

Information and communications technology (ICT) agencies

Functions, structures, and best operational practices

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Abstract *A growing number of small states are in the process of establishing ICT agencies to address information society issues of e-government, e-infrastructure, e-industry, e-learning, and e-commerce. Some large countries are in the process of integrating telecommunications, IT, and broadcasting into a single ICT agency. This paper outlines the functional requirements for such an agency, and presents a range of international best practices for their focus and operation. The paper also suggests interim measures that can be taken before such agencies are legally established.*

Keywords *Information society, Information systems, Communications processes, Electronic commerce, International cooperation*

Introduction

The use of information and communications technology (ICT) is widespread. ICTs are an essential tool for the efficient administration of an organization, and in the delivery of services to its clients. ICTs are being integrated into procedures, structures, and products throughout business, government, and the community. The marriage of information technologies and communications combined with the explosive growth in communications networks, illustrated by the Internet, is resulting in major social and economic changes. There is a revolution in the

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way we electronically store, access, and deliver information which is critical in shaping the effectiveness of an organization. This is equally true of governments.

To take advantage of these technologies and use them effectively, organizations need to develop an overall framework and strategy for their application, and to have an organizational structure in place to manage the development of strategies and oversee their implementation. This is particularly necessary given the rapid pace at which these technologies are changing.

Governments worldwide have taken responsibility to provide national leadership in the development and application of technology in their countries. It is neither efficient nor desirable to implement ICT projects across government, or in any large organization, without having a policy in place with key strategies specified. These must take account of the government's economic priorities and need for the efficient use of its own resources. This is being achieved by the establishment of an administrative structure within government, with specific responsibilities to develop a



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national vision for ICT to prepare an implementation plan with key strategies having specific goals to realize the vision, and an action plan for their achievement.

A growing number of small states are in the process of establishing ICT agencies (see Appendix for a selection of ICT ministries and agencies). This paper outlines the functional requirements for such an agency, and presents a range of international best practices for their focus and operation. The paper also suggests interim measures that can be taken before such agencies are legally established.

Functions of an ICT agency

The functions of such an agency recognize the three basic responsibilities that central governments worldwide must accept for ICT. These are:

- (1) *Government as a regulator.* As the national regulator, the central government is responsible for setting national rules for the use of technology. This includes, for example:
 - the legal framework that enables electronic commerce (e-commerce) to be promoted at a national level and the policing of this framework;
 - the national standards governing data privacy and security;
 - laws covering intellectual property;
 - adopting data and communications standards to ensure a country is aligned with international developments in ICT, thus enabling international compatibility and interconnectivity, etc.; and
 - rules covering access to information sources, both national and international, and including the Internet;
- (2) *Government as a facilitator.* As a facilitator the government can seek to stimulate the use of and access to ICT by its citizens. It can encourage the development of the private sector industry by providing assistance and removing roadblocks to progress. The ICT services industry and other knowledge industries do not require large investments in material infrastructure like factories, raw materials, road ways and other public utilities. They can be located anywhere in a country provided there are communications facilities at par with global standards, and high quality and cost effective human resources.
- (3) *Government as a large user of ICTs.* As a large user of ICTs, often the largest in the country, government must seek to use ICT for the cost efficient delivery of services and information to its citizens and in the efficient running of the government administration. Being a major purchaser of ICT equipment and services, it can also influence the market and, for example, use its buying power to foster the development of a national ICT industry. It can also serve as an example of best practice.

Responsibilities of the ICT agency

To establish an ICT framework, governments internationally have created organization(s) with responsibilities to establish a vision for ICT, and strategies to achieve the vision, taking into account national issues. The responsibilities of such an organization typically include:

- developing a national vision for the use of ICT and developing strategies to realize this vision, including an action plan for their implementation – strategies have targeted specific sectors, e.g. industry development, education, health, rural, tourism, and/or government service delivery;
- establishing a unified policy for all ICT issues in public and national administration;
- providing national leadership to establish an environment that enables the country to take advantage of the benefits from technology;
- defining government policies and objectives related to the use of information resources;
- supplying government with practical recommendations for the use of ICT to assist in achieving its economic and social objectives – this will address information resources in public administration and the setting of suitable unified standards and best practices to address all information operations;
- consulting widely with all sections of society to obtain ideas and encourage participation to develop national policies and strategies, and to obtain commitment;
- establishing a legal framework for ICT covering intellectual property, copyright, privacy, and security, etc. and preparing and following-up on the necessary decrees, laws, and regulations needed for the achievement of strategies;
- ensuring that the country is aligned with international standards and developments in communication and e-commerce;
- removing the roadblocks to the development of an ICT-enabled services industry;
- providing specialist information services to different sectors of the economy, such as the education, health, education, rural and tourism sectors;
- establishing methods and procedures required by the various public administrations (central government, local government, academia) for facilitating and unifying information exchange (ensuring the adoption of standards that enable full compatibility locally and internationally);
- improving the efficiency of government administration by adopting best practices, use of common/compatible systems, reducing duplication of effort, and cutting costs; and
- designing the mechanism for monitoring and evaluating the implemented policies and procedures.

Structure of an ICT agency

For a small state a typical structure of the ICT agency would consist of the following structure:

- A management board with specific terms of reference (TOR) comprised of representatives from government, the private sector, academia, and others who are competent to contribute under the TOR of the board (e.g. distinguished ex-patriots). The emphasis should be placed on those with a vision of what is required in the country, have leadership skills, are pragmatic, and above all, are prepared to actively participate.
- A small secretariat to support the board ensuring the “mechanics” of its operation, e.g. calling meetings, agenda, minutes, follow-up action, ensuring papers are submitted correctly and on time, and publicity etc.
- A support agency is typically small and focused. The staff will have technical and managerial skills to develop and oversee visions, goals, strategies, and project plans. The head of this group must be a skilled leader and facilitator who works successfully with senior government ministers; and commands respect both technically and managerially in government and industry. This person could be designated the chief information officer (CIO). To ensure that a candidate of appropriate caliber is appointed, care must be exercised in the recruitment of this position.
- The support agency needs to be flexible, dynamic, and focused on achieving outputs. The establishment of “just another bureaucratic organization” must be avoided.
- A minister in central government must be given responsibility for the agency and be accountable for its operation. The CIO should report directly to the responsible minister.
- Work groups should be formed to address specific strategies and projects. These typically should be small, and be given specific tasks with specified deliverables and goals with resources, budget, and a timeframe to complete the task. Having completed the task and delivered the product, the work groups should be abolished or reconstituted under a different set of parameters. The head of the work group should be competent and understand the specific area being considered, and be selected on the basis of knowledge and abilities. This person can come from government, private sector, academia or industry.

To perform effectively the agency needs to be constituted with a mandate, TORs, a budget, work plans, goals and deliverables, reporting mechanisms and measures of accountability. Developing these is a significant exercise in its own right, often supported by bilateral or multilateral aid organizations with experience in establishing their own agencies.

Some best practices for operation of an ICT agency

A review of factors that influence success of ICT agencies include:

- The agency is small, focused, and dynamic. The quality of the staff is more important than the quantity of staff. Flexibility is essential, the technology is developing rapidly and the political and economic climate in a country can be subject to large changes.
- There is a good blend of skills – the issues are basically not technical although understanding the technology is important; managerial competence is essential, as is having staff that are good “doers”.
- Excellent communication skills are vital to consulting all sectors of the population and to communicating the outcome and obtaining commitment. The agency is proactive in promoting its ideas and policies and consults widely.
- The agency is staffed with experts from different backgrounds, including government, private sector, and industry. This is facilitated by having individuals seconded to the agency from government bodies, industry, and academia to address specific tasks (e.g. communications, education, health, etc.). Consultants specialized in security and legal issues are hired, as well as in commercial interests, where there may be a potential conflict of interest.
- There is a focus on being pragmatic – achieving practical progress, both short- and long-term – is more important than having a perfect vision that may take many years to achieve. Technology is changing rapidly, so while it is important to have a longer term vision and goals, progress over the first two to three years is more important. Some short-term practical achievements demonstrate progress and establish credibility.
- Expectations must be managed carefully since establishing the agency raises expectations politically, in industry, and in the community. Failure to manage expectations leads to political embarrassment for ministers, and can result in a loss of political support to the agency with disastrous consequences.
- The agency understands how to promote its ideas and policies to survive in the central government environment, and needs to be alert to political issues and sensitivities.
- It is standard practice for such support agencies that the departments responsible for national defense and security do not have their specific plans included in a national approach. This does not imply that such departments should not contribute; indeed, where security is being addressed the department responsible for national security may take a lead role. It is expected that strategies addressing, for example,

government-wide standards and administrative efficiency would be adopted.

- In government administration there is a “whole of government” approach taken, particularly in smaller countries with limited budgets and resources. The agency fosters this approach. One method of assisting is to use the lead agency approach, thus, where a department has an urgent ICT requirement (e.g. a new computer-based human resource (HR) system) it is asked to take into consideration the broader requirements for HR across government (or in a number of departments) and is given resources to undertake this lead role for government.
- The agency is aware of the many examples, available internationally, of organizations and national strategies. The agency keeps abreast of developments to ensure that it takes advantage of best practice experience.

Autonomy

It is important that the support agency operates with a high degree of autonomy (quasi private) and focuses on national interests, and not on narrower sector or political interests. However, to function successfully it needs to have the support and commitment from the seated government. Some of the means of achieving autonomy are:

- The agency has TORs for its responsibilities, actions, and *modus operandi* are specified and are widely publicized. The agency reports to a minister within its TOR; however, the content of such reports is entirely the responsibility of the board. An alternative structure is to have the board and head of the support agency report to a committee of parliamentarians drawn from all sectors of the political spectrum. This is a more democratic way for managing such an organization, but this may make it difficult, and take longer to get recommendations approved than direct reporting to a government minister. The actual model selected will depend on the way the country manages its government processes.
- The agency has clearly defined mechanisms of accountability.
- The agency consults widely and seeks consensus on its findings and recommendations which are published widely in the public domain.
- The agency reports to an independent Board made up of representative from a wide range of sectors and interests – private, industry, and government. The board has a charter, TOR, mechanisms of accountability, and budget. The outcome of its meeting are published in the public domain.
- The chairperson of the board is an independent official of stature and skills that are widely recognized, and has broad support across the community.

- The board and support agency publish newsletters and bulletins with information on its business. These are widely disseminated to all sectors of the community.
- The board is proactive in promoting itself. Members are asked to participate in seminars, give presentations, write articles for the press and journals, give press interviews, and contribute to Web site content.

Recruitment

Finding suitable staff to work in a support agency is a perennial problem. Some of the issues encountered and expected are:

- staff in line departments are not keen to work in a small agency where the promotion opportunities may be far more limited – by working in an agency, they may feel they are “losing out”;
- technical staff may feel their technical skills will be diminished by working in a policy unit that is not directly involved in technology application;
- staff in the private sector usually have a significantly higher salary than government staff, and will not be attracted to work for a lower wage; and
- in government there is usually a dearth of staff with the necessary skills and experience in policy and strategy work, who have an adequate understanding of technology issues.

These drawbacks can be alleviated by:

- Seconding skilled staff from line departments for set periods (up to two years) of time to address specific tasks to which their experience is suited. Staff can be rewarded by, for example, a higher salary while on secondment, and/or recognition that the experience will improve their opportunities for promotion.
- Seconding specialists from industry and the private sector for specific periods of time, with their employers continuing to pay their salaries; the government will reimburse their employers for their total cost. The employer would gain by having an employee with a better understanding of government, as well as by the publicity of having contributed to national development.
- Endeavoring to provide professional training to seconded staff and improve their professional skills.
- Hiring consultants to assist with specific projects, and ensuring there is a knowledge transfer to agency staff.
- Recognizing and acknowledging secondments as contributing to the national good.

Interim measures

The formal establishment of an ICT support agency and associated structures, including the recruitment of staff, can take some time, not the least being the time taken for formulation and approval of the necessary legislative changes. However, it is necessary to start the process using interim resources. This can be achieved by:

- identifying a suitable minister in government who can take responsibility for and guide the creation of the agency;
- selecting a small number of key participants from the government bureaucracy assisted by one or two consultants or staff seconded from other departments – establish an interim structure;
- appointing an interim leader from the bureaucracy and task the team with initiating developments;
- preparing TORs for consultants to assist with the process of establishment;
- developing an outline plan for establishing the agency, seeking approval and commencing process of preliminary consultation targeting key individuals (government, industry, the private sector, and academia) who would be expected to have constructive ideas and make a positive contribution;
- undertaking a survey (with interviews as necessary) to document the current status of ICT developments;
- collecting summary information of developments that have taken place internationally, targeting the most likely candidates, and obtaining detailed information, initially from the Internet but followed up, if necessary, with communication at the government-to-government level; and
- prepare a more detailed plan for establishing the agency, board and support structures, including budget, staff resources, TORs, levels, timeframe, and seek approval to proceed. ■

Appendix. Selected ICT ministries and agencies

- *Algeria*: Ministère de la Poste et des Technologies de l'Information et de la Communication
www.postelecom.dz
- *Egypt*: Ministry of Communications and Information Technology
www.mcit.gov.eg
- *Estonia*: Estonian Informatics Centre
www.eik.ee/atp/eng
- *India*: Ministry of Communications and Information Technology
www.mit.gov.in
- *Jordan*: Ministry of Information and Communications Technology
www.mopc.gov.jo
- *Korea*: Ministry of Information and Communication
www.mic.go.kr
- *Malaysia*: Ministry of Energy, Communications and Multimedia
www.ktkm.gov.my
- *Mauritius*: Ministry of Information Technology and Telecommunications
<http://ncb.intnet.mu/mitt.htm>
- *Moldova*: Ministry of Transport and Communications
<http://mci.gov.md>
- *Morocco*: Ministry of Culture and Communication
www.mincom.gov.ma
- *Pakistan*: Ministry of Science and Technology
www.most.gov.pk
- *Paraguay*: Ministerio de Obras Publicas y Comunicaciones
www.mopc.gov.py
- *Romania*: Ministry of Communications and Information Technology
www.mcti.ro
- *Singapore*: Ministry of Communications and Information Technology
www.mcit.gov.sg
- *Slovakia*: Ministry of Transport, Posts and Telecommunications
www.telecom.gov.sk
- *Slovenia*: Ministry of the Information Society
<http://mid.gov.si/mid/mid.nsf>
- *Tunisia*: Ministère des Technologies de la Communication et du Transport
www.infocom.tn