United Nations
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Policy Brief

Measuring e-government: key policy instrument for information society development

Information and communications technology (ICT) and its applications offer many opportunities for economic and human development. Within the framework of the World Summit on the Information Society (WSIS), national governments, together with other stakeholders at national, regional and international levels are engaged in conceptualizing and deploying ICT and e-government applications in support of development.

Inherent within these approaches is the issue of policy development and monitoring of ICT programmes. In the Geneva phase of WSIS,[1] a set of targets for development of the information society was established. One of those targets is to "connect all local and central government departments and establish websites and e-mail addresses". In a recent publication, the Partnership on Measuring ICT for Development suggested that a set of e-government indicators be developed to measure this target (Partnership on Measuring ICT for Development, 2011).

The United Nations Statistical Commission in its thirty-eighth session requested the Partnership on Measuring ICT for Development to extend the core list of ICT indicators to include indicators on ICT use in government.[2] Since 2006, the Partnership, through its Task Group on e-Government, has been actively engaged in developing internationally comparable e-government indicators.

The Economic Commission for Africa (ECA), which leads the Task Group on e-Government, recently developed a framework document and a manual to support country efforts in producing high-quality and internationally comparable e-government statistics by providing a set of indicators and associated standards. This policy brief is based on the manual. It recognizes the series of challenges that African countries face in implementing the indicators and encourages African governments to adopt the set of e-government indicators on the view that they provide the basis for assessing their status compared to other economies and enable them to identify gaps in the undertaking of appropriate policy measures are aimed at contributing to improvements in public service delivery to their citizens. The challenges can be surmounted if there is political and widespread recognition of the contributions better measurement can make towards improving decision–making and the development of sound e-government strategies and plans with potential benefits to citizens.

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[1] The Geneva Plan of Action and the Tunis Agenda both refer to the importance of e-government initiatives and strategies (ITU, 2005).

[2] Official Records of the Economic and Social Council, 2007, E/2007/24.

Why measure e-government?

There is a growing recognition worldwide that effective public sector governance requires the use of ICT in making the functioning of government more efficient and in improving the delivery of government services for organizations and individuals.

In order to measure and compare the incidence of e-government, a set of feasible, relevant and comparable indicators is required. Such indicators are useful inputs to the formulation of policies and strategies for effective government.

E-government potentially enhances social and economic development of countries by enabling improved access to government services. Examples range from better access to information on available services to complete online processing of requests for such things as permits, certificates or payments. Effective use of e-government can also improve the efficiency and effectiveness of the public sector and linkages among government agencies. Other examples include the use of computers and networks to improve the personal productivity of government workers and changes to more efficient business processes associated with a transition to offering government services electronically. In this context, an emerging imperative is to reformulate e-government policies and programmes to exploit these capacities.

E-government development in countries is at varying stages. Developed economies are relatively advanced in the application of ICT for improving the functioning of the public sector and service delivery. Most developing countries are less advanced in this area. In order to improve e-government in these countries, a comparable measurement framework is required. While data from web surveys are available for most countries as result of activities undertaken by the United Nations Department of Economic and Social Affairs (UNDESA) (2003; 2004; 2005; 2008; 2010) and the European Union (Capgemini, 2006; Capgemini and others, 2010), comparable e-government indicators from other surveys are very limited.

What is e-government?

A prerequisite for developing a set of global e-government indicators is to define what is meant by "e-government". Palvia and Sharma (2007) reviewed the definitions of e-government and distinguished it from m-government (the use of wireless technologies for offering and delivering government services) and e-governance (the use of ICT by the public and private sectors for the purpose of enhancing governance). Several definitions of e-government are currently being applied worldwide. They differ depending on the purpose of the definition. In table I, a selection of current definitions is presented.

Table 1. Definitions of e-government

Definition	Source
Use of ICT and its application by government for the provision of information and public services to the people. The aim of e-government, therefore, is to provide efficient government management of information to the citizen, better service delivery to citizens, and empowerment of the people through access to information and participation in public policy decision-making.	DESA[a]
Use by government agencies of information technologies (such as wide area networks, the Internet and mobile computing) that have the ability to transform relations with citizens, businesses and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens; improved interactions with business and industry; citizen empowerment through access to information; or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions.	World Bank[b]
Use of new ICTS by governments as applied to the full range of government functions. In particular, the networking potential offered by the Internet and related technologies has the potential to transform the structures and operations of government.	OECD[c]
E-government is about using the tools and systems made possible by ICTs to provide better public services to citizens and businesses.	European Commission[d]

[a]DESA, 2005.

[b]World Bank, Available from

http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTINFORMATIONANDCOMMUNICATIONANDTECHNOLOGIES/ EXTEGOVERNMENT/0,,contentMDK:20507153~menuPK:702592~pagePK:148956~piPK:216618~theSitePK:702586,00.html. (accessed 29 July 2014).

[c]OECD Glossary of Statistical Terms. Available from http://stats.oecd.org/glossary/ (accessed 24 July 2014).

[d]European Commission Digital Agenda for Europe. Available from http://ec.europa.eu/digital-agenda/life-and-work/public-services (accessed 29 July 2014).

While differing in emphasis, most of the definitions of e-government in the table above involve the use of ICT to improve the delivery of government services. Some definitions also refer to use of ICT to improve the operations of government. This dual definition has been adopted for this policy brief. Implicit within this definition of e-government are the three user aspects: government-to-citizen (G2C); government-to-business (G2B); and government-to-government (G2G). It should be noted that the two dimensions of e-government are complementary and reinforcing. Enhancing government efficiency and effectiveness leads to cost savings and can have a direct impact on the improvement of service delivery.

Government organizations encompass several levels and a range of sizes and functions. Government levels include central (national, federal), provincial (state), regional and local. All levels of government may utilize e-government. In order to simplify the data collection task and to initially test the feasibility of the indicators proposed, only central government organizations are included for most indicators. It is hoped that countries will extend data collection to state and local levels of government as resources permit.

Measuring e-government: current practices

For the assessment of e-government, individual indicators and composite indices have been developed by international organizations, academic establishments and individual countries. The scope of interest includes single countries, regions and global measurement. Some studies assess use of ICT alone; others

measure customer services through services offered through government websites. The latter range from simple services to more sophisticated issues of privacy and electronic voting.

Methodologies range from country-level surveys of government organizations to highly complex web-based surveys. The most comprehensive example of the latter is the United Nations e-Government Survey, which covers all of the United Nations Member States and is carried out by the Division for Public Administration and Development Management of DESA.

Most African countries do not collect data/information on e-government, while most developed nations undertake the activity mostly based on statistical surveys of government organizations. The content and standards are diverse. The only African countries that have conducted e-government surveys (or plan to) are Egypt, Morocco, and Nigeria (ECA and Partnerhsip on Measuring ICT for Developmemt 2013).

E-government core indicators

The e-government core indicators are listed in table 2. They are classified into four broad areas: use of ICT by persons employed in government organizations (EG1 and EG2); availability of ICT to government organizations (EG3 to EG5); use of ICT by government organizations (EG6); and supply of e-government services to citizens (via publicly accessible websites) (EG7).

List of the e-government core indicators

Code	Name of the e-government indicator
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 Internet-based services available to citizens, by level of sophistication of service

Source: ECA and Partnership on Measuring ICT for Development, 2012.

It should be noted that the list of core indicators above is not exhaustive; it is a starting point for countries to measure e-government using internationally agreed and comparable indicators. Detailed information about each indicator is presented in the e-Government Manual.

Challenges in e-government measurement

Collection of e-government statistical information faces several measurement challenges, including statistical feasibility, relevance, data collection costs and the burden on respondents. Other challenges are: lack of

comparable statistical units (national, regional, local and organizational); structural differences (heterogeneity) in the functions of government organizations across countries; identifying and defining government units at a country level; and rapid dynamism and evolution in the ICT sector. Moreover, the definitions of e-government vary in scope, making it difficult to harmonize the collection process.

In addition to these challenges, there are some additional ones that apply mainly to the African context. Among them are the digital divide and inadequate resources (financial and technical) to collect such data.

Policy measures

Based on its work in measuring e-government over the past few years, ECA suggests that African governments take the following policy measures in order to make informed policy decisions for improved governance, as well as to improve the delivery of public services to their citizens.

Adopt the core list of e-government indicators.

Globally comparative e-government indicators need to be adopted, as they can help users understand the status of e-government primarily at the national level, and undertake a comparative assessment at the regional and international levels. Consequent actions include better strategic management of e-government policies and development of programmes that contribute to economic and social development through access to government services online. In the current proposed set of core e-government indicators, only central government organizations are included. However, African governments should take deliberate policy measures to extend data collection to state and local levels of government and allocate the necessary budget and resources for its effective implementation.

Consider measuring e-government as a key component of the national ICT policy development process.

African governments should also consider measuring e-government as a key component of their national ICT policies, strategies and plans development process. The purpose of both the e-government framework document and the manual prepared by the Task Group on e-Government of the Partnership on Measuring ICT for Development is to support the efforts of countries in the collection of data for the core e-government indicators and utilize e-government for the benefit of their society and economy.

Ensure multi-stakeholder partnership

Another policy measure that needs to be considered by African governments is to facilitate multi-stakeholder partnerships and coordination at the national level. The practice of measuring e-government requires involvement of all key stakeholders. Deliberate policies are required by governments to ensure active participation of the main stakeholder groups involved in the national statistical system: (a) data producers, including national statistical offices (NSOs), (b) policymakers, especially ministries and regulatory authorities dealing with ICT and/or telecommunications, and other data users, including international organizations; and (c) data providers, including government agencies for core e-government indicators EG1 to EG6 and national experts for indicator EG7 and possibly other indicators. It is also essential that coordination mechanisms among (and sometimes within) these groups are established. In some countries, more than one data collection agency is involved in the production of e-government statistics. In such cases, it is important that those agencies cooperate by sharing expertise and avoiding duplication.

While it is fairly obvious that policymakers should work closely with data collection agencies to ensure the relevance of ICT statistics programmes, other users, for example, businesses, the non-profit sector and academia, may also be able to make useful contributions towards enhancing these programmes based on their expert knowledge and experience. There

are numerous benefits of user input. Among them are the following: more relevant data, especially for policy purposes; ongoing support for statistical activities (possibly including funding); availability of information from existing research and studies, for example, by academia or the private sector; and incorporation of the subject matter expertise of data users, which may improve concepts and definitions.

Data providers are integral to the statistical system. Without their cooperation, data would be inadequate in terms of quality and quantity. It is important that NSOs recognize the contribution of providers and put the necessary effort into gaining their trust and cooperation.

Create conducive legal and regulatory environment

African governments should also create a conducive legal and regulatory environment for effective measurement of e-government practices. While many NSOs work in a legal framework that makes the provision of statistical data mandatory, cooperation may be enhanced if such legislation is used carefully. The legal framework of NSOs also generally ensure the confidentiality of data provided by individual organizations.

Share best practices with the Partnership

African governments are encouraged to share their experiences with the Partnership, through ECA, in order to facilitate further advancing the measurement of e-government, as the documents discussed in this policy brief do not include some important areas of e-government measurement. Two of those areas are the delivery of government services to mobile telephones, especially where Internet access is limited, and measuring the impacts of e-government, both on government organizations and the broader economy and society. As with the other Partnership core ICT indicators, it is expected that the list of e-government indicators and their scope will expand with experience.

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