifying appropriate stakeholders • No summary consultation report produced and released
Final policy development	<ul style="list-style-type: none"> • Policy updated in response to stakeholder consultations • Appropriate approval gained for policy • Policy document released 	<ul style="list-style-type: none"> • No monitoring and evaluation included at this stage • No evidence of implementation strategy being developed • No budgeting process within policy formulation to ensure sufficient budget is allocated
Monitoring and evaluation	<ul style="list-style-type: none"> • None currently performed 	<ul style="list-style-type: none"> • None currently performed

3.3.1 Roadmap for implementation

To support the implementation of the new policy-making framework, Analysys Mason has developed an implementation roadmap. The roadmap details key actions for the DCI, allocates responsibilities, and provides timescales for each action.

A 2011 report by the Institute of Government in the UK, *Making Policy Better*, suggested that reforms of the policy-making process generally fall into one or more of four distinct traps:¹³

- setting an idealised process that is too distant from the realities of policy making
- offering realistic ambitions for policy making, but not specifying how they will be implemented in practice
- making reorganisations to improve the policy-making process without a wider view of what good policy making looks like
- ignoring the role that politics plays in in policy making.

These lessons have been reflected in the implementation roadmap shown in Figure 3.5 below. The DCI should begin implementing the policy-making framework as soon as practicable. A lead officer should be identified and given responsibility for managing the adoption and implementation of the framework; responsibility for managing the development of individual policies should be assigned to named officers.

Figure 3.5: Implementation roadmap for the policy-making framework [Source: Analysys Mason, 2017]

Action	Details	Timescales	Responsibilities
Identify lead officer	<ul style="list-style-type: none"> • Identify an officer in the policy division who will have overall responsibility for leading the implementation 	<ul style="list-style-type: none"> • As soon as practicable 	<ul style="list-style-type: none"> • DCI senior management
Identify and address skills gaps ¹⁴	<ul style="list-style-type: none"> • The DCI should review its current skills against those required to implement the framework • Skills gaps should be filled by hiring additional officers and organising a training programme 	<ul style="list-style-type: none"> • Within four weeks of appointing lead officer 	<ul style="list-style-type: none"> • Lead officer • DCI senior management
Review and finalise policy framework	<ul style="list-style-type: none"> • Lead officer to review and finalise policy-making framework 	<ul style="list-style-type: none"> • Within four weeks of appointing lead officer 	<ul style="list-style-type: none"> • Lead officer • DCI policy team • DCI senior management
Establish monitoring and evaluation team	<ul style="list-style-type: none"> • For details, see the implementation plan for the monitoring and evaluation framework in Section 4.4 		
Publish policy framework	<ul style="list-style-type: none"> • A summary of the policy-making framework should be circulated to stakeholders to ensure awareness and buy-in 	<ul style="list-style-type: none"> • Within two weeks of framework approval 	<ul style="list-style-type: none"> • Lead officer
Implement tool tracking development status	<ul style="list-style-type: none"> • Identify the status of policies in the DCI's pipeline • Implement simple, central tool to track policy-development status 	<ul style="list-style-type: none"> • Within one week of framework approval 	<ul style="list-style-type: none"> • Lead officer • DCI policy team
Train policy	<ul style="list-style-type: none"> • Lead officer to run training on use 	<ul style="list-style-type: none"> • Within four weeks 	<ul style="list-style-type: none"> • Lead officer

¹³ *Making Policy Better*, Institute for Government, UK, 2011; see <https://www.instituteforgovernment.org.uk/sites/default/files/publications/Making%20Policy%20Better.pdf>

¹⁴ Task 7 of Analysys Mason's engagement will establish a plan to develop the DCI's staffing capacity.

Action	Details	Timescales	Responsibilities
team in use of framework	of the policy-making framework for updating existing policies and developing new policies	of framework approval	<ul style="list-style-type: none"> • DCI policy team
Review policies in development*	<ul style="list-style-type: none"> • Review policies to ensure compliance with framework 	<ul style="list-style-type: none"> • Review to start immediately after publication of the framework 	<ul style="list-style-type: none"> • Lead officer • DCI policy team
Publish annual plan	<ul style="list-style-type: none"> • A summary of the DCI's expected workstream over the next year should be provided to stakeholders 	<ul style="list-style-type: none"> • Within eight weeks of framework approval 	<ul style="list-style-type: none"> • Lead officer • DCI policy team
Implement framework for new policy development	<ul style="list-style-type: none"> • Lead officer to ensure stage-by-stage adherence to framework for development of new policies • Each policy to have a lead development officer with responsibility for managing policy-making process • Policy team to liaise with monitoring and evaluation team for development of objectives, KPIs and monitoring and evaluation strategy 	<ul style="list-style-type: none"> • Within four weeks of framework approval 	<ul style="list-style-type: none"> • Lead officer • DCI policy team • Lead development officers for individual policies

* This overlaps with an action in the suggested implementation plan for the monitoring and evaluation framework and should be considered in parallel.

4 Framework for monitoring and evaluating government ICT policies, programmes and projects

The 2013 report identified a lack of monitoring and evaluation of ongoing policies and projects as a key gap in the DCI's capacity, but did not provide a framework to resolve this issue. Analysys Mason has carried out a study of international best practice to develop a monitoring and evaluation framework for the DCI.

This section presents the outputs of Tasks 3 and 4. It contains:

- an introduction to monitoring and evaluation (Section 4.1)
- an overview of the DCI's current monitoring and evaluation strategy (Section 4.2)
- the proposed monitoring and evaluation framework, with an explanation of how this relates to the policy-making framework in Section 3 (Section 4.3)
- a roadmap for adoption and implementation of the proposed monitoring and evaluation framework, including gap analysis, actions and timings (Section 4.4).

For reference, Annex B contains example monitoring and evaluation strategies prepared by Analysys Mason for selected policies and programmes.

Following the workshops in Port Moresby and Singapore, the DCI approved the new monitoring and evaluation framework as appropriate for implementation. However, Analysys Mason understands that ongoing challenges related to ICT data collection in PNG may constrain the DCI's monitoring and evaluation capabilities, and will ensure that these challenges will be considered during the database procurement (Task 6) and the stakeholder consultations.

4.1 Introduction to monitoring and evaluation

Monitoring and evaluation has been identified as a critical gap in the DCI's current policy-making process, both in the 2013 report and during discussions with the DCI. Within currently enacted policies the use of KPIs to monitor implementation is limited, and there is also limited evaluation of the impact and effectiveness of policies once implementation is completed.

Monitoring and evaluation is a core part of the policy-making process, and should be considered as integral to the success of a policy, not as a distraction. It should be a core part of the DCI's workstream, with dedicated officers responsible for monitoring and evaluation. The EC has suggested that:

“One of the key qualities of good policy development is that [...] application is subject to review, so that lessons are learned, adaptations are made, or even policy is abandoned in response to findings.”⁷

Monitoring and evaluation are related but distinct processes:

- **Monitoring** is an ongoing process during the implementation stage of a policy or project, designed to track progress towards the desired results. It is primarily based on the tracking and reporting of KPIs, and progress against qualitative objectives.
- **Evaluation** is a review of the policy or project, both during implementation and after implementation is complete. As well as reviewing the status of KPIs against targets, an evaluation will consider the wider socio-economic impact of the project and review progress against the stated objectives.

The differences between the two processes are summarised in Figure 4.1 below.

Figure 4.1: Summary of the difference between monitoring and evaluation [Source: European Commission, 2015]

	Monitoring	Evaluation
What	Tracking progress and performance against planning and objectives (expectations)	Assessing the relevance, coherence, efficiency, effectiveness, impact and sustainability of policies and programmes
Why	For operational reasons – to learn lessons and take corrective action in real time if required, and to collect information for subsequent evaluation	For strategic purposes, to ensure the policy efficiently and effectively addresses the identified problems and objectives, and to identify improvements
When	At regular intervals during application	Usually at specified points (before, during and after application)
Who	Staff involved in implementation	Staff (and potentially external consultants)

4.2 The DCI’s current approach to monitoring and evaluation

From workshops held with the DCI, Analysys Mason understands that the department has limited experience of developing and implementing monitoring and evaluation strategies. A brief review of monitoring and evaluation practices documented within the DCI’s current ICT policies is shown in Figure 4.2 below.

Figure 4.2: Selected monitoring and evaluation criteria from current ICT policies in PNG [Source: Analysys Mason, DCI policies, 2017]

Year	Policy	Example KPIs and targets	Completion
2008	National ICT Policy – Phase 1	• None provided	• None provided
2009	National ICT Policy – Phase 2	• Liberalisation of the International Gateway (IGW) will occur as early as practicable	• October 2009
2013	National Broadband	• Provide certainty about the definition of broadband by establishing a minimum	• By the end of Q2 2014

Year	Policy	Example KPIs and targets	Completion
	Policy	(entry) level download speed of 512kbit/s for regulatory purposes	
2013	National Broadband Policy	<ul style="list-style-type: none"> Develop online payment system in relation to payment to be made to government for fines, permits, taxes, passports and other services 	<ul style="list-style-type: none"> Complete feasibility study and planning by Q2 2014, with implementation thereafter
2013	National Broadband Policy	<ul style="list-style-type: none"> Achieve availability of broadband at the minimum entry level or higher speeds to 15% of the PNG population by the end of 2014 and to 50% of the population by the end of 2018 	<ul style="list-style-type: none"> End of 2018
2014	Cybercrime Policy	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Not provided
2015	DCI corporate policy	<ul style="list-style-type: none"> Facilitate expansion of the IGIS network to all provincial and district headquarters 	<ul style="list-style-type: none"> Not provided
2015	DCI corporate policy	<ul style="list-style-type: none"> Manage the maintenance and operations of the National Data Centre for the whole of government 	<ul style="list-style-type: none"> Not provided
2016	Internet & Email policy	<ul style="list-style-type: none"> All authorised personnel to be provided with a government email account 	<ul style="list-style-type: none"> Not provided

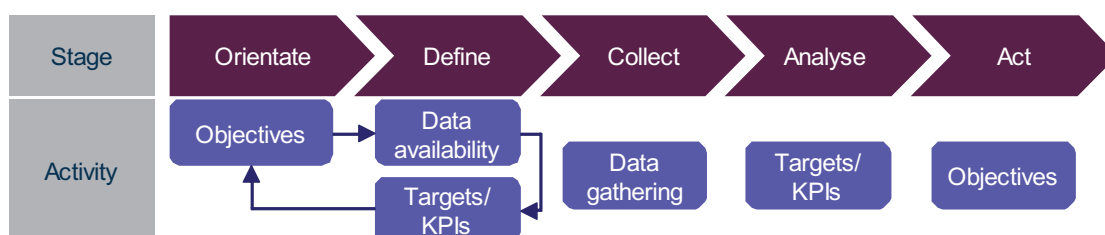
The example monitoring and evaluation criteria shown in Figure 4.2 are mainly implementation based, allowing the DCI to monitor progress in implementing different parts of a policy. However, they provided limited capacity for evaluating how effective policies are in achieving their objectives.

4.3 Proposed monitoring and evaluation framework

Based on a review of international best practice (including the UK, the EC, Singapore and South Korea) Analysys Mason has developed a monitoring and evaluation framework for implementation by the DCI (summarised in Figure 4.3 below). This framework is designed to help the DCI develop monitoring and evaluation strategies for new policies and projects, but can also be used to update monitoring and evaluation strategies for existing policies.

Note: although the framework description below refers to the monitoring and evaluation of *projects*, this framework can and should also be applied to the monitoring and evaluation of policies and programmes.

Figure 4.3: Monitoring and evaluation framework [Source: The Institute of Government, European Commission and Analysys Mason, 2011, 2015 and 2017]



This framework breaks down the process of monitoring and evaluation into five stages. It is designed to provide the DCI with a standardised approach to monitoring and evaluation, whilst giving the DCI flexibility to adapt the approach to the requirements of each policy.

We have used the Integrated Government Information System (IGIS) project as an example in the sections below, where we explore the development of objectives and KPIs. We have prepared KPIs for three aspects of the IGIS*net project, as illustrative examples. The full IGIS*net project requires a much wider and more-detailed set of KPIs to effectively monitor each aspect.

4.3.1 Orientate

In the first stage of monitoring and evaluation, the DCI should establish a clear purpose for the policy. This orientation stage overlaps with the identification stage of the policy-making framework, and objectives should flow from the policy-making process into the development of a monitoring and evaluation strategy.

At this stage, the objectives should be qualitative rather than quantitative. Each objective should include a deadline for completion, to provide a measurable target (see Figure 4.4 for examples).

*Figure 4.4: Example purpose statement and objectives for selected aspects of the IGIS*net project [Source: Analysys Mason, 2017]*

ID	Content	Target date
Purpose statement	To provide secure ICT infrastructure and high-speed connectivity to all government sites in PNG	
OBJ1	All government sites to be connected to the network	By 2020
OBJ2	IGIS to include teleconferencing facilities at each connected site	Within four weeks of connection
OBJ3	The DCI to develop and implement an ongoing training programme to drive the use of IGIS*net infrastructure and equipment	Implemented from April 2018

At this stage, responsibility for managing the monitoring and evaluation strategy, including development and implementation, should be assigned to a named individual or team. The monitoring and evaluation team should be separate from the implementation team, and should not contain officers from the implementation team. This prevents any conflicts of interest between the implementation team and the monitoring and evaluation team, helping to ensure an independent and impartial process.

The planned timings for both monitoring and evaluation actions should be established during the orientation stage:

- Monitoring is an ongoing internal review of the progress of the project, which should be conducted at regular intervals (e.g. every three months, or monthly for certain indicators)

- Evaluation is a broader review of the progress, impact and effectiveness of the project, which should be conducted at set milestones appropriate to the scale of the project
 - for example, evaluations could be conducted halfway through the planned implementation period, at the planned completion of the implementation period, and one year after implementation is completed.

4.3.2 Define

The second stage of the monitoring and evaluation framework is the definition of detailed quantitative indicators. KPIs should be quantitative, with the full set of KPIs providing a complete and detailed snapshot of the status of the project being monitored.

KPIs should be selected to track the main inputs and outputs of the policy, and should be able to demonstrate whether the objectives of the policy have been met. When designing KPIs and targets, care should be taken to ensure they:

- are aligned with the objectives and purpose statement of each project
- do not provide perverse incentives, i.e. the KPIs are not framed in such a way that they distort the implementation of the project to meet the KPI instead of the wider objective
 - for example, monitoring the purchase of ICT equipment without also monitoring the take-up and usage of ICT equipment would lead to a focus on buying equipment but not necessarily using it
- account for the time taken for implementation of a project to begin, and the lag before the policy begins to have an impact
 - some policies, such as the deployment of new infrastructure, may have a long lead time but a quick impact
 - other policies, such as an ICT skills training programme, may have a short lead time but take longer to have noticeable impacts.

Each KPI should consist of four basic components:

- **Definition:** A clear statement of what the KPI is measuring, including any explanations or definitions necessary to understand the KPI. This statement should also include
- **Baseline:** The starting value for the KPI
- **Target(s):** Each KPI should include the quantity targeted and the target timescale:
 - *example:* 25% of government buildings to be connected to IGIS within 12 months
 - *example:* 20% increase in the share of government meetings conducted via teleconference rather than face to face within 24 months
- **Data source:** An explanation of where the input data for the KPI is being collected from, and how often the information will be collected.

For further details, see the case study provided in Annex 0 on the EC's approach to designing KPIs.

When defining KPIs, the use of a standard format ensures consistency in monitoring and evaluation across projects and simplifies the process. As the DCI gains experience in monitoring and evaluation, the KPI development process should evolve to reflect lessons learned. Some example KPIs are defined for the IGIS project in Figure 4.5 below.

Care should be taken to use common data sources for KPIs across policies where possible, to ensure a consistent approach. Task 6 of Analysys Mason's work will assess the procurement of an ICT indicator database, which will serve as a repository of useful data for the DCI to use in planning, monitoring and evaluating policies and programmes. When assessing potential indicators for KPIs, a good starting point is provided by the list of 63 core indicators which the ITU has recommended as the basis for ICT data collection.¹⁵

¹⁵ <http://www.itu.int/en/ITU-D/Statistics/Pages/coreindicators/default.aspx>

Figure 4.5: Example KPIs for selected aspects of the IGIS policy [Source: Analysys Mason, 2017]

ID	KPI or action	Target	Target completion	Implementation agency	Baseline	Data source
KPI1	Percentage of the project budget spent	100%	Within two years of commencement	DCI	0%	Project implementation team
KPI2	KPIs being met	100%	Every review period	DCI	n/a	Project implementation team
KPI3.1	Government sites to be connected to IGIS	25%	12 months	[To be determined]	0%	Project implementation team
KPI3.2	Government sites to be connected to IGIS	100%	24 months	[To be determined]	0%	Project implementation team
KPI4	Sites to be provided with teleconferencing facilities	100%	Within four weeks of connection	[To be determined]	0%	Project implementation team
KPI5	Sites to be provided with encrypted access to IGIS	100%	On connection	[To be determined]	0%	Project implementation team
ACT6	Training programme to be implemented	-	Within six months	[To be determined]	n/a	IGIS training team
KPI7.1	Civil servants at each connected site to be trained to use the IGIS network	25%	Within four weeks of connection	[To be determined]	0%	IGIS training team
KPI7.2	Civil servants at each connected site to be trained to use the IGIS network	100%	Within six months of connection	[To be determined]	0%	IGIS training team
KPI8	Civil servants to be trained to use the IGIS network	10 000	Within 12 months	[To be determined]	0	IGIS training team
KPI9	Staff reporting using the IGIS network	90%	Within three months of receiving training	[To be determined]	0%	Questionnaires for civil servants following training

4.3.3 Collect

The third stage in a monitoring and evaluation programme is to collect data for each KPI. The collection, storage and management of ICT statistics and data will be considered in more detail during Task 6, when the ICT database is discussed. However, there are a few key points that should be noted here:

- The availability of relevant data for a KPI and the ability to record it for a KPI should be considered during the define phase. If the data is not expected to be available or accessible, the KPI is not suitable for monitoring and evaluation of the policy
 - The ability to collect data from third parties (e.g. operators) has been highlighted as a significant issue by the DCI, and will be considered during Task 6
- The method and frequency of collecting the data should also be clearly established when a KPI is defined, to ensure that sufficient preparations can be made
 - For example, tracking participants in a training programme can be performed by the training scheme providers. However, a questionnaire to track the impact of the training programme at set intervals afterwards requires more preparation, and sufficient time must be allowed for responses to be received
- Sufficient capacity should be allocated within the DCI for data collection throughout the expected lifetime of each monitoring and evaluation programme, with a named individual or team assigned responsibility to ensure accountability
- The requirement for secure storage of the collected data should be considered. A suitable storage medium and back-up process should be identified, and appropriate steps should be taken to ensure the security of confidential data (to be discussed further in Task 6).

4.3.4 Analyse

At this stage, the information collected for each KPI is analysed to provide a picture of the overall state of the policy. There are several aspects that should be considered during the analysis stage:

- What do the quantitative metrics report?
 - for example, is the target for the KPI being met or on track to be met?
- Where KPIs are being met, can this be directly attributed to the policy or are other factors affecting the results?
- For KPIs where the targets are not being met, what are the underlying causes?
- Are there factors external to the policy which are affecting delivery and progress towards meeting the targets?

- Overall, is the policy on track or does the implementation team need to alter its approach?

Once the data on the KPIs and targets has been analysed, the DCI should prepare a report of the findings:

- For **monitoring of an ongoing policy**, data analysis may stop at the KPI level, with a summary report being provided to the implementation team and other appropriate stakeholders (see below for further discussion). We suggest that the DCI develops pro-forma templates for monitoring projects, and Figure 4.6 provides an example template.
- For a **formal evaluation process**, the report will need to consider progress towards meeting the objectives of the policy as well as the KPIs and targets. An evaluation report should consist of written responses to each of the objectives, summarising progress towards completion and the wider impact of the policy. It should relate the progress and impact back to the project objectives, taking a “big picture” view of the policy, its status, and any potential future complications or challenges, at the time of the evaluation report. If changes to the policy or the implementation strategy are recommended, these should be included in the evaluation report. As part of the evaluation report, the DCI may consider a survey of key project stakeholders to supplement quantitative information from the KPIs with qualitative information on the project from those involved in delivery or implementation.

The audience for monitoring and evaluation reports should also be considered:

- If a report is for internal use only, the DCI can produce a full and open report on the status of the implementation for use by the policy implementation team and senior stakeholders involved in the project.
- If a report will be released externally, care must be taken to ensure that sensitive information is protected. For example, the DCI may want to release a snapshot of progress (estimated completion, percentage of budget spent, etc.) but may not want to reveal sensitive details of the policy implementation (e.g. the number or identity of sites connected to the IGIS network).

Figure 4.6 below provides an example template for a monitoring report. Please note that all data in the template is included for illustrative purposes only.

Figure 4.6: Illustrative monitoring report for the IGIS policy [Source: Analysys Mason, 2017]

Project: IGIS policy						
Project start date: 1/1/2017		Expected completion date: 31/12/2018				
Date of report: 31/7/2017		Reporting period: 1/4/2017–31/7/2017				
Percentage of budget spent to date: 22%		Value of budget spent: PGK1 233 565				
<p>Progress summary: 15 sites (5% of total targeted) have been connected. This is behind the expected value of 10% due to delays in procuring the necessary server equipment. The training programme is running behind schedule due to recruitment issues, but training of civil servants is expected to start within four weeks. At this stage, no changes to the implementation plan are suggested, although further delays in network roll-out will necessitate a revised implementation schedule.</p>						
ID	KPI	Baseline	Value in previous period	Value in current period	Target	Notes
KPI1	Percentage of the project budget spent	0%	10%	22%	100%	Project spend is in line with expectations
KPI2	KPIs being met	–	0%	12.5%	100%	Connection of sites is behind schedule Training programme is behind schedule
KPI3.1	Government sites to be connected to IGIS	0%	0%	5%	25%	15 sites, or 5% of total, have been connected to the network
KPI3.2	Government sites to be connected to IGIS	0%	0%	5%	100%	At this stage, 10% of sites were planned to be connected
KPI4	Sites to be provided with teleconferencing facilities	0%	0%	100%	100%	All connected sites have teleconferencing equipment installed

KPI5	Sites to be provided with encrypted access to IGIS	0%	0%	80%	100%	One site does not yet have an encrypted connection
ACT6	Training programme to be implemented	-	-	-	-	The training programme is behind schedule, but is expected to be up and running next month
KPI7.1	Civil servants at each connected site to be trained to use the IGIS network	0%	0%	0%	25%	Training programme not running
KPI7.2	Civil servants at each connected site to be trained to use the IGIS network	0%	0%	0%	100%	Training programme not running
KPI8	Civil servants to be trained to use the IGIS network	0	0	0	10 000	Training programme not running
KPI9	Staff reporting using the IGIS network	0%	0	0	90%	Training programme not running

Note: The values in this table are purely illustrative.

4.3.5 Act

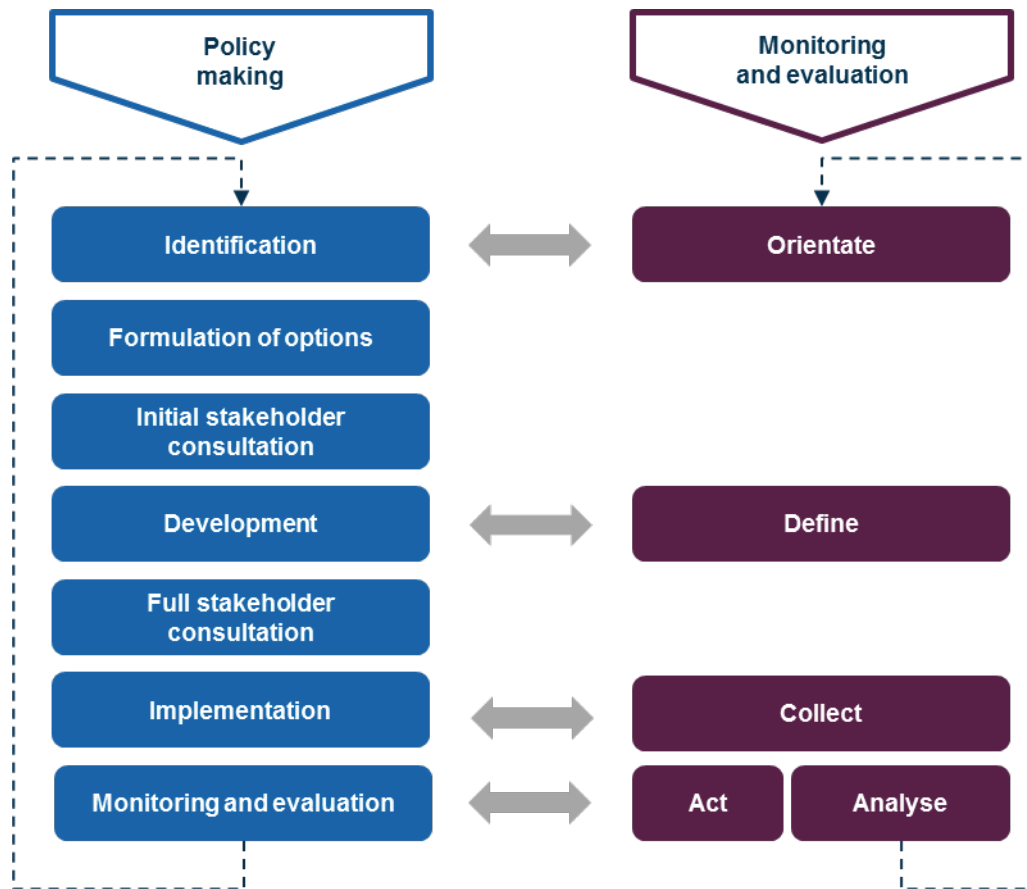
The findings from a monitoring and evaluation process should be used to help manage both the implementation of current projects and the development of new policies. Monitoring of the policy may suggest that implementation is running behind schedule. In this case, the implementation team should use the monitoring report to adjust the delivery plan and mitigate the challenges highlighted in the report. This requires a good relationship between the monitoring team and the implementation team, and buy-in from the implementation team into the monitoring and evaluation process.

An evaluation report provides an opportunity to reflect on lessons learned during the development and implementation process. In a final project evaluation, the DCI should consider what went well during implementation of the policy, what challenges were faced, and what aspects of the process could be improved for future projects. The “lessons learned” evaluation should be for internal use by the DCI, which should allow the DCI to be honest and identify both the strengths and weaknesses during each project. Each evaluation report should be provided to all staff involved in the development and implementation process, to ensure that the lessons learned are used to build the DCI’s knowledge base and experience.

4.3.6 Links to policy-making framework

Monitoring and evaluation is a core part of the policy-making process. If clear policy objectives are established during the identification stage of the policy-making process, KPIs can be developed for the policy during the development stage. These KPIs can be included as part of the policy document for stakeholder consultation, helping to encourage buy-in from key stakeholders on the monitoring and evaluation process. The relationship between the policy-making framework and the monitoring and evaluation framework is shown in Figure 4.7 below.

Figure 4.7: Summary of the relationship between the policy-making framework and the monitoring and evaluation framework [Source: Analysys Mason, 2017]



As well as monitoring and evaluating the implementation of policies, projects and programmes, the DCI should perform evaluations of the process followed when formulating each policy. As the DCI gains experience of developing and implementing policies, these evaluations will provide an opportunity for the DCI to reflect on the policy-making process and consider the lessons learned (e.g. through an exercise to identify what went right and what went wrong).

4.4 Roadmap for implementing the proposed monitoring and evaluation framework

The DCI should begin implementing the monitoring and evaluation framework as soon as practicable. Given the current limited capacity of the DCI, the monitoring and evaluation team is likely to be limited to one officer initially. As part of the DCI’s development, however, it should consider expanding the monitoring and evaluation team.

A list of recommended actions, timescales and responsibilities is provided in Figure 4.8 below.

Figure 4.8: Implementation roadmap for the monitoring and evaluation framework [Source: Analysys Mason, 2017]

Action	Details	Timescale	Responsibilities
Establish	<ul style="list-style-type: none"> Establish dedicated funding 	<ul style="list-style-type: none"> As soon as 	<ul style="list-style-type: none"> DCI senior

Action	Details	Timescale	Responsibilities
dedicated monitoring and evaluation team	<ul style="list-style-type: none"> stream for monitoring and evaluation Identify or hire a suitable officer to take initial responsibility Train officer in monitoring and evaluation framework and data collection 	practicable	management
Identify and address skills gaps ¹⁶	<ul style="list-style-type: none"> The DCI should review its current skills against those required to implement the framework Skills gaps should be filled by hiring additional officers and organising a training programme 	<ul style="list-style-type: none"> Within four weeks of appointing lead officer 	<ul style="list-style-type: none"> Lead officer DCI senior management
Review and finalise monitoring and evaluation framework	<ul style="list-style-type: none"> Monitoring and evaluation team to review and finalise monitoring and evaluation strategy Identify suitable data sources for orientation step Identify suitable data sources for monitoring projects and policies 	<ul style="list-style-type: none"> Within four weeks of officer training 	<ul style="list-style-type: none"> DCI monitoring and evaluation team DCI senior management
Publish monitoring and evaluation framework	<ul style="list-style-type: none"> A summary of the monitoring and evaluation framework should be published to ensure stakeholder awareness and buy-in 	<ul style="list-style-type: none"> Within two weeks of finalising framework 	<ul style="list-style-type: none"> DCI monitoring and evaluation team
Train policy officers in use of framework	<ul style="list-style-type: none"> Train policy officers on monitoring and evaluation framework and its impact on policy development 	<ul style="list-style-type: none"> Within four weeks of finalising framework 	<ul style="list-style-type: none"> DCI monitoring and evaluation team DCI policy team
Review policies in development*	<ul style="list-style-type: none"> Establish key stakeholders Clarify objectives and KPIs Develop monitoring and evaluation approach Agree review schedule for each policy/project 	<ul style="list-style-type: none"> Review to commence immediately after framework published 	<ul style="list-style-type: none"> DCI monitoring and evaluation team DCI policy team Key stakeholders
Review data collection powers ¹⁷	<ul style="list-style-type: none"> Review current ability for third-party data collection Establish steps necessary to increase data collection powers Implement required changes to collect third-party data 	<ul style="list-style-type: none"> Within four weeks of finalising framework 	<ul style="list-style-type: none"> DCI monitoring and evaluation team DCI senior management Key stakeholders
Begin implementing M&E approach for policies	<ul style="list-style-type: none"> Begin data collection for policies where KPIs agreed Begin review meetings with implementation team Begin developing evaluation reports for key stakeholders 	<ul style="list-style-type: none"> One month after implementation of policy or project commences 	<ul style="list-style-type: none"> DCI monitoring and evaluation team DCI policy team Key stakeholders

¹⁶ Task 7 of Analysys Mason's engagement will establish a plan to develop the DCI's staffing capacity.

¹⁷ Task 6 of Analysys Mason's engagement will consider the DCI's power to collect third party data

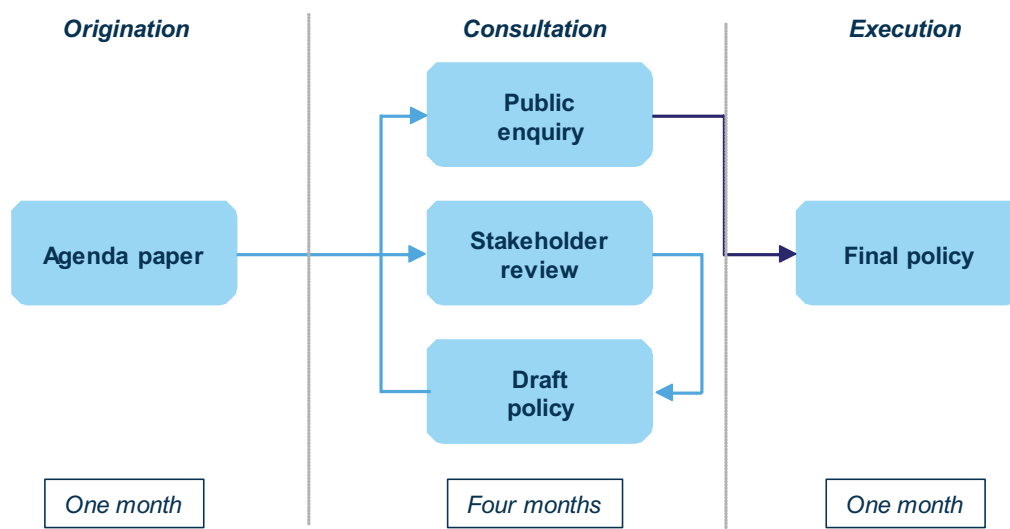
Annex A The ICT policy-making framework and principles proposed in 2013

A key finding from the 2013 DCI capacity review was that the DCI lacked a structured policy-making framework, which led to a fluid and inconsistent approach to policy making. The report proposed a new policy-making framework, and a set of policy-making principles. The new framework outlined in Section 3 supersedes the 2013 framework, but for reference it is summarised in this annex.

A.1 2013 proposed ICT policy-making framework

The development of potential policies can be broken down into three broad steps – origination, consultation and execution. The policy-making framework proposed in 2013 is summarised in Figure A.1 and discussed in more detail below.

Figure A.1: 2013 proposed policy-making framework [Source: Analysys Mason and the 2013 review, 2017]



Origination (policy formulation)

The first step in formulating a new policy is the development of an Agenda Paper. This paper will outline the proposed policy, providing context for introduction of the proposed policy, details of the policy objectives, and a discussion of potential impacts of implementing the policy. The DCI should also consider the following factors to ensure a policy is likely to be successfully implemented:

- current market situation
- industry position
- government revenues

- existing legislation
- multilateral agreements.

Consultation (public enquiry)

After launching an Agenda Paper, the DCI should release the Agenda Paper to key stakeholders for comment. Once comments have been received from stakeholders, the DCI should perform three assessments on the proposed policy:

- a future readiness assessment
- an impact assessment
- an implementation assessment.

These assessments allow the DCI to evaluate whether a policy is likely to have the intended effects and what risks are involved in implementing the policy. At this stage, the DCI can evaluate whether revisions to the policy are required.

A draft policy can then be developed using the Agenda Paper, comments from stakeholders and the assessments conducted above. The draft policy should be released for a public consultation, with a clear method for receiving responses and sufficient time to allow the policy to be properly examined.

Execution (policy implementation)

After the consultation period has closed, the DCI should review the comments received during the public enquiry and stakeholder review to decide which to incorporate into the final policy document. The final version of the policy can then be presented for sign-off by the relevant government officials.

The 2013 framework does not provide any detailed guidance on the process for policy implementation, and does not include processes for the monitoring and evaluation of implemented policies.

A.2 2013 proposed ICT policy-making principles

Within the policy-making framework discussed above, the development of an initial Agenda Paper is a key stage in the process. This agenda paper forms the basis for discussions with stakeholders and the development of a full policy. The 2013 report proposes a policy-making framework for PNG based on international best practice. The six key elements of the proposed policy-making framework are that it should be:

- **Developmental:** ensuring that ICT policies meet the needs of citizens and businesses in PNG by having measurable impacts
- **Future-oriented:** ensuring that ICT policies are sufficiently long term and future-proof, and able to withstand changes in technical evolution and market developments

- **Evidence-based:** ensuring that ICT policies contain sufficient evidence gathered from industry, international benchmarks and independent research
- **Proactive:** ensuring that ICT policies are relevant to market needs, and that they solve a real and current issue
- **Participatory:** ensuring that ICT policies integrate stakeholder feedback through an open consultation process
- **Review:** ensuring that ICT policies are regularly reviewed using measurable targets for their effectiveness and performance.

Policies developed by the DCI should also be compatible with the seven objectives of the National ICT Policy, the Medium-Term Development Plan 2 2015–2017 (or the most up-to-date Medium-Term Development Plan), and the aims of the overarching national Development Vision.

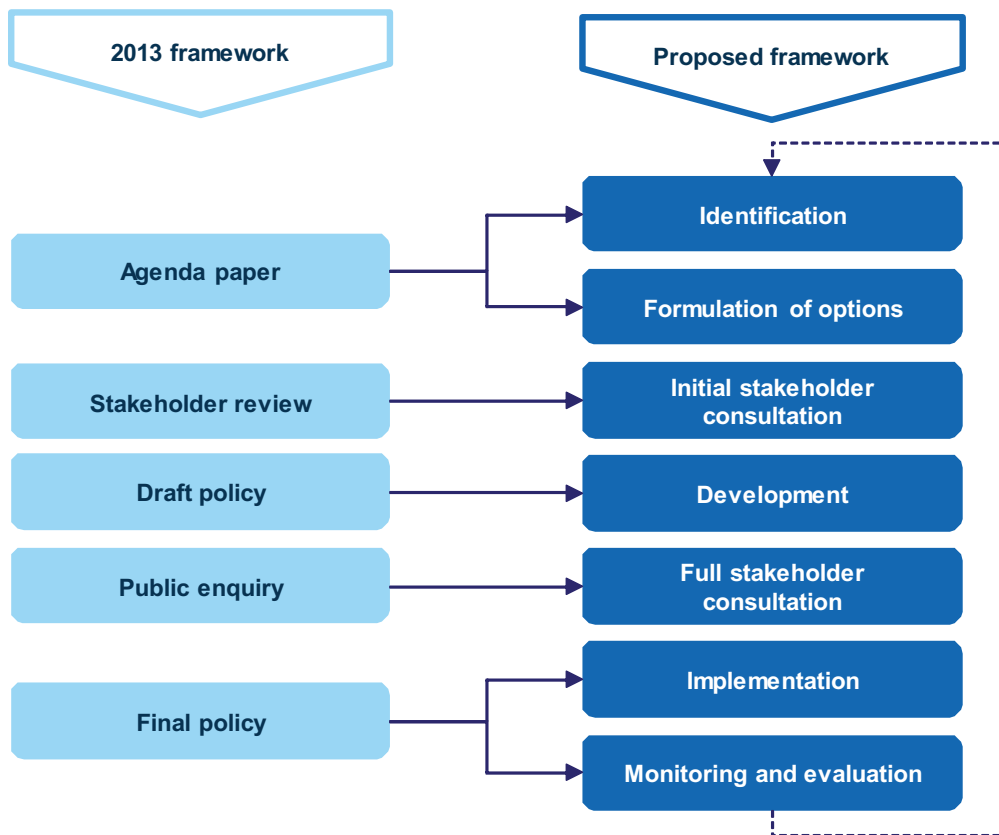
A.3 Modifications to the 2013 framework

Analysys Mason has made the following changes from the 2013 framework:

- 1 The “Agenda Paper” stage has been split into an identification and formulation stage. We believe that correctly identifying the target problem is a critical step in policy making, as the objectives set here underpin the rest of the policy-making process. Once the problem has been identified and the objectives set, potential policy responses can be developed in line with these.
- 2 The “Final Policy” stage has been split into implementation and evaluation stages:
 - The *implementation stage* includes finalisation of the policy document following stakeholder review, approval of the policy by the relevant body, and implementation of the actions and timetable detailed in the policy
 - The *evaluation stage* includes both ongoing monitoring of the implementation and effectiveness of the policy, and an evaluation of the policy-making process.

The mapping between the 2013 framework and the framework is shown in Figure A.2 below.

Figure A.2: Alignment of framework proposed in 2013 with new proposed framework [Source: Analysys Mason, 2017]



Annex B Suggested monitoring and evaluation criteria for selected policies

To illustrate the implementation of the monitoring and evaluation framework discussed in Section 4 earlier, example criteria have been developed for three policies or programmes:

- IGIS (contained in Section 4)¹⁸
- Internet & Email policy (Section B.2)
- Rural Communications Project (Section B.3).

Objectives and KPIs have been established for each programme, developed directly from the relevant documents. For each KPI the agency responsible for managing the implementation, and the source of the data for monitoring and evaluation, has been identified. Please note that timescales have not been provided for many of the KPIs, as it is assumed that the DCI will identify appropriate timescales.

A review plan is also provided in Section B.1 below, outlining the suggested timeline for monitoring and evaluation of projects and policies.

B.1 Review plan

A review plan has been developed by Analysys Mason that is recommended for use with each individual policy. It identifies four key actions that should take place at specific times to ensure adequate monitoring and evaluation of a policy or programme – including sharing appropriate information with key stakeholders. This plan is set out in Figure B.1 below.

Figure B.1: Suggested review plan for monitoring and evaluation of policies and programmes [Source: Analysys Mason, 2017]

Action	Details	Timescale	Responsibilities
Update KPIs	<ul style="list-style-type: none"> • Gather data on KPIs from relevant sources • Update red/amber/green (RAG) dashboard to reflect latest project status 	<ul style="list-style-type: none"> • Monthly 	<ul style="list-style-type: none"> • DCI monitoring and evaluation team
Review with implementation team	<ul style="list-style-type: none"> • Arrange meeting with implementation team • Review RAG dashboard and project progress • Update implementation timeline if appropriate 	<ul style="list-style-type: none"> • Quarterly meetings with implementation team 	<ul style="list-style-type: none"> • DCI monitoring and evaluation team • Implementation team
Interim	<ul style="list-style-type: none"> • Review progress towards 	<ul style="list-style-type: none"> • Yearly after 	<ul style="list-style-type: none"> • DCI monitoring and

¹⁸ Please note that monitoring and evaluation criteria have only been established for selected aspects of the IGIS policy.

Action	Details	Timescale	Responsibilities
evaluation reports	meeting KPIs and objectives <ul style="list-style-type: none"> Produce short evaluation report for circulation to appropriate stakeholders 	commencement of implementation	evaluation team <ul style="list-style-type: none"> Implementation team
Final evaluation report	<ul style="list-style-type: none"> Review status of KPIs Review progress towards meeting objectives Review policy development process (lessons learned) Review implementation process (lessons learned) Produce final evaluation report for circulation to appropriate stakeholders 	<ul style="list-style-type: none"> One year after completion of implementation 	<ul style="list-style-type: none"> DCI monitoring and evaluation team Implementation team

B.2 Suggested monitoring and evaluation for the Internet & Email policy

The Internet & Email policy has been developed by the DCI to provide a single set of standards guiding:

- development and use of the Government National Data Centre (GNDC)
- cost-effective infrastructure and data sharing across the government of PNG
- standards for the use of internet and email across government.

A vision statement and objectives for the policy are provided in Figure B.2 below. The vision statement is a summary of the vision stated in the policy provided by the DCI and the objectives have been taken directly from the policy document (except for OBJ1, which has been added for clarity). Suggested actions and KPIs for the Internet & Email policy are provided in Figure B.3 below.

Figure B.2: Vision statement and objectives for the Internet & Email policy [Source: Analysys Mason, 2017]

ID	Content	Target date
Vision statement	To provide a unified approach to the use of data, internet and email across government departments and services	
OBJ1*	The GNDC will become the main platform hosting non-confidential government services	By [insert date]
OBJ2	To provide guidelines to government departments, Line Agencies, and users on the use of electronic communications for exchange of unclassified official correspondence in a controlled and efficient manner	By [insert date]
OBJ3	To illustrate essential hardware and software required to establish an internet infrastructure and email exchange	By [insert date]
OBJ4	To lay down security parameters for access to and use of the internet and email	By [insert date]
OBJ5	To institute a system of periodic technical audit to assist government organisations in establishing and maintaining a secure and reliable data network environment	By [insert date]

ID	Content	Target date
OBJ6	To provide broad guidelines on creating government security standards to ensure IGIS*net security	By <i>[insert date]</i>

* Objective 1 is an additional objective that Analysys Mason has included for clarity.

Figure B.3: Suggested monitoring and evaluation criteria for the Internet & Email policy [Source: Analysys Mason, 2017]

ID	KPI or action	Target	Target completion	Implementation agency	Baseline	Data source
OBJ1: The GNDC will become the main platform hosting non-confidential government services						
KPI1.1	Government sites within Port Moresby and major settlements to be connected to GNDC	100%	Within [insert] of connection	<ul style="list-style-type: none"> • DCI • GNDC 	[To be confirmed]	GNDC / individual depts.
KPI1.2	Connected sites to have access to VOIP facilities	100%	Within [insert] of connection	<ul style="list-style-type: none"> • Individual depts. • DCI 	[To be confirmed]	GNDC / individual depts.
ACT1.3	Review of options for connecting remaining sites to GNDC	–	Within [insert] weeks	<ul style="list-style-type: none"> • DCI 	–	DCI, stakeholders
ACT1.4	Review of migrating all citizen-centred services onto GNDC	–	Within [insert] weeks	<ul style="list-style-type: none"> • DCI 	–	Individual depts.
ACT1.5	Review of demand for hosting government portals (e.g. e-customs) on GNDC	–	Within [insert] months	<ul style="list-style-type: none"> • DCI 	–	Individual depts.
KPI1.6	Departments to develop websites hosted on IGIS*net	95%	Within [insert]	<ul style="list-style-type: none"> • Individual depts. 	[To be confirmed]	Dept. websites
KPI1.7	Departments to update websites at least twice a week	100%	At launch	<ul style="list-style-type: none"> • Individual depts. 	[To be confirmed]	Individual depts.
KPI1.8	Websites to contain only unclassified & non-sensitive information	100%	At launch	<ul style="list-style-type: none"> • Individual depts. 	[To be confirmed]	Dept. websites, individual depts.
KPI1.9	Queries received via websites to be responded to	90%	Within 24 hours	<ul style="list-style-type: none"> • Individual depts. 	[To be confirmed]	Individual depts.
KPI1.10	Websites to have no commercial advertising	100%	At launch	<ul style="list-style-type: none"> • Individual depts. 	[To be confirmed]	Dept. websites
OBJ2: To provide guidelines to government departments, Line Agencies, and users on the use of electronic communications for exchange of unclassified official correspondence in a controlled and efficient manner						
KPI2.1	Connected sites to migrate email services to GNDC	100%	Within [insert] months of connection	<ul style="list-style-type: none"> • Individual depts. • DCI 	[To be confirmed]	GNDC / individual depts.
KPI2.2	Authorised users to be identified by	100%	[insert] before	<ul style="list-style-type: none"> • Individual depts. 	[To be confirmed]	<ul style="list-style-type: none"> • Individual depts.

ID	KPI or action	Target	Target completion	Implementation agency	Baseline	Data source
	controlling authority in individual depts.					
KPI2.3	Authorised users at connected sites to be issued with official email addresses	100%	Within [insert] of connection	• GNDC	<i>[To be confirmed]</i>	• GNDC • Individual depts.
KPI2.4	User email addresses to be listed in central directory	100%	On creation of email address	• GNDC	<i>[To be confirmed]</i>	• GNDC
KPI2.5	Government emails to be sent using IGIS*net, not private providers	100%	Within [insert]	• Individual depts. • GNDC	<i>[To be confirmed]</i>	• GNDC • Individual depts.
ACT2.6	Email content guidelines to be established	–	Within [insert]	• DCI • GNDC	–	• DCI • GNDC
KPI2.7	Email content guidelines to be provided to users	100%	[Insert] before gaining access to email address	• Individual depts.	<i>[To be confirmed]</i>	• Individual depts. • User surveys
OBJ3: To illustrate essential hardware and software required to establish an internet infrastructure and email exchange						
KPI3.1	Internet connectivity at sites connected to IGIS*net to be purchased from Telkom where available	100%	At purchase of connectivity	• Individual depts.	<i>[To be confirmed]</i>	• Individual depts.
ACT3.2	Ranking of regional ISPs to be performed where Telkom services not available	–	Within [insert]	• DCI • NICTA	–	• NICTA • Service providers
KPI3.3	Sites without connectivity provided by Telkom to use top ranked provider in region	100%	At purchase of connectivity	• Individual depts.	<i>[To be confirmed]</i>	• Individual depts.
KPI3.4	Internet connectivity at sites connected to IGIS*net to be provided via IGIS*net once connected	100%	Once site connected	• Individual depts.	<i>[To be confirmed]</i>	• Individual depts.
KPI3.5	Sites to operate via a central network gateway with approved security	100%	At connection	• Individual depts. • GNDC	<i>[To be confirmed]</i>	• Individual depts. • GNDC
KPI3.6	All suppliers to be audited and approved by the ITB	100%	Before signing of contracts	• DCI • ITB	<i>[To be confirmed]</i>	• DCI • ITB

ID	KPI or action	Target	Target completion	Implementation agency	Baseline	Data source
KPI3.7	Users to be provided with approved email client	100%	On gaining access to email address	<ul style="list-style-type: none"> Individual depts. GNDC 	[To be confirmed]	<ul style="list-style-type: none"> GNDC
ACT3.8	Procedure for storing and archiving emails to be established	–	Within [insert]	<ul style="list-style-type: none"> DCI GNDC 	–	<ul style="list-style-type: none"> DCI GNDC
KPI3.9	Emails to be stored on the mail server for 12 months, followed by transfer to IGIS*net for 4 years, before transfer to the PNG Archives	100%	–	<ul style="list-style-type: none"> GNDC 	[To be confirmed]	<ul style="list-style-type: none"> GNDC
OBJ4: To lay down security parameters for access to and use of internet and email						
KPI4.1	Authorised users to be provided with internet access during working hours	100%	Within [insert]	<ul style="list-style-type: none"> Individual depts. GNDC 	[To be confirmed]	<ul style="list-style-type: none"> Individual depts. User surveys
KPI4.2	Senior users to be provided with internet access 24hrs a day	100%	Within [insert]	<ul style="list-style-type: none"> Individual depts. GNDC 	[To be confirmed]	<ul style="list-style-type: none"> Individual depts. User surveys
KPI4.3	Digital signatures or digital certificates to be used to authenticate email traffic	100%	At commencement of service	<ul style="list-style-type: none"> GNDC 	[To be confirmed]	<ul style="list-style-type: none"> GNDC
ACT4.4	Establish a list of unauthorised sites on IGIS*net	–	Within [insert]	<ul style="list-style-type: none"> DCI ITB 	–	<ul style="list-style-type: none"> DCI ITB
KPI4.5	No unauthorised sites to be accessed via IGIS*net	0%	Within [insert]	<ul style="list-style-type: none"> GNDC 	[To be confirmed]	<ul style="list-style-type: none"> GNDC
KPI4.6	Authorised users to be provided with a limited download volume	100%	At connection	<ul style="list-style-type: none"> GNDC 	[To be confirmed]	<ul style="list-style-type: none"> GNDC
OBJ5: To institute a system of periodic technical audit to assist government organisations in establishing and maintaining a secure and reliable data network environment						
KPI5.1	Policies, guidelines, and authorised software to be reviewed	100%	Every [insert]	<ul style="list-style-type: none"> DCI GNDC 	[To be confirmed]	<ul style="list-style-type: none"> DCI GNDC
KPI5.2	Authorised users to be connected to the network as per network diagram	100%	Within [insert] of site connection	<ul style="list-style-type: none"> DCI Individual depts.. 	[To be confirmed]	<ul style="list-style-type: none"> Individual depts.
ACT5.3	Establish and publish procedures for network audit	–	Within [insert] months	<ul style="list-style-type: none"> DCI GNDC 	–	<ul style="list-style-type: none"> DCI GNDC

ID	KPI or action	Target	Target completion	Implementation agency	Baseline	Data source
KPI5.4	Regular network audits to be conducted	100%	Every [insert] months	<ul style="list-style-type: none"> To be confirmed 	<i>[To be confirmed]</i>	<ul style="list-style-type: none"> To be confirmed
OBJ6: To provide broad guidelines on creating government security standards to ensure IGIS*net security						
KPI6.1	Heads of organisation to be responsible for information security	100%	At connection	<ul style="list-style-type: none"> Individual depts. 	<i>[To be confirmed]</i>	<ul style="list-style-type: none"> Individual depts.
KPI6.2	Departments to appoint a network coordinator and a certified network administrator	100%	Within [insert] of connection	<ul style="list-style-type: none"> Individual depts. 	<i>[To be confirmed]</i>	<ul style="list-style-type: none"> Individual depts.
KPI6.3	Open Source Security Testing Manual to be used as standard for regular testing of security infrastructure in departments	100%	Every [insert]	<ul style="list-style-type: none"> Network administrators 	<i>[To be confirmed]</i>	<ul style="list-style-type: none"> Network administrators GNDC
KPI6.4	Passwords to be changed regularly by users	100%	Every [insert]	<ul style="list-style-type: none"> GNDC 	<i>[To be confirmed]</i>	<ul style="list-style-type: none"> GNDC Individual users
ACT6.5	Procedure to be established for reporting suspected network breach or data loss	–	Within [insert]	<ul style="list-style-type: none"> DCI GNDC 	–	<ul style="list-style-type: none"> DCI / GNDC
KPI6.6	Suspected network breaches or data loss to be reported by users	100%	Within 24 hours of occurrence	<ul style="list-style-type: none"> Individual depts. GNDC 	<i>[To be confirmed]</i>	<ul style="list-style-type: none"> Individual depts. GNDC
ACT6.7	List of authorised software to be compiled	–	Within [insert]	<ul style="list-style-type: none"> DCI GNDC 	–	<ul style="list-style-type: none"> DCI GNDC
KPI6.8	Authorised software to be installed and used on network	100%	Within [insert] of service commencement	<ul style="list-style-type: none"> GNDC Individual depts. Users 	<i>[To be confirmed]</i>	<ul style="list-style-type: none"> GNDC Individual depts. Users

B.3 Suggested monitoring and evaluation criteria for the Rural Communications Project

The Rural Communications Project (RCP) is a World Bank funded project focused on three components:

- funding technical assistance to NICTA and the DCI
- completion of Universal Access Subsidy demonstration projects
- supporting the management and delivery of the RCP.

A vision statement and objectives for the RCP are provided in Figure B.4 below. The vision statement is a shortened version of the overall vision expressed in the RCP, whilst the objectives are taken from the *Rural Telecommunication Project Operations Manual v5.6* as provided by the DCI.

Figure B.4: Vision statement and objectives for the RCP [Source: Analysys Mason, 2017]

ID	Content	Target date
Vision statement	To improve access to, and use of, affordable and reliable ICT infrastructure and services in rural PNG	
OBJ1	An increased percentage of the population in PNG will have access to telecoms services	By [insert date]
OBJ2	An increased percentage of the population will have access to the internet	By [insert date]
OBJ3	A measurable increase in the use of ICT in every district	By [insert date]
OBJ4	Public sector funding to leverage private-sector investment in rural communications development	By [insert date]
OBJ5	Service providers to implement sustainable business models with a positive contribution to the economic development of the rural areas	By [insert date]
OBJ6	Increased levels of ICT training, content development projects, and computer literacy in targeted districts	By [insert date]
OBJ7	Decreased retail costs of phone and internet services for consumers	By [insert date]

Responsibility for managing the RCP originally lay within the DCI. However, to reflect implementation challenges the Project Implementation Unit (PIU) was moved to NICTA. NICTA is responsible for the procurement of services related to the RCP, and monitoring the implementation of the demonstration projects.

In its role of overseeing the development of the telecoms sector in PNG, the DCI has a responsibility to monitor the impact of the RCP on the wider ICT sector. To facilitate this, Analysys Mason has prepared suggested actions and KPIs for DCI's use in monitoring the impact of the RCP – shown in Figure B.5 below.

Figure B.5: Suggested monitoring and evaluation criteria for the RCP [Source: Analysys Mason, 2017]

ID	KPI or action	Target**	Target completion	Implementation agency	Baseline	Data source
OBJ1: An increased percentage of the population in PNG will have access to telecoms services						
KPI1.1	Percentage of population covered by 2G	[To be confirmed]	Within [insert] months	<ul style="list-style-type: none"> NICTA Mobile operators 	[To be confirmed]	<ul style="list-style-type: none"> Mobile operators
KPI1.2	Percentage of population covered by 3G	[To be confirmed]	Within [insert] months	<ul style="list-style-type: none"> NICTA Mobile operators 	[To be confirmed]	<ul style="list-style-type: none"> Mobile operators
KPI1.7	Percentage of population within 5km walk of a public telephone	[To be confirmed]	Within [insert] months	<ul style="list-style-type: none"> NICTA Mobile operators 	[To be confirmed]	<ul style="list-style-type: none"> Mobile operators
OBJ2: An increased percentage of the population will have access to the internet						
ACT2.1	Identify target district centres for deployment of internet access points	–	Within 4 weeks of commencement	<ul style="list-style-type: none"> DCI / NICTA 	–	–
KPI2.2	Number of internet access points (e.g. internet cafés)	60	Within [insert] months	<ul style="list-style-type: none"> NICTA Service providers 	[To be confirmed]	<ul style="list-style-type: none"> Service providers
OBJ3: A measurable increase in the use of ICTs in every district						
ACT3.1	Establish definition of rural areas	–	Within 4 weeks of commencement	<ul style="list-style-type: none"> DCI NICTA 	–	–
KPI3.2*	Number of subscribers in Chimbu	20 000	Within [insert] months	<ul style="list-style-type: none"> NICTA Mobile operators 	[To be confirmed]	<ul style="list-style-type: none"> Mobile operators
KPI3.3*	Number of annual incoming and outgoing minutes in Chimbu	19 million	Within [insert] months	<ul style="list-style-type: none"> NICTA Mobile operators 	[To be confirmed]	<ul style="list-style-type: none"> Mobile operators
KPI3.4*	Number of subscribers in East Sepik	16 500	Within [insert] months	<ul style="list-style-type: none"> NICTA Mobile operators 	[To be confirmed]	<ul style="list-style-type: none"> Mobile operators
KPI3.5*	Number of annual incoming and outgoing minutes in East Sepik	17 million	Within [insert] months	<ul style="list-style-type: none"> NICTA Mobile operators 	[To be confirmed]	<ul style="list-style-type: none"> Mobile operators
KPI3.6	Population in rural areas using internet access points	[To be confirmed]	Within [insert] months	<ul style="list-style-type: none"> NICTA Service providers 	[To be confirmed]	<ul style="list-style-type: none"> Service providers
KPI3.7	Overall internet penetration in rural	[To be confirmed]	Within [insert] months	<ul style="list-style-type: none"> NICTA 	[To be confirmed]	<ul style="list-style-type: none"> Mobile operators

ID	KPI or action	Target**	Target completion	Implementation agency	Baseline	Data source
	areas	confirmed]	months	<ul style="list-style-type: none"> Service providers Mobile operators 		<ul style="list-style-type: none"> Service providers
KPI3.8	Mobile service penetration (voice) in rural areas	[To be confirmed]	Within [insert] months	<ul style="list-style-type: none"> NICTA Mobile operators 	[To be confirmed]	<ul style="list-style-type: none"> Mobile operators
KPI3.9	Mobile service penetration (data) in rural areas	[To be confirmed]	Within [insert] months	<ul style="list-style-type: none"> NICTA Mobile operators 	[To be confirmed]	<ul style="list-style-type: none"> Mobile operators
OBJ4: Public sector funding to leverage private sector investment in rural communications development						
KPI4.1	Level of public sector subsidy	[To be confirmed]	During project implementation	<ul style="list-style-type: none"> DCI NICTA 	[To be confirmed]	<ul style="list-style-type: none"> DCI NICTA
KPI4.2	Private sector spending on non-subsidised projects in rural areas	20% increase	Within [insert] years	<ul style="list-style-type: none"> Mobile operators Service providers 	[To be confirmed]	<ul style="list-style-type: none"> Mobile operators Service providers
OBJ5: Service providers to implement sustainable business models with a positive contribution to the economic development of the rural areas						
KPI5.1	Internet access centres running without public funding	60	Within [insert] years	<ul style="list-style-type: none"> Service providers 	0	<ul style="list-style-type: none"> NICTA Service providers
KPI5.2	Number of people employed at internet access centres	[To be confirmed]	Within [insert] years	<ul style="list-style-type: none"> Service providers 	0	<ul style="list-style-type: none"> Service providers
KPI5.3	Number of people employed by service providers	[To be confirmed]	Within [insert] years	<ul style="list-style-type: none"> Mobile operators Service providers 	[To be confirmed]	<ul style="list-style-type: none"> Service providers
OBJ6: Increased level of ICT training, content development projects, and computer literacy in targeted districts						
ACT6.1	Develop a basic ICT skills training programme to be delivered at the internet access points	-	Within three months of commencement	<ul style="list-style-type: none"> DCI NICTA 	-	-
ACT6.2	Develop a programme to promote the development of relevant local language content	-	Within three months of commencement	<ul style="list-style-type: none"> DCI NICTA 	-	-
ACT6.3	Establish a common definition of ICT literacy levels in PNG	-	Within three months of commencement	<ul style="list-style-type: none"> DCI NICTA 	-	-
KPI6.4	Deliver basic ICT skills training to users of internet access points	80% of users	Within [insert] months	<ul style="list-style-type: none"> NICTA 	[To be confirmed]	<ul style="list-style-type: none"> Service providers

ID	KPI or action	Target**	Target completion	Implementation agency	Baseline	Data source
KPI16.5	Level of basic ICT literacy among internet access point users	100% of users	Within [insert] months	<ul style="list-style-type: none"> Service providers NICTA Service providers 	[To be confirmed]	<ul style="list-style-type: none"> Questionnaire provided to internet access point users
KPI16.6	Share of locally developed content accessed at local access centres	20%	Within [insert] months	<ul style="list-style-type: none"> NICTA Service providers 	[To be confirmed]	<ul style="list-style-type: none"> NICTA Service providers
OBJ7: Decreased retail costs of phone and internet services for consumers						
KPI17.1	Cost of mobile voice services	[To be confirmed]	Within [insert] months	<ul style="list-style-type: none"> NICTA Mobile operators 	[To be confirmed]	<ul style="list-style-type: none"> NICTA Mobile operators
KPI17.2	Cost of mobile internet services	[To be confirmed]	Within [insert] months	<ul style="list-style-type: none"> NICTA Mobile operators 	[To be confirmed]	<ul style="list-style-type: none"> NICTA Mobile operators
KPI17.3	Cost of internet access at internet access point	[To be confirmed]	Within [insert] months	<ul style="list-style-type: none"> NICTA Mobile operators 	[To be confirmed]	<ul style="list-style-type: none"> NICTA Mobile operators

* Data for KPIs taken from the *Rural Telecommunication Project Operations Manual v5.6* as provided by the DCI.

** Targets should be set based on a benchmark of the impact of previous policy interventions, combined with the government's desired outcome

Annex C ICT within the development strategies of PNG

The government of PNG has published strategy documents outlining its short-, medium- and long-term development objective for PNG. These strategies outline growth and development priorities for a range of sectors, aiming to develop PNG into a “*smart, fair, wise, healthy and happy nation*”. The documents recognise the role of ICT in driving economic development, and the potential role of ICT in other sectors of the economy such as healthcare and education. The references to ICT are, however, at a high level, and it is recommended that the next Medium-Term Development Plan (for 2018 onwards) places a greater priority on driving development through effective ICT policy.

The following sections presents a summary of the role of ICT as envisaged in the PNG development strategies:

- **Section C.1** outlines ICT within the PNG Vision 2010-2050
- **Section C.2** outlines ICT within the PNG Strategic Development Plan
- **Section C.3** outlines ICT within the Medium-Term Development Plan 2
- **Section C.4C.3** outlines the National ICT policy objectives
- **Section C.5** outlines ICT within the Alotau II accord

C.1 Papua New Guinea Vision 2010-2050 (“Vision”)

The long-term development goals for PNG are outlined in the Papua New Guinea Vision 2010–2050. The vision does not have an explicit focus on ICT as an economic sector, but it does make two references to ICT as a tool to drive growth and development:

- *Objective 1.17.2.19* – Promote and establish the use of Information and Communications Technology (ICT) for sustainable education
- *Section 20.12* – Oceans and Coastal Environments – The implementation of information communication technology (ICT) infrastructure would contribute significantly to developing vital facilities for the coastal communities.

C.2 Papua New Guinea Development Strategic Plan 2010–2030 (“Strategic Plan”)

In 2010, the Department of National Planning and Monitoring released the Papua New Guinea Development Strategic Plan 2010–2030. The Strategic Plan outlines steps to begin achieving PNG’s long-term vision and aims to shape government policy making.

Within the Strategic Plan, there is a section dedicated to development of the ICT sector. ICT is also discussed as part of the development goals for two other sectors. These three references to ICT are summarised below.

► *Section 4.10 – Information and communication technology*

Goal – A modern and affordable information and communications technology that reaches all parts of the country

Figure C.1 summaries the key indicators related to ICT defined within Section 4.10 of the Strategic Plan.

Figure C.1: Key areas from Papua New Guinea Development Strategic Plan 2010–2030 [Source: Government of Papua New Guinea, 2010]

Key indicators	Baseline Information	Issues	2030 target/objective
Access to a telephone	150 mobile subscribers per 1000 people	Mobile phone technology is superseding the land-line network and within a very short period of time has connected over 1 million subscribers. This has had a very positive effect on the economy and on welfare	800 mobile subscribers per 1000 people
Access to the internet	2.3% of the population use internet	Access to quality internet services is very low and this limits access to information, financial services, business and education. Providing internet access to the rural population is necessary to spur development	70% of people use the internet
Media coverage	55% access radio; 26% access television	Many rural areas do not have media access and poor literacy levels further constrain access to information through the print media. Media access is vital to ensure the population is kept informed	100% access to radio and television

► *Section 4.3 – Health*

Within the section covering the development of the health sector in PNG, the Strategic Plan discusses the use of ICT to help drive improvements:

“The introduction and improvement of medical technologies, information and communication technologies (ICT) including tele-health and medical laboratories, both diagnostic and research, are all necessary”.

► *Section 4.4 – Primary and secondary education*

Within the section covering the development of primary and secondary education in PNG, the Strategic Plan briefly discusses the use of ICT to drive improvements in the education sector:

“At the same time, students will need access to libraries, to the internet and to other information and computing technology (ICT) resources in order to achieve a quality standard of education”.

C.3 Medium-Term Development Plan 2 (2016–2017)

The Medium-Term Development Plan 2 (MTDP2) was released in March 2015 by the Department of National Planning and Monitoring. MTDP2 outlines the priorities of the government over a two-year period, and links these priorities to the overall development principles in the 2050 Vision.

Section 3.4 – Information Communication Technology

The stated goal in the MTDP2 is to improve, expand and increase access to an affordable ICT network through the development of ICT infrastructure in the public and private sector. The MTDP2 outlines key indicators, with baseline values and targets, summarised in Figure C.2 below.

Figure C.2: Key indicators and targets for ICT in the MTDP2 [Source: Government of Papua New Guinea, 2015]

Indicators	Baseline value	Baseline year	2017 target
Proportion of population with access to a mobile phone (subscribers per 100 people)	35%	2013	50%
Proportion of population covered by at least a 3G network (proxy to internet coverage)	30%	2013	40%
Proportion of people with access to internet (mobile & fixed broadband)	15%	2013	25%

ICT is not integrated with any other policy areas or goals in the MTDP2.

C.4 The National ICT Policy objectives

In 2008, the DCI released the PNG National ICT Policy 2008 (NICTP 2008), revising the previous National ICT Policy 2007. The NICTP 2008 focused on introducing full market competition and outlined seven key objectives for government ICT policy:

- Secure the social and economic benefits of an efficient ICT sector
- Develop an efficient ICT infrastructure as the backbone of ICT policy
- Substantially increase access to basic telecoms service at affordable prices across PNG
- Transform Telikom PNG into an efficient operator
- Deliver effective and sustainable competition in the ICT market
- Improve international capacity and connectivity
- Secure the benefits that follow from increased availability and use of the internet.

The NICTP 2008 outlines an approach for implementing reforms and achieving these objectives through a mix of market reforms, regulatory initiatives and a universal access scheme.

C.5 The Alotau II Accord (“the Accord”)

The Alotau II Accord¹⁹ outlines the priorities of the new coalition government in Papua New Guinea. The Accord is focused on driving economic growth and building a prosperous country with universal education and healthcare. Within the Accord, there are four references to ICT related projects, these are summarised in Figure C.3 below.

Figure C.3: Summary of digital projects with the Alotau II Accord [Source: The Government of PNG, 2017]

No.	Sector priority	Deliverable	Agency responsible
22	Land mobilisation	Continue to digitise all land assets and ensure accuracy of titles and lease status	Department of Lands & Physical Planning
31	Efficient planning and management of the economy	Establish a National Data Collection Centre for planning and policy development	Department of National Planning and Monitoring
75	Communication	Complete the NBN and Terrestrial network upgrade (submarine cable bandwidth) to improve rural communication and enhance accessibility to internet systems	Department of Information and Communication
76	Communication	Encourage e-commerce, e-health, e-education and e-agriculture with a view to embracing Smart-Government concept	All agencies

¹⁹ As provided by the DCI on 08.10.2017

Annex D Useful tools in policy making, monitoring and evaluation

This Section contains tools that may be useful to the DCI during the implementation policy-making and monitoring and evaluation frameworks:

- Section D.1 considers forward planning
- Section D.2 considers annual plans
- Section D.3 contains a case study on consultation principles
- Section D.4 contains a case study on designing KPIs
- Section D.5 considers SWOT analyses
- Section D.6 considers RAG assessments

D.1 Forward planning

A policy maker requires strong and reliable evidence as the basis for its planning, as well as a wide-ranging awareness of relevant existing policies and their impacts. Forward planning allows a policy maker to explore the potential impacts of a proposed policy solution as part of an impact assessment.

It should also be recognised that other key stakeholders, such as other government departments or major players in the ICT industry, require time to perform their own forward planning as part of the stakeholder consultation. The EC has suggested that, provided the following elements are in place, the business community is mostly able to adapt to major shifts in policy:

- a period of consultation and reflection, to understand the implications for affected parties (usually businesses) and take them on board
- an unambiguous policy, based on a clear statement of intent and unwavering commitment from the public administration
- a “level playing field” to ensure fairness in the policy’s application, including sanctions for non-compliance
- sufficient time to adjust, for example to find technological solutions, adjust business models, access investment finance, develop requisite skills and competencies, etc.

D.2 Annual plan

As part of the DCI’s stakeholder engagement, it should publish an annual work plan outlining the proposed areas of focus for the next 12 months. The work plan should include:

- expected areas of focus for policy development, including a brief explanation of the underlying reasons for the choice of policies and the expected impact
- a summary of the state of each policy in development (for example, using the tool discussed in Section 3.2.7)
- the evaluations the DCI plans to carry out, included expected timelines for publication of reports.

Publishing an annual work plan ensures accountability between the DCI and key stakeholders, giving stakeholders the opportunity to comment on the DCI’s priorities and anticipate developments during preparation of their own business planning. A draft annual plan could be released before the annual town hall meeting, to give stakeholders the opportunity to provide feedback on the DCI’s priorities.

D.3 Consultation principles

*Case study: Ofcom's consultation principles*²⁰

Ofcom has identified seven principles that it follows for all public written consultations:

Before the consultation

- Ofcom aims to hold informal discussions, where possible, with stakeholders to investigate whether their proposals are “along the right lines”. If this is not possible, Ofcom will instead hold an open meeting shortly after announcing the consultation.

During the consultation

- Ofcom makes clear who they are consulting with, why, what the question are and for how long.
- Ofcom aims to make the consultation document as clear and concise as possible, with a short summary (no more than two pages) at the start.
- Ofcom will consult for up to ten weeks, depending on the potential impact of the proposals.
- A member of Ofcom staff is responsible for ensuring Ofcom follows their own consultation guidelines, for promoting the consultation to the widest possible audience, and for receiving comments from stakeholders on the running of the consultation process.
- Ofcom will explain the reasoning if any of these principles are not followed.

After the consultation

- Ofcom publishes all responses once they are received (with any confidential information redacted), and after the consultation is over it publishes a statement explain their next steps and how the respondents' views helped shape the policy-making process.
-

²⁰ See <https://www.ofcom.org.uk/consultations-and-statements/how-will-ofcom-consult>

D.4 Designing KPIs

*Case study: The EC's approach to designing KPIs*⁷

The EC provides a series of questions to consider when developing KPIs:

- 1 Does the indicator reflect accurately the objective?
 - Does it capture what we are trying to do and achieve?

 - 3 Is the information available?
 - We can try and design the 'perfect' indicator, but can it be measured?
 - Is the cost of gathering information manageable?
 - Does a baseline exist, or is it too late to gather the information to make one?
 - If it is a qualitative indicator, how can we compare it over time or with our peers' performance?
 - Are we falling into the trap of designing indicators around the available data – only measuring the measurable?

 - 4 Is the situation too complex to 'collapse' it into an indicator?
 - Will it give us a false impression of our performance?
 - Or worse still, by simplifying a complex situation in an indicator, will it push us to emphasise certain elements at the expense of others, potentially contributing to 'bad policy'?

 - 5 Does the indicator really tell us what we think it tells us?
 - For example, if the indicator is 'number of complaints', does an increase mean that the service is performing worse than before, or that the institution has been successful in becoming more open and welcoming feedback?
 - In the example, is 'number' the best choice of metric – what does it tell you, if the number of service users is also going up, should it be 'percentage' instead and does that tell you much more?

 - 6 Does measuring performance create its own incentives?
 - Will the presence of an indicator by itself change behaviour: in either a good way (focus implementers on what is most important) or a bad way (concentrate on doing only enough to satisfy the indicator)?
-

D.5 SWOT analyses

A strengths, weaknesses, opportunities and threats (SWOT) analysis is a tool used to aid decision making and options analysis by identifying factors that may impact a project or policy. Strengths and weaknesses are internal factors, whilst opportunities and threats are external factors:

- **Strengths** – organisational characteristics that give an advantage or are helpful for the project
- **Weaknesses** – organisational characteristics that give a disadvantage or a risk to the project
- **Opportunities** – environmental factors that may be helpful to the project
- **Threats** – environmental factors that may be a risk to the project.

A SWOT analysis consists of a 2×2 grid, allowing visual representation of the potential favourable and unfavourable factors for a project and aiding in identification of key dependencies and critical risks (see Figure D.4).

	Helpful	Harmful
Internal	Strengths	Weaknesses
External	Opportunities	Threats

Figure D.4: SWOT analysis [Source: Analysys Mason, 2017]

D.6 RAG assessments

A red, amber, green (RAG) assessment is a simple tool used to visually represent the status of different aspects of a project or policy. Figure D.5 provides an explanation of each rating.

Figure D.5: Summary of RAG assessment [Source: Analysys Mason, 2017]

Status	Details	Actions
Green	<ul style="list-style-type: none"> On track for successful delivery Meeting all KPIs 	<ul style="list-style-type: none"> None required
Amber	<ul style="list-style-type: none"> Some concerns Not all KPIs being met Potential for delays or cost overruns 	<ul style="list-style-type: none"> Action potentially required to meet objectives Further monitoring needed
Red	<ul style="list-style-type: none"> Major issues with delivery Strong likelihood of delays or cost overruns 	<ul style="list-style-type: none"> Action required to meet objectives May require changes to implementation plan or reduction in scope

Each aspect or workstream is assigned a rating, and the ratings can then be combined to produce an overall “dashboard” outlining the status of a policy or project (see Figure D.6). If an implementation process is going well, most ratings would be expected to be green or amber. The larger the number of red ratings, the more issues with the overall delivery of the project.

Figure D.6: Illustrative example of a RAG dashboard for the Internet & Email policy [Source: Analysys Mason, 2017]

ID	Objective	KPIs met*	KPIs met (%)*	RAG
OBJ1	The GNDC will become the main platform hosting non-confidential government services	4	57%	Amber
OBJ2	To provide guidelines to GoPNG departments, Line Agencies, and users on the use of electronic communications for exchange of unclassified official correspondence in a controlled and efficient manner	3	50%	Amber
OBJ3	To illustrate essential hardware and software required to establish an internet infrastructure and email exchange	7	100%	Green
OBJ4	To lay down security parameters for access to and use of internet and email	3	60%	Amber
OBJ5	To institute a system of periodic technical audit to assist GoPNG organisations to establish and maintain a secure and reliable data network environment	0	0%	Red
OBJ6	To provide broad guidelines on creating GoPNG security standards to ensure IGIS*net and system security	3	50%	Amber

* Illustrative data.



Department of Communication & Information
PO Box 85, Waigani, NCD

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