A FRAMEWORK FOR
Information and Communications Technology Policy Reviews

Helping Countries Leverage
ICT for Development

UNITED NATIONS

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PREFACE

Recognizing the growing importance of information and communications technologies (ICTs) to economic and social development, many Governments have elaborated comprehensive, forward-looking and sustainable national ICT strategies. Regular reviews of ICT policy plans, involving different stakeholders, are important. At the same time, assessing the impact of policy measures and sector-specific interventions is a challenging task.

Many developing countries have not yet defined, as part of their ICT plans, mechanisms for ongoing policy review, assessment and monitoring to ensure that evolving ICT strategies are consistent with their development goals and to maximize the positive contributions of investment in ICT. Understanding past developments is important in formulating new and targeted policy proposals that can support and accelerate ICT penetration within Government, businesses and the society at large.

To assist government officials in realizing this process, this publication builds on UNCTAD's longstanding work on ICT policies and on ICT measurement for economic development and trade. It identifies key challenges and solutions in relation to the strategic review of ICT policy plans including leadership, implementation mechanisms, monitoring and review, coordination, institutional framework and the roles of each stakeholder. The publication proposes a model policy review framework and presents a pragmatic toolbox for government policymakers. The core aim of the ICT Policy Reviews (ICTPRs) is to assess the implementation of national ICT strategies by examining how ICT and e-business development issues have been operationalized in development strategies and to identify policies, programmes and implementation mechanisms favouring the development of the information economy.

UNCTAD carried out its first ICTPR from 2009 to 2010 at the request of the Ministry of Communications and Information Technology (MCIT) of Egypt. This publication seeks to explain how other Governments could benefit by undertaking a similar exercise. Several Governments of developing countries have expressed their interest in benefiting from UNCTAD assistance in this area. This publication intends to provide them with guidance on carrying out such reviews.

CONTENTS

INTRODUCTION

A. BACKGROUND AND PURPOSE OF AN ICTPR

Information and communication technologies (ICTs) are increasingly widespread in the world and are fast becoming the basis of economic development. The international community early on recognized their potential benefits and encouraged Governments "to elaborate, as appropriate, comprehensive, forward-looking and sustainable national e-strategies, including ICT strategies and sectoral e-strategies as appropriate, as an integral part of national development plans and poverty reduction strategies, as soon as possible and before 2010". A large number of developing countries have put in place one or several national ICT plans or are in the process of incorporating relevant policies and strategies into their national development plans.

 While the key elements of an integrated national ICT policy framework are now well known, their implementation at country level is still often inadequate. This partly reflects the absence of a coordinated national response and regular review of their effectiveness. Yet, beyond the recognition of the positive impact of ICT on economic growth and the definition of ICT strategies, consideration needs to be given to how ICTs can be effectively used by Governments and enterprises to foster economic growth and other relevant objectives.

Regular reviews of ICT policy plans, involving different stakeholders, are important in that context. Failure to take early steps to monitor the implementation of ICT policy measures can delay ICT development and restrict future policy measures. Many developing countries have not yet defined, as part of their ICT plans, mechanisms for ongoing policy review, assessment and monitoring to ensure that evolving ICT strategies are consistent with their development goals and to maximize the positive contributions of investment in ICTs.

Assessing the impact of policy measures and sector-specific interventions is a challenging task. With a view to helping developing countries in this area, UNCTAD has developed a model framework, which draws on UNCTAD's ongoing work on ICT policies and on ICT measurement for economic development and trade. The core aim of UNCTAD's ICT policy reviews (ICTPRs) is to assess the implementation of national ICT master plans by examining how ICT and e-business development issues have been operationalized in country development strategies and to identify policies, programmes and implementation mechanisms favouring the development of the information economy.

The ICTPR model framework focuses on the assessment of three main components (figure 1):

- The general economic environment and ICT diffusion (the ICT environment);
- Key policy components of the national ICT master plan and their implementation (the ICT policy framework);
- The institutional framework, implementation mechanisms and the roles of the relevant stakeholders (the implementation and institutional framework.

By undertaking an ICTPR, policymakers are able to:

- Quantify the main achievements regarding the implementation of ICT policy measures as foreseen in the national ICT plan(s);
- Identify critical success factors, best practices and conditions, as well as reasons for failure to be able to adjust and reform ICT policies;
- Compare and contrast achievements and successes and failures with other jurisdictions;
- Formulate new and targeted policy decisions to support and accelerate ICT penetration with Government, businesses and the society.

B. OBJECTIVE AND CONTENT OF THE FRAMEWORK

This publication provides a generic framework, based on the model framework developed by UNCTAD, that can be tailored to fit each ICTPR based on in-depth consultations with the beneficiary Government and its priorities. It provides practical guidance on how to carry out a review step-by-step.

The framework offers a set of flexible instructions that can be used to plan the review of national ICT plans and related policy measures and initiatives, and to help organize and facilitate the process. It describes the various phases and tasks that should be completed by various stakeholders (see section C). It provides a generic structure of key policy elements of national master plans. Each national review

must, however, be adapted and tailored to reflect the policy elements and priorities of the country concerned.

The framework also includes basic tools for information collection such as model questions and questionnaires. Basic approaches and guidelines are provided to develop impact indicators and evaluation tools.

There are three sections which correspond to the key elements of the UNCTAD ICTPR model framework and to the different stages of the review and cover how to:
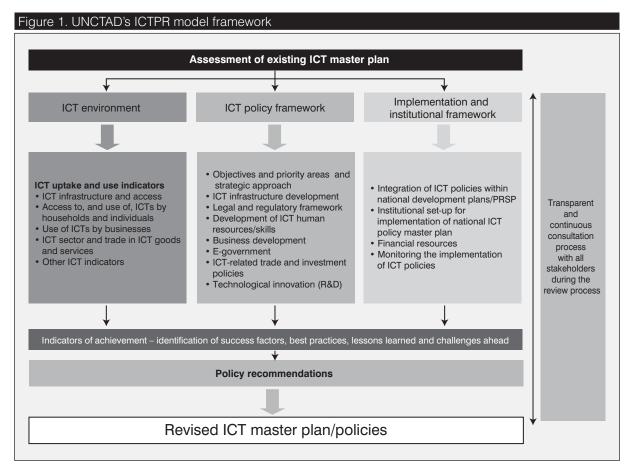
• Prepare the ground for the review (Phase I);

• Conduct the review of (a) the general economic environment and ICT diffusion, (b) the key policy components of the national ICT master plan and their implementation level and (c) the institutional framework, implementation mechanisms and the roles of relevant stakeholders (Phase II);

• Finalize the review and disseminate its findings and policy recommendations (Phase III).

C. TARGET AUDIENCE/USERS OF THE FRAMEWORK

The target audience of this publication encompasses different groups of stakeholders who will take part in the review process:

(a) The first group comprises a team of international experts in charge of coordinating and undertaking the review, called "the ICT policy experts". While the independent management of the review process is essential to ensure credibility, the ICT policy experts will need to work in close cooperation with national authorities.

(b) In carrying out the review, the ICT policy experts will receive support from the national authority which has requested the review (referred to as the "requesting ministry" in this publication). One

Figure 1. UNCTAD's ICTPR model framework

Source: UNCTAD.

or several national coordinators (in the ministries associated with the review) will be appointed to assist the ICT policy experts. The Government may wish to set up a coordination group which will be composed of stakeholders working in the ministries concerned with the review and who can help plan and coordinate the various activities of the review process.(

c) The third group includes stakeholders who will provide substantive information to prepare the review and who will be consulted during the review process. They include in particular, policymakers in different ministries involved in preparing, monitoring and evaluating ICT policies, such as those responsible for ICT, trade, statistics, finance, telecommunications, education and justice as well as business organizations, academia and civil society.

PHASE 1: PREPARING THE GROUND FOR THE REVIEW

> **MAIN TASK:**
>
> To identify the ICT policies to be reviewed, agree on priorities and define the review process based on in-depth consultations with the Government and as well as other relevant stakeholders.
>
> **TIME FRAME:** 8 weeks.

This preparatory phase aims at setting up the process for conducting the review, including the determination of the focus of the review and the identification of national counterparts and their contributions to the review process and, if appropriate, counterparts in other regional or international organizations.

The following parts of this section will consider the need to:
• Define the objective of the review, delimit its scope and identify the policies which will be reviewed;
• Identify the stakeholders who will assist in the review process;
• Specify the role of key stakeholders.

A. STEP 1.1. DEFINING THE OBJECTIVE AND THE SCOPE OF THE REVIEW

The main purpose of this first phase is to define the objective of the review, delimit its scope and select the policies to be reviewed. ICT master plans may cover many areas that go beyond the focus of an ICTPR. The review methodology encompasses policies related to the information economy, including the overall business and economic environment, enterprise development and the development of the ICT sector. Emphasis is placed on the review of ICT policy actions that have been undertaken to promote economic growth, trade, innovation and development and ICT adoption by the business sector.

To facilitate the launch of the review, a fact-finding mission (5 days) will be carried out at the outset of the review process by the ICT policy experts, in cooperation with national counterparts.

In preparation for the mission, the following actions are recommended for different stakeholders.

(a) The requesting ministry should:
• Send relevant background information to the ICT policy experts and UNCTAD;
• Identify existing studies, reports and indicators that can be used to assess the level of implementation of policy measures;
• Appoint a national coordinator who will actively participate in and represent the Government during the course of the project;
• State issues and concerns that need to be considered by the ICT policy experts;
• Delimit the focus of the review and propose if possible a list of priority policy measures to be reviewed;
• Identify relevant stakeholders responsible for the implementation of the selected policy measures and who should be consulted;
• Organize and take part in the meetings for the mission.

In order to inform relevant stakeholders about the review and discuss priorities, constraints and issues at stake, the requesting ministry should organize meetings with representatives from the Government, industry, academia and NGOs. The meetings could take the form of multi-stakeholders meetings or separate meetings for the public sector, the private sector and civil society, respectively.

Potential stakeholders include:

- The requesting ministry
- Other relevant ministries, such as ministries in the following areas:
  - Trade
  - State for economic development
  - Finance
  - Investment
  - International cooperation
  - Tourism
  - Education, higher education and research, etc.
  - Communications, telecommunications, ICT
  - Energy
- National statistical office
- Other public corporations, including national telecommunications services providers, utility companies, etc.
- Agencies and actors responsible for e-government strategies, plans and initiatives including in particular e-procurement
- Investment and trade promotion agencies
- Academia and research institutions
- Relevant representatives of the private sector, business associations, consumer groups, technology and business parks, credit bureaus, business start-ups and incubators, venture capitalists, etc.
- United Nations Development Programme, United Nations regional commission, World Bank, ITU, regional banks, major bilateral donors (United States Agency for International Development, the European Union, etc.) and other international partners (WTO, International Chamber of Commerce, GSMA, etc.)

(b) The ICT policy experts and UNCTAD should:

- Analyse the current ICT master plan and relevant national development plans and policies, especially those focused on promoting economic development, competitiveness, trade and trade integration, research, development, entrepreneurship and innovation and related issues;
- Make an inventory of the overall objectives of the ICT master plans;
- Prepare a tentative list of key policy areas/components and policy measures of the most recent national ICT master plan to be reviewed (based on suggestions by the requesting ministry if any);

- Identify funding mechanisms and options including the use of public–private partnerships (PPPs), foreign direct investment (FDI), venture capital, etc.;
- Prepare interview questionnaires and survey methodologies for the fact-finding mission.

During the fact-finding mission, the mission team (ICT policy experts/UNCTAD) in cooperation with the requesting ministry and the national coordinator will take stock of relevant ICT policies, of the institutional framework to implement the ICT plan and the bodies involved. In this context they will:

- Discuss the focus of the ICTPR
- Select policy components/measures related to ICT and economic development, including pro-poor policy programmes, to be reviewed
- Conduct interviews for preliminary information collection with the interview questionnaire that has been prepared with key stakeholders. Round table discussions involving many stakeholders can be an effective ways to engage quickly with many people. Key stakeholders include, in particular, policymakers in different ministries involved in preparing, monitoring and evaluating ICT policies as well as representatives of business organizations, academia and civil society. These different stakeholders will provide substantive information to prepare the review and will be consulted throughout the review process. During the first mission, stakeholders are invited to share with the UNCTAD team their overall assessment regarding the successful implementation of certain policies/initiatives, as well as bottlenecks they may have encountered or may foresee. In the following phases of the project, stakeholders will be requested to provide more information with regard to the results achieved.

(c) Key stakeholders. For each policy area/policy initiative that will be examined, stakeholders should try to:

- Identify among selected policy measures which ones in their field of work have been implemented or are currently being implemented since the ICT plan was adopted;
- Inform if the policies have been integrated into national development plans and pro-poor policy programmes;

- Provide information on the level of implementation of those policies using available indicators and collected information;

- Assist in analysing the impact of policy measures;

- Inform on how these policies are financed;

- Identify the reasons why a policy measure has not yet been implemented (challenges, bottlenecks, changing economic and development priorities and circumstances, etc.);

- Propose policy formulations based on the findings of the review in their field of work;

- Provide information regarding current institutional and implementation mechanisms;

- Contribute to define future assessment mechanisms.

After the fact-finding mission, the requesting ministry should finalize the list of policy measures selected for the review (within one month following the fact-finding mission). The ICT policy experts should prepare a report summarizing the findings of the mission, including a summary of the objectives of the review and the proposed outline and methodology to carry out the review in the next steps based on the schedule prepared by UNCTAD.

B. STEP 1.2. IDENTIFYING STAKEHOLDERS WHO WILL ASSIST IN THE PROCESS AND THEIR ROLES

In the first phase of the review, the ICT policy experts, in cooperation with the national authority, will conduct a stakeholder analysis to identify who could take part in the review and clarify the role of each group of stakeholders. National stakeholders will be invited in the second phase of the review to make proposals regarding their individual contribution. Once the focus of the ICTPR is clearly defined, national counterparts and their contributions will be easier to identify.

The role of national authorities is key in the process. A coherent and coordinated approach among the various institutions associated with the review will also be essential. Stakeholders must be continuously involved and informed through regular consultations.

OUTPUTS PHASE I

Expected outputs at the end of Phase 1:

- Agreement on policy objectives and related measures to be assessed.

- List of the counterparts who should be associated to the review and the definition of their contributions.

- Background information sources identified.

- Available indicators and data to assess the level of implementation of ICT policies collected and the system of collection of background information defined.

- Mechanisms necessary to keep stakeholders involved/informed defined.

- Definition of the process of carrying out the ICTPR (agreement on timelines and methodology during Phase 2).

PHASE 2: CARRYING OUT THE REVIEW

MAIN TASK:

To carry out the review of the policy objectives and related measures as agreed in Phase I.

TIME FRAME: 6–8 weeks.

This chapter (and the related annexes) presents the methodology and how to conduct the review step-by-step. It also provides guidance on the different policy components to be reviewed.

During this phase, the following activities are envisaged as reflected in the schedule of activities in annex III.

- Organization of one or two field missions (a total of 40 days) by the ICT policy experts and UNCTAD staff to carry out an evaluation of the national ICT plan. During the missions, the ICT policy experts will conduct structured interviews with relevant stakeholders, as identified during Phase I, and collect data. They will discuss with the national coordinator modalities for carrying out inventories,

administering questionnaires and processing the information collected in the most efficient way.

- The ICT policy experts will analyse the data and information collected with a view to preparing the first draft. The draft will include the mapping and analysis of existing initiatives – what exists in ICT plans, poverty reduction strategy papers (PRSPs) and national sectoral strategies.
- The first draft of the review is submitted to UNCTAD.
- UNCTAD reviews the first draft and submits the second draft to MCIT.
- The requesting ministry sends comments to UNCTAD.
- The third draft is presented at a national multi-stakeholder workshop for discussion and comments are submitted to UNCTAD.
- Finalization of the review.
- Peer review.

In assessing ICT policies, the ICT policy experts will:

- Identify what policy measures have been implemented since the most recent ICT plan was adopted and assess their effectiveness using available indicators and collected information;
- Note how these policies are financed (this also indicates the priority the country attaches to the realization of the policy objective related to the measures being reviewed);
- If a policy measure has not yet been implemented, identify the reasons why (challenges, bottlenecks);
- Propose policy recommendations to help with delivery or modify the policy plans.

The objective of the ICTPR is to review the impact of ICT policy measures on the economy as well as to discuss the value of integrating ICTs as an instrument within broader national development processes (e.g. PRSPs) and to assess the extent to which national ICT plans have contributed to the country's overall development plan and strategy.

Depending on the key policy components of a country's ICT master plan and the priorities of the requesting ministry in the preparation of the next strategy, the UNCTAD ICTPR will adapt the content of the ICTPR on the basis of the following broad review outline.

REVIEW OUTLINE

EXECUTIVE SUMMARY

CHAPTER I:
INTRODUCTION
    1. Background information on the national ICT policies and objectives
    2. Overview of the country's social and economic setting
    3. Assessment of ICT policy framework

CHAPTER II:
ASSESSMENT OF INFRASTRUCTURE DEVELOPMENT
A. Main achievements
    1. Deregulation of the telecommunications sector
    2. Broadband development
    3. Mobile and Internet uptake
    4. Introduction of converged services
B. Challenges
C. Recommendations

CHAPTER III:
ASSESSMENT OF SKILLS DEVELOPMENT FOR THE ICT SECTOR
A. Main achievements
B. Challenges
C. Recommendations

CHAPTER IV:
ASSESSMENT OF ICT USE IN THE EDUCATION SYSTEM
A. Main achievements
B. Challenges
C. Recommendations

CHAPTER V:
PROMOTION OF THE ICT SECTOR
(E-procurement, software development, IT parks, etc.)
A. Main achievements
B. Challenges
C. Recommendations

CHAPTER VI:
E-CONTENT DEVELOPMENT
A. Main achievements
B. Challenges
C. Recommendations

CHAPTER VII:
SUMMARY AND MAIN RECOMMENDATIONS

DATA ANNEXES

The review will include the key findings, as well as strengths and weaknesses, regarding the implementation of the ICT plan and institutional issues. It will provide best practice examples from other countries in relevant areas, as appropriate, and recommendations for policy adjustments and will propose indicators of achievement for a revised national ICT master plan.

The review will contribute to generating guidelines based on best practices and shared experience. It will help policymakers put in place or reinforce monitoring methods.

A. STEP 2.1 REVIEWING THE GENERAL ECONOMIC ENVIRONMENT AND ICT DIFFUSION

Based on the proposed outline, the introduction of the ICTPR first presents the objectives of the country's ICT policy against the backdrop of the economic, demographic and social environment in the country. It points out factors that can affect the implementation of national ICT policies. For subsequent sections (2 and 3) and where appropriate, international comparisons and benchmarking will be made to place the country within an international context using comparable statistics where possible as well as national statistics.

1. Background information on the national ICT policy process

MAIN TASK:

To inform about the current ICT-related policy objectives, plans and strategies and the different phases of the ICT policy process. The section presents in detail the precise scope/focus of the review.

This part is based on the findings of the preparatory phase regarding the national ICT development strategy of the country under review. It provides background information about the ICT policy development process in the country. It summarizes the different plans and informs on the scope and objectives of the review as agreed in Phase I.

2. Overview of the country's social and economic setting

MAIN TASK:

To present the overall context in which the information economy is evolving.

The purpose of this short overview is to present the overall context in which the information economy in the country is evolving. It presents the ICT policy against the backdrop of the economic, demographic and social environment in the country. It points out factors that can affect the implementation of the national ICT policies and, where possible, provides a short overview of the major national economic and social key indicators at the time of the preparation of the ICT master plan and at the time of the review. Available statistical data from government sources and international institutions could allow for an assessment of the country's social and economic setting.

3. Overview of ICT uptake and diffusion

MAIN TASK:

To provide a snapshot of the ICT environment of the country, identify strengths and weaknesses of the policy action in the various components and identify policy implications.

This part of the review provides an overview of a country's ICT uptake focusing on the status of ICT penetration and usage for different economic actors (industry sectors, companies and households) before and after the implementation of the ICT plans. It summarizes ICT uptake and informs on the extent to which ICTs are available and used in the country since the implementation of ICT policies. ICT uptake and diffusion will be analysed further in the following section dedicated to the assessment of the ICT policy framework.

B. STEP 2.2. REVIEWING THE KEY POLICY COMPONENTS OF THE NATIONAL ICT MASTER PLAN AND THEIR IMPLEMENTATION

MAIN TASK:

To assess the ICT policy framework, identify which policies have been implemented and assess their effectiveness, identify strengths and weaknesses of the policy action in the various components and identify policy implications and formulate recommendations.

This is the main phase of the ICTPR. Based on the work carried out by the ICT policy experts and the requesting ministry in Phase I, the scope and objectives of the review have been defined. The ICT policy experts will review the selected policy measures of the national ICT master plans, as decided in Phase I.

The ICT policy experts can use the matrix as presented in table 1, which includes the policy objectives and priority areas defined in the national ICT plan, the related policy measures for each component, the time frame, the level of implementation, the financial resources allocated and suggested indicators. The ICT policy experts can divide policy actions based on time frames of varying lengths (short, medium and long term). The ICT policy experts will summarize the findings and formulate policy recommendations.

If the ICT plan includes measurable targets, the ICT policy experts will try to assess the level of implementation of policy measures and changes that have occurred over the years as a result of these policies. They will examine the links between the policies and the performance of specific sectors, such as telecommunications, and appraise the development of the information economy. If no target was defined, the ICT policy experts will have to estimate the level of implementation of the policies and suggest relevant indicators. Some indicators are proposed in this publication.

The ICT policy experts will prepare, organize and conduct structured interviews with relevant departments of government ministries and other relevant stakeholders in e.g. telecommunications, communications, education, science and technology, commerce and trade, chambers of commerce, sector associations, finance and other areas.

The ICT policy experts will conclude the review of each policy component by providing recommendations for action, identifying the key implications for policymaking and formulating proposals for policy adjustments.

1. Identifying potential data needs and sources

In reviewing the policies linked to the effective deployment and use of ICTs, the ICT policy experts will liaise with the national statistical office and other relevant national institutions or ministries, as well as telecommunications operators, to collect existing data related to the following areas:

- ICT infrastructure and access
- Access to and use of ICT by households and individuals
- Use of ICT by businesses
- ICT sector and trade in ICT goods and services
- Other information (e.g. related to ICT skills and computer literacy, investment in ICT)

Four sets of internationally agreed upon core ICT indicators (see annex I) are suggested to policymakers as a reference tool to complement the existing methodological framework. The list of indicators needs to be adapted to the particular priorities of each country, depending on its economic and social challenges. The indicators focus on ICT infrastructure, and ICT access and use by businesses, households and individuals, as well as on the ICT sector, trade in ICT goods and services and ICT-related inward FDI. These indicators are used to help policymakers assess the changes that have occurred as a result of policies and plans. Indicators must indicate how ICTs have been used not only as a basic operational tool but also as a communications tool that promotes economic development.

The ICT policy experts will collect available ICT infrastructure and access indicators. They can refer to the set of indicators presented in annex I. The analysis of such data should help in measuring the advancement of, for example, ICT penetration, geographical coverage, quality of services, communication costs and bandwidth availability. Where possible, international comparisons will be made.

The ICT policy experts will look for available data and information on the type of activities carried

Table 1. Matrix to review policy objective and measures

Policy objective	Policy measures	Target and time frame	Financial resources	Level of implementation	Indicators (qualitative and quantitative)	Source of data	Recommendations

out by households to assess the frequency and volume of business-to-consumer e-commerce activities. In order to assess the deployment and use of ICTs by businesses, they will analyse the data collected regarding the proportion of businesses using computers and the Internet, and with a web presence and/or an intranet, and receiving orders over the Internet or placing orders over the Internet.

In addition to the core ICT indicators recommended by the international community as presented in annex 1, the ICT policy experts will identify the existence of other information society indicators, such as ICT skills and computer literacy, the level of investment in ICTs and indicators related to e-government and education, security and trust. The choice of indicators considered in the review is made on a per country basis and reflects the particularities of the country under review.

2. Quality of ICT infrastructure and access

Without an appropriate network infrastructure, there will be little use of ICT by the business community. It is important in this context that ICT services are of good quality, affordable and accessible to enterprises of different sizes and in different parts of the country and consistent with international trends and best practices, especially those of comparator countries. The ICT policy experts will assess the impact of telecommunications sector reforms if any (including liberalization and access costs) to appraise the improvements in access to ICT facilities.

Many developing countries have made the deployment of ICT infrastructure and universal ICT access a top priority in their ICT master plans, as a prerequisite for participating in the information economy. Many of them are starting to collect data on infrastructure and access to ICTs.

3. Business use of ICTs

The ICT policy experts will assess the extent to which enterprises of different size and in different industries are making use of ICTs to support e-business organizational activities and operations. Some countries have designed and are implementing specific policies to increase the diffusion of ICTs in SMEs to encourage their participation in the global economy. The development of e-business is carried out in cooperation with the business sector to identify the needs of SMEs, offer training programmes and

improve their capacity on a continuous basis for use and innovation in the available technologies. The ICT policy experts may examine the policies related to the promotion of the use of ICTs and e-business by enterprises (e-mails, e-business processes, cloud computing, software).

4. ICT usage in Governments

The Government is a key player in the economy. It can set the tone and the stage for ICT adoption and acceptance by adopting e-government practices. The ICT policy experts will examine the extent to which Governments use ICTs and encourage their use in government services and in procurement, and whether a Government's procurement practices support the development of the local IT sector.

5. ICT production and trade

In order to support sustainable use of ICTs by enterprises and in Government, a country needs a vibrant local ICT-producing sector that can provide the goods and services required. Countries may also choose to develop the ICT sector as a way to diversify the economy, generate export revenues, reduce dependence on ICT goods and services imports as well as develop local human capabilities and generate job opportunities in the information economy. The ICT policy experts will consider the ICT sector's share of the total business sector's workforce and value added and its composition.

The ICT policy experts will examine policies related to the following:
- Capacity-building of SMEs in the ICT sector;
- Financing of and investment in SMEs in the ICT sector (venture capital);
- Innovation and research and development in the ICT sector;
- Online e-business sectoral initiatives (e-marketplaces);
- Promotion of ICT-enabled services, such as business process outsourcing;
- Special ICT parks, zones or villages;
- Where appropriate, implementation of WTO agreements including the Agreement on Basic Telecommunications (ABT) and the General Agreement on Trade in Services (GATS) in general as it affects the operation of the ICT and related markets and trade in ICT-related goods and services including e-commerce.

Trade and investment policies also play an important role in helping countries take advantage of the benefits offered by the information economy. ICT goods and services are among the most dynamic in international trade. For developing countries, exports of ICT-enabled services provide new opportunities for economic growth and employment creation, including through the continuous increase of outsourcing. Therefore, the review may analyse developments in imports and exports of ICT goods and ICT-enabled services. It may also examine the extent to which the country has attracted inward FDI into the ICT sector.

This part of the review thus looks at policy measures aimed at:

- Increasing trade in ICT-related goods and services;
- Attracting FDI in ICT-related industries (investment incentives, taxation, regulations).

6. Legal and regulatory framework

An enabling legal and regulatory framework is a key pillar of an information-based economy – and one of the central elements of national ICT plans.

The ICT policy experts will examine policy measures related to the following:

- Telecommunications regulations;
- Investment regulations;
- E-commerce laws (digital signatures, intellectual property laws, e-payments, etc.);
- Cybersecurity (laws and regulations and their implementation, the existence of a Computer Emergency Response Team (CERT);
- Trade policies (e.g. import duties on IT products, status as signatory to the WTO Agreement on Basic Telecommunications and the General Agreement on Trade in Services)

7. Availability of human resources and ICT skills

ICT skills are fundamental for active participation in, and for benefiting fully from, the information economy. Knowledge creation is vital for the production and the use of ICTs. Many countries have introduced ICT training in the public and private sectors, in ministries and related institutions and in schools to increase educational opportunities and augment the supply of ICT graduates.

The ICT policy experts will assess the policy measures aimed at developing:

- ICT skills in primary and secondary schools;
- IT graduates and programmes (universities);
- Training projects to enhance the IT workforce in the business community;
- Incentives for private sector companies to organize/support IT capacity-building;
- Migration of ICT workers.

C. STEP 2.3 REVIEWING THE INSTITUTIONAL FRAMEWORK, IMPLEMENTATION MECHANISMS AND THE ROLES OF DIFFERENT STAKEHOLDERS

> **MAIN TASK:**
>
> Assess the implementation and institutional framework, identify strengths and weaknesses and identify policy implications and propose recommendations.

This part of the ICTPR considers the adequacy of implementation mechanisms and the institutional framework and the extent to which changes have to be made to better implement the policies contained in the current and future ICT master plans.

The focus is on the role of the main bodies that formulate, implement and monitor ICT policies, through the collaboration of all stakeholders in the Government, civil society and also the private sector, with the involvement of the latter encouraging the adoption of ICT policy and the use of new technologies.

The ICT policy experts will assess policy coordination and mechanisms for monitoring and evaluation. The ICT policy experts will organize and conduct structured interviews with relevant government departments and other stakeholders.

1. Integration of ICT policies within national development plans

The ICT policy experts will analyse the link between the national ICT plan and the overall national development and poverty alleviation plans and consider the degree of integration of ICT policies into national development plans and PRSPs.

2. Institutional set-up for implementation mechanisms of the national ICT policy master plan

Implementation mechanisms are a prerequisite for ensuring the efficient execution of a national ICT plan. This part of the review looks at:

• Policy coordination and participating institutions;

• The role of stakeholders and partnerships;

• Implementation mechanisms;

• Challenges and lessons learned.

Examples of the successful formulation and implementation of ICT policies worldwide suggest that a strategic political leadership involvement through the lead of one policymaker at the highest level (President or Prime Minister), an institution or a group of institutions is important.

The following questions can be used in reviewing the implementation and institutional framework:

• How much funding has the Government allocated to this policy measure and spent on its implementation?

• Who are the stakeholders responsible and accountable for the implementation process?

• Have adequate implementation mechanisms been put in place?

• Has any focal point been designated for monitoring and evaluation and are monitoring and evaluating procedures in place?

OUTPUTS PHASE 2

Expected outputs at the end of Phase 2 are the following:

• Implementation of selected policy measures assessed;

• Institutional framework, implementation mechanisms and the roles of each stakeholder assessed;

• Recommendations prepared – first draft shared with the requesting Ministry;

• National consultations held to discuss the ICTPR;

• Completion of the first draft of the ICTPR.

PHASE 3: FINALIZING THE REVIEW AND DISSEMINATING THE RESULTS

MAIN TASK:

To draft the final review, share experience and encourage collaborative learning on policy assessment and policymaking.

TIME FRAME: 2 months

During the last phase, the ICTPR will be finalized by the ICT policy experts and UNCTAD. A workshop will be organized with the participation of the main stakeholders involved in the review to discuss the draft report and the recommendations of appropriate policy options. The feedback of the stakeholders will be reflected in the final report.

A. STEP 3.1 DISSEMINATING THE RESULTS OF THE REVIEW AT THE COUNTRY LEVEL

The outcome of the ICTPR will be shared at the national level. A national workshop will be organized for all relevant stakeholders from the Government as well as academia, civil society and the private sector involved in the development and implementation process of the ICT policy framework.

B. STEP 3.2 DISSEMINATING THE RESULTS OF THE REVIEW AT THE INTERNATIONAL LEVEL

The ICTPR review will be shared within an intergovernmental framework, enabling developing countries to learn from the experiences of each other. The findings of the review will be presented by the UNCTAD secretariat and the country. The objective is to share best practices within UNCTAD's intergovernmental framework.

C. STEP 3.3 THE WAY FORWARD

Follow-up advisory missions to help countries revise the ICT master plan and policies according to the outcome of the ICTPR could be organized.

A further policy review after one or two years (to be defined with the reviewed country) can also be considered, from an ex post (after implementation) to an ex ante review (at the policy formulation stage).

OUTPUTS PHASE 3

Expected outputs at the end of Phase 3 are the following:

• Finalization of the review

• Printing of the review

• Launching of the review – nationally and in Geneva, Switzerland.

ANNEX I

POTENTIAL ROLE OF DIFFERENT STAKEHOLDERS
DURING THE THREE PHASES OF THE REVIEW

Stakeholders	Role in phase I Preparing the ground for the ICTPR	Role in phase II Carrying out the review (ICT environment, ICT policy framework, implementation and institutional framework)	Role in phase III Finalizing the review and presenting its results at the national and international levels	Follow-up Policy formulation and assessment mechanisms
Requesting Ministry (ICT)	- Request UNCTAD to conduct the review - State the objective of the review - Define its scope and priorities - Select the policy measures to be reviewed - Appoint national coordinator - Organize awareness-raising meeting	- UNCTAD's main counterpart - Set up a coordination group with members in the ministries concerned (optional) - Organize a meeting to raise awareness on the ICTPR with staff in the relevant ministries - Provide substantive information - Take part in the analysis of the elements of the review	- Provide comments on the final draft of the ICTPR - Organize national stakeholders consultations on the draft review - Present the results of the ICTPR at the national and international levels	- Formulate policy proposals based on the results and recommendations of the ICTPR
UNCTAD	- Secure financing of the review (in collaboration with requesting country/ agency) - Identify ICT policy experts - Participate in the preparatory mission - Coordinate the review process and ensure its feasibility - Provide international data in relevant areas	- Ensure coordination between the ICT policy experts and the requesting ministry - Provide comments on the draft of the ICTPR	- provide comments to ICT policy experts on the final draft of the ICTPR - Finalize the ICTPR and publish it - Ensure the results are shared at the national, regional and international levels	- Follow-up on the policy formulation process and on the results over time
ICT policy experts	- Identify policy components of the latest national ICT master plan - Prepare a tentative list of key policy areas/components and policy measures to be reviewed for discussion during the preparatory mission with the requesting ministry - Participate in the preparatory mission	- Organize and conduct structured interviews with relevant departments of government ministries and other relevant stakeholders - Collect and analyse data and information - Assess the level of implementation of policy measures and changes that have occurred over the years as a result of these policies - Examine the links between the policies and the performance of specific sectors - Identify best practices and bottlenecks - Adapt the draft in light of comments by UNCTAD	- Conclude the review of each policy component by providing recommendations for action, identifying the key implications for policymaking and formulating proposals for policy adjustments	- Provide feedback to policymakers on the policies and measures they would like to put in place

Stakeholders	Role in phase I	Role in phase II	Role in phase III	Follow-up
	Preparing the ground for the ICTPR	**Carrying out the review** (ICT environment, ICT policy framework, implementation and institutional framework)	**Finalizing the review and presenting its results at the national and international levels**	**Policy formulation and assessment mechanisms**
National coordinator	- Provide background information to the ICT policy experts before the first mission (ICT plans, data already available) - Prepare and participate in preparatory meetings with the ICT policy experts and the ICT ministry - Prepare an initial list of projects and measures - Prepare a list of staff associated in the relevant ministries for each policy measure to be reviewed - Provide a national perspective	- Consolidate the list of national counterparts to be associated with the process - Participate in review interviews carried out by the ICT policy experts - Help facilitate and coordinate the review process, ensuring communications among national counterparts (by organizing meetings with stakeholders at key stages of the review) - Facilitate information collection and work with stakeholders across identified ministries - Carry out inventories and administer questionnaires - Provide collected and processed information to ICT policy experts	- Contribute to the organization of the national stakeholders' round table where the ICTPR will be presented	
Other ministries	- Participate in awareness raising meeting to be informed of the possible contribution of ministries in the first stage of the review and at key stages of the review	- Identify policy measures to be reviewed in their own field of work - Respond to interviews - Provide background information and indicators, if available - Assist in analysing the impact of policy measures	- Provide comments on the outcome of the review at the stakeholders' round table - Propose areas where adjustments in policy formulation is needed	- Make proposals for policy formulation based on the findings of the review in their field of work - Put in place future assessment mechanisms
Statistical office	- Participate in awareness raising meeting to be informed of the possible contribution of the statistical office in the first stage of the review and at key stages of the review	- Provide statistical data and analysis when available	- Provide comments on the outcome of the review at the stakeholders' round table	- Produce internationally comparable indicators - Collect data on ICT
Business institutions	- Participate in awareness-raising meeting to be informed of the possible contribution of business institutions in the first stage of the review and at key stages of the review	- Provide information - Engage on an ongoing basis with experts	- Provide comments on the outcome of the review at the stakeholders' roundtable	- Provide feedback to policy makers for necessary adjustments in policies and measures
Academia and research institutions	- Participate in awareness-raising meeting to be informed of the possible contribution of academia and research institutions in the first stage of the review and at key stages of the review	- Share research findings if available on ICT human resources - Present their expert assessment of the development of ICT human resources	- Provide comments on the outcome of the review at the stakeholders' round table	- Provide feedback to policymakers for necessary adjustments in policies and measures

Stakeholders	Role in phase I	Role in phase II	Role in phase III	Follow-up
	Preparing the ground for the ICTPR	**Carrying out the review** (ICT environment, ICT policy framework, implementation and institutional framework)	**Finalizing the review and presenting its results at the national and international levels**	**Policy formulation and assessment mechanisms**
International organizations[1]	- Need to be informed of their possible contribution in the first stage of the review and at key stages of the review	- Provide background information related to their field of work	- Provide comments on the outcome of the review at the stakeholders' round table	- Continue monitoring in their field of work

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1. Other international organizations may need to be consulted and associated with the review when the policy measures to be reviewed are related to their field of work.

ANNEX II

CORE ICT INDICATORS

A1   Fixed telephone lines per 100 inhabitants
A2   Mobile cellular telephone subscriptions per 100 inhabitants
A3   Fixed Internet subscribers per 100 inhabitants
A4   Fixed broadband Internet subscribers per 100 inhabitants
A5   Mobile broadband subscriptions per 100 inhabitants
A6   International Internet bandwidth per inhabitant (bits/second/inhabitant)
A7   Percentage of the population covered by a mobile cellular telephone network
A8   Fixed broadband Internet access tariffs per month in US$ and as a percentage of monthly per capita income
A9   Mobile cellular telephone prepaid tariffs per month in US$ and as a percentage of monthly per capita income
A10   Percentage of localities with public Internet access centres (PIACs)

HH1   Proportion of households with a radio
HH2   Proportion of households with a TV
HH3   Proportion of households with telephone
HH4   Proportion of households with a computer
HH5   Proportion of individuals who used a computer in the last 12 months
HH6   Proportion of households with Internet access
HH7   Proportion of individuals who used the Internet in the last 12 months
HH8   Location of individual use of the Internet in the last 12 months
HH9   Internet activities undertaken by individuals in the last 12 months
HH10   Proportion of individuals who used a mobile cellular telephone in the last 12 months
HH11   Proportion of households with access to the Internet by type of access
HH12   Frequency of individual use of the Internet in the last 12 months

B1   Proportion of businesses using computers
B2   Proportion of persons employed routinely using computers
B3   Proportion of businesses using the Internet
B4   Proportion of persons employed routinely using the Internet
B5   Proportion of businesses with a web presence
B6   Proportion of businesses with an intranet
B7   Proportion of businesses receiving orders over the Internet
B8   Proportion of businesses placing orders over the Internet
B9   Proportion of businesses using the Internet by type of access
B10   Proportion of businesses with a local area network (LAN)
B11   Proportion of businesses with an extranet
B12   Proportion of businesses using the Internet by type of activity

ICT1   Proportion of total business sector workforce involved in the ICT sector
ICT2   ICT sector share of gross value added
ICT3   ICT goods imports as a percentage of total imports
ICT4   ICT goods exports as a percentage of total exports

ED1   Proportion of schools with a radio used for educational purposes
ED2   Proportion of schools with a television used for educational purposes

ED3   Proportion of schools with a telephone communication facility
ED4   Learners-to-computer ratio in schools with computer-assisted instruction
ED5   Proportion of schools with Internet access by type of access
ED6   Proportion of learners who have access to the Internet at school
ED7   Proportion of learners enrolled at the post-secondary level in ICT-related fields
ED8   Proportion of ICT-qualified teachers in schools

EG1   Proportion of persons employed in central government organizations routinely using computers
EG2   Proportion of persons employed in central government organizations routinely using the Internet
EG3   Proportion of central government organizations with a local area network (LAN)
EG4   Proportion of central government organizations with an intranet
EG5   Proportion of central government organizations with Internet access, by type of access
EG6   Proportion of central government organizations with a web presence
EG7   Selected online services available to citizens, by level of sophistication of service

Source: Partnership on Measuring ICT for Development.

ANNEX III

ICTPR MODEL QUESTIONNAIRE

The model questionnaire is presented below. The questions are not exhaustive. The ICT policy experts and countries may add or remove some of the questions according to the ICT policies under review. The objective of the questionnaire is to collect information about the level of implementation of policy measures and define challenges and bottlenecks, as well as successes, in order to be able to review and propose policy recommendations.

A list of focal points in each ministry will be communicated to the ICT policy experts. The questionnaire is to be filled out by an official at the ministry level who is in-charge of or involved in the ICT policy component under review. On the basis of the questionnaire, the ICT policy experts will carry out interviews during phase II. Online access to the questionnaire using, for instance, http://www.surveymonkey.com/ could be provided.

For each policy component (ICT infrastructure development, legal and regulatory framework, ICT human resources, business development, e-government, ICT-related trade and investment policies, technological innovation), the structure of the questionnaire below can be adapted to conduct the interviews.

- Part I deals with the authority in charge of the implementation of ICT policy measure under review and provides general details on the policy component.

- Part II addresses the ICT policy measures to be reviewed.

PART I. AUTHORITY IN CHARGE OF THE IMPLEMENTATION OF THE ICT POLICY COMPONENT UNDER REVIEW

1. Please provide the following details concerning the entity/entities in charge of the implementation of the ICT policy component under review:

Name of ministry	
Name of contact person	
E-mail address	
Telephone number	
Fax number	

2. If other entities (ministry, business association, university, etc.) are involved in the implementation of policy measures, please provide the following information.

Name of the entity	
Name of contact person	
E-mail address	
Fax number	

3. For the policy component under review, indicate if the following information is available:

Time frame   ☐   Yes   ☐   No

If yes, specify:

Budget allocation   ☐   Yes   ☐   No

If yes, specify the percentage of the national budget allocated to this policy measure.

Monitoring and evaluation component

☐ Yes ☐ No

If yes, specify if indicators are available and used to monitor the implementation of the measure. Plans to monitor and evaluate progress of the implementation of policy measures include the definition of specific indicators, of review mechanisms and other instruments, data collection and analysis and the preparation of reports.

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If no, what would be for you the best way to assess this policy measure?

For instance, is there any beneficiary group that could be interviewed?

☐ Yes ☐ No

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4. In the implementation of this policy component in your country, do your policy measures target the following groups?

	Yes	No	
Women	☐	☐	
SMEs	☐	☐	
Pro-poor ICTs	☐	☐	
Rural communities	☐	☐	Specify:
Others	☐	☐	

PART II. ICT POLICY MEASURES

1) Please provide the following information for all the policy measures or programmes your Ministry is currently undertaking in connection with the implementation of the ICT policy component under review.

Title	Objective and scope	Time frame	Level of implementation	Indicators
a.				
b.				
c.				

Please provide all relevant statistics or reports you may have collected for each policy measure/programme. In the absence of data, the indicators provided in annex III can help in evaluating the impact of policies.

PART III. ISSUES RELATED TO IMPLEMENTATION MECHANISMS

Success

Constraints

Challenges and needs

Adjustments made in the strategy

Any other measure implemented to support a part of the master plan?

ANNEX IV.

ICTPR TIMETABLE

Activities	Stakeholders	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8
PHASE 1									
1. Preparation of the fact finding mission									
1.1 Provide necessary background documents to the consultants and UNCTAD including ICT master plans, assessments of policy measures already carried out, existing studies (from national and international sources) and available indicators.	Request-ing country, national coordinator	▓							
1.2 Define the focus of the review. Propose a list of priority policy objectives and measures to be reviewed.	Requesting country, UNCTAD	▓	▓						
1.3 Prepare the work programme of the mission including: - Identify relevant stakeholders; - Arrange meetings, including a national stakeholders' round table, selecting relevant stakeholders (from the Government, private sector, civil society and regional and international bodies).	Requesting country, UNCTAD		▓						
2. Fact-finding mission									
2.1 Conduct of interviews with identified stakeholders; definition of the role of each stakeholder during the review process; collection of relevant material.	ICT policy experts, UNCTAD, requesting country, national coordinator			▓					
3. Preparation of a summary of the objectives of the review, the proposed outline and the methodology to carry out the review	ICT policy experts								
3.1 Outline of the review and mechanisms for data collection agreed.	UNCTAD, requesting country, ICT policy experts				▓				

PHASE 2		Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13
4. Carrying out the review									
4.1 Field missions (interviews, data collection).	ICT policy experts	▓							
4.2 Analysis of data and information collected; preparation of draft policy review. Submission of the first draft to UNCTAD.	ICT policy experts		▓						
4.3 Review by UNCTAD and provision of comments to ICT policy experts.	UNCTAD			▓					
4.4 reparation of the second draft by the ICT policy experts.	ICT policy experts				▓				
4.5 Review of the second draft.	Requesting country					▓			
4.6 Submission of comments to UNCTAD.	Requesting country						▓		
4.7 Preparation of the third draft.	UNCTAD ICT policy experts							▓	
4.8 Presentation and discussion of the third draft of the ICTPR at a national workshop/submission of comments to UNCTAD.	Requesting country, ICT policy experts								▓
4.9 Incorporation of comments and preparation of the final draft/ peer review.	ICT policy experts, UNCTAD, requesting country								▓

PHASE 3		Month 14	Month 15	Month 16	Month 17
5. Finalizing the review and disseminating results and sharing of experience					
5.1 Policy clearance.	UNCTAD	▓			
5.2 Editing and layout.	UNCTAD		▓		
5.3 Printing of the review in English.				▓	
5.4 Translation and printing.	UNCTAD, requesting country			▓	
5.5 Disseminating the results of the review at the national level.	Requesting country				▓
5.6 Disseminating the results of the review at the international level.	Requesting country UNCTAD, ICT policy experts				▓