PARTNERSHIP ON MEASURING ICT FOR DEVELOPMENT

Economic Commission for Africa

FRAMEWORK FOR A SET OF E-GOVERNMENT CORE INDICATORS

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Preface

Globally comparative e-government indicators can assist users to understand the status of e-government, both nationally and internationally. Consequent actions include better strategic management of e-government policies and development of programs that contribute to economic and social development through access to government services online.

This *Framework* proposes a set of globally comparative e-government core indicators, reflecting the emphasis on e-government by the World Summit on the Information Society (WSIS)[1] and the suggestion by the UN Statistical Commission that the Partnership on Measuring ICT for Development extend its core list of ICT indicators to include indicators on ICT use in government (UNSC, 2007).

The objective of the *Framework* is to support the efforts of countries in the collection of data for the core e-government indicators. Particular attention is paid to providing a measurement approach that is feasible for developing countries and supports their efforts to utilize e-government for the benefit of their society and economy. Elements of the *Framework* include defined core indicators and associated statistical standards (such as definitions, scope, statistical units, model survey questions and classifications). The *Framework* does not go into detail on statistical methodologies, such as data collection methods.

A manual on collection of the data required to construct the core e-government indicators is expected to be produced in 2012. It would include methodological information on data collection.

The report is a major output of the work of the Task Group on E-government (TGEG), led by the UN Economic Commission for Africa (ECA), in collaboration with the Economic Commission for Latin America and the Caribbean (ECLAC), the International Telecommunications Union (ITU) and the United Nations Department of Economic and Social Affairs (UNDESA). The Task Group comes under the auspices of the global Partnership on Measuring ICT for Development (see Box 1).

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The report was coordinated through the ICT and Science and Technology Division (ISTD) of ECA by Makane Faye, Officer-in-charge of the E-Application and ICT Policy & Development Sections, with support from ISTD staff, including Matti Sinko, Abebe Chekol and Afework Temtime under the overall guidance of Aida Opoku-Mensah, Director of the Division.

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

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ECA	United Nations Economic Commission for Africa
ECLAC	United Nations Economic Commission for Latin America and the Caribbean
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
ESCWA	United Nations Economic and Social Commission for Western Asia
Eurostat	The Statistical Office of the European Union
HTML	Hypertext Markup Language
ICT	Information and Communication Technology
ISIC	The International Standard Industrial Classification of All Economic Activities
ITU	International Telecommunication Union
LAN	Local Area Network
NSO	National Statistical Office
OECD	Organisation for Economic Co-operation and Development
OSILAC	Observatorio para la Sociedad de la Información en Latinoamérica y el Caribe (Observatory for the Information Society in Latin America and the Caribbean)
TGEG	Task Group on E-government
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development.
UNDESA	United Nations Department of Economic and Social Affairs
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNSC	United Nations Statistical Commission
UNSD	United Nations Statistics Division
UIS	UNESCO Institute for Statistics
URL	Uniform Resource Locator
VTT	Technical Research Centre of Finland
WSIS	World Summit on the Information Society

Chapter 1. Introduction

Background

1. Information and communication technologies and 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.

2. Inherent within these approaches is the issue of policy development and monitoring of ICT programs. The Geneva phase of the World Summit on the Information Society established a set of targets for development of the information society. It included a target to: "Connect all local and central government departments and establish websites and e-mail addresses". A recent publication by the *Partnership* (2011) suggested a set of e-government indicators to measure this target. Many of the standards developed for those indicators have been adapted for this report.

Box 1. The Partnership on Measuring ICT for Development

Stemming from the mandate of the World Summit on the Information Society (WSIS), the Partnership on Measuring ICT for Development is a collaborative initiative of a number of international organizations. Its current members are: Eurostat, the International Telecommunication Union (ITU), the Organisation for Economic Co-operation and Development (OECD), the United Nations Conference on Trade and Development (UNCTAD), the United Nations Department of Economic and Social Affairs (UNDESA), the UNESCO Institute for Statistics (UIS), the World Bank, and four United Nations Regional Commissions (the Economic Commission for Africa, the Economic Commission for Latin America and the Caribbean, the Economic and Social Commission for Asia and the Pacific, and the Economic and Social Commission for Western Asia).

Launched in 2004, the key goal of the *Partnership* is to develop internationally comparable, relevant and reliable ICT statistics for the measurement of the information society. Development and maintenance of a core list of ICT indicators is one of its activities, and the development of e-government indicators is undertaken specifically in this context (ITU, 2010). In 2005, the *Partnership* launched the first edition of *Core ICT Indicators* followed by the latest edition published in 2010 (*Partnership* 2005; 2010). Both publications focused on the feasibility and relevance of ICT core indicators, with the objective of providing a reliable and accurate understanding of the indicators and the associated statistical standards.

For more information on the *Partnership*, see: http://measuring-ict.unctad.org.

3. The United Nations Statistical Commission, at its 2007 meeting, asked the Partnership on Measuring ICT for Development to extend the core list of ICT indicators to include indicators on ICT use in government (UNSC, 2007). The *Partnership*, through its Task Group on E-government (TGEG), has been actively engaged in the development of internationally comparable e-government indicators since 2006. This has proven to be a challenging task because of a number of difficulties associated with e-government measurement; these are discussed in several publications (for example, *Partnership*, 2011; OECD, 2009a) and in chapters 2 and 3 of this report.

4. The development of e-government indicators has built on previous work, for example:

- Work at regional level by the Working Group on ICT Measurement of the ECLAC Statistical Conference of the Americas in developing methodological guidelines for measuring e-government;
- Work by Capgemini for the European Commission on measuring online public service delivery in Europe;
- Work by UNDESA since 2003 in developing and implementing a global e-government measurement framework;
- Work by the *Partnership* in developing indicators to measure the WSIS target on e-government; and
- Work by individual countries in developing and running national e-government surveys.

5. The main fora and events in which the progress of the TGEG has been discussed and reviewed are:

- The meeting of the Fifth African Technical Advisory Committee (ATAC) on the African Information Society Initiative (AISI), held in Addis Ababa from 12-14 December 2006;
- The Fifth Session of the ECA Committee on Development Information (CODI-V) held in Addis Ababa on 29 April 2007;
- The WSIS Cluster of events (Action Line C7), held in Geneva on 24 May 2007;
- The WSIS Cluster of events (Action Line C7), held in Geneva on 23 May 2008;
- The UNDESA/UNECA Workshop on Electronic/Mobile Government in Africa, held in Addis Ababa from 17-19 February 2009;
- The COMESA Working Group meeting on Development of a Harmonized e-Readiness Metric, held in Cairo from 3-6 March 2009;
- Consultations of the Task Group on e-Government, May 2010 in Geneva;
- The Working Party on Indicators for the Information Society (WPIIS) of the OECD, Paris, France, 16-17 June 2010;
- The Global Seminar on Information and Communication Technology Statistics, 19-21 July 2010 Seoul, Republic of Korea; and
- The World Telecommunications / ICT Indicators Meeting, Geneva, Switzerland, 24-26 November 2010.

Box 2. The Task Group on E-government (TGEG)

A task group for the development of e-government indicators was established by the Partnership on Measuring ICT for Development in 2006. Members of The Task Group on E-Government (TGEG) are ECA (co-ordinator), ECLAC, ESCAP, ESCWA, Eurostat, ITU, OECD, UNCTAD, UNDESA and the World Bank. The TGEG has been responsible for developing perspectives on e-government measurement in order to arrive at a conceptually clear, methodologically feasible, and statistically sound set of e-government indicators, which also focus on essential features of e-government in the context of development.

A background description of the e-government activities of TGEG in the context of WSIS is available in the 2010 World Telecommunication/ICT Development Report (ITU, 2010).

6. The objective of this report is to support country efforts at producing high quality and internationally comparable e-government statistics by providing a set of indicators and associated standards. The latter include definitions of indicators and terms; and specification of scope and statistical units, classifications, formulae for calculation of indicators and model questions.

Why measure e-government?

7. There is a growing recognition worldwide that effective public sector governance requires the use of ICT to achieve more efficiency in the functioning of government and to improve the delivery of government services for organizations and individuals.

8. 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.

9. 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 permits, certificates, payments etc. Effective use of e-government can also improve the efficiency and effectiveness of the public sector and linkages between government agencies. Examples include: use of ICTs such as 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 re-think e-government polices and programmes to exploit these capacities.

10. E-government development in countries is at varying stages. Developed economies are relatively advanced in their use of ICT for improving functioning of the public sector and service delivery. Most developing countries are less advanced and, in order to improve e-government in these countries, a comparable measurement framework is important. While data from web surveys are available for most countries, through the efforts of UNDESA (2003, 2004, 2005, 2008b, 2010) and the European Union (Capgemini, 2006, 2010), comparable e-government indicators from other surveys are very limited.

What is e-government?

11. A pre-requisite to developing a set of global e-government indicators is to define what we mean by ‘e-government’.

12. 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).

13. There are several definitions of e-government presently in use worldwide and they differ depending on the purpose of the definition. Box 3 presents a selection of current definitions.

Box 3. Definitions of e-government	
Definition	**Source**
Use of ICT and its application by the 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.	UNDESA (2005)
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 (2011)
Use of new information and communication technologies (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 operation of government.	OECD (2009b)
E-government is about using the tools and systems made possible by Information and Communication Technologies (ICTs) to provide better public services to citizens and businesses.	European Commission (EC, 2011)

14. While differing in emphasis, most of the definitions of e-government in Box 3 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. The dual definition has been adopted for this report.

15. 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).

16. 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.

17. 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 utilise e-government.

18. In order to simplify the data collection task and to initially test the feasibility of the indicators proposed in this report, 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 approaches

19. For the assessment of e-government, individual indicators and composite indices have been developed by international organisations, 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 via government websites. The latter range from simple services to more sophisticated issues of privacy and electronic voting.

20. Methodologies range from country level surveys of government organisations to highly complex web-based surveys.

21. The most comprehensive survey is the United Nations E-government Survey. It covers all UN member states and is carried out by UNDESA's Division for Public Administration and Development Management (DPADM). Its *E-government Development Index* presents a composite index based on a direct assessment of the state of national online services, telecommunications infrastructure and human capital. UNDESA has led the effort at international e-government benchmarking since 2003. In 2010 it published results of the fifth survey, *United Nations E-Government Survey 2010: Leveraging e-government at a time of financial and economic crisis*.

22. Capgemini, on behalf of the European Commission has published results of e-government benchmarking of EU member states for a number of years (for example, Capgemini 2006, 2010). The benchmark has proven to be a policy-informing tool at both a European and Member State level since its inception in 2001. The main element of the study is an extensive web survey of organizations' URLs that tracks 20 services offered by government.

23. Several individual countries collect information on e-government, mostly based on statistical surveys of government organizations. The content and standards (especially regarding statistical units) are diverse. Countries that have conducted e-government surveys include Australia, Brazil, Czech Republic, Denmark, Egypt, India, New Zealand, Norway, Oman, Russia and Sri Lanka, among others.

Chapter 2. E-government indicators data collection

24. E-government indicators, as a policy tool, reflect status and trends and guide policy-making towards more efficient administration, improved services and more equal participation for citizens. As such, they are anchored to technological platforms, which provide computing, storage, communication and access services.

25. The evolution of ICT has seen a series of revolutions: from mainframes to personal computers, from centralized databases to distributed computing, from star topologies to networks, and from fixed to mobile access. Rapid advances in technology have allowed more advanced equipment and applications. Corresponding statistical definitions and specifications need to be reviewed regularly so that monitoring and assessment remain relevant.

26. Collection of e-government statistical information faces several challenges. They include statistical feasibility, data collection costs and burden on respondents. There are particular challenges associated with comparability of e-government data between countries. In part, this has arisen through the currently diverse practices of countries that collect statistical information on e-government. However, a potentially larger problem arises from difficulties in identifying and comparing government units across countries. This has been termed the 'units comparability issue' (*Partnership*, 2011) and is described below.

The 'units comparability issue'

27. Indicators of the type 'proportion of government organizations with ICT' are affected by difficulties with comparison of units. For any indicators of the form 'proportion of entities with ICT', it can be very challenging to provide internationally comparable statistics, with the following conditions needing to be satisfied:

- Countries need to consistently use agreed definitions for the entities – these include definitions covering the functions and activities of the entity, and its level in a units hierarchy;
- The defined entities need to be identified by countries according to those agreed definitions; and
- Even with consistent definition and good identification, indicators of this form may not be comparable across countries because of different structures and functions of country systems. For example, country A may have a small number of large entities of a particular type, whereas country B might have mainly small entities of this type. In this example, country A is likely to rate more highly on 'proportion of units with ICT' indicators, simply through structural differences.

28. The challenges can be overcome to a reasonable extent by establishing robust and generally applicable definitions of units and by classifying output by size of organization (thus enabling comparison of small organizations in country A with small organizations in country B). Unfortunately, there are particular difficulties for central government units due to both their heterogeneity and the international concepts used to define them. More information on this is presented in Chapter 3.

Quality of indicators and methods of data collection

29. For the indicators proposed, different government agencies and different strategies may be used to collect data. For most countries, the most important method is likely to be use of traditional questionnaire-based surveys of government organizations. Data may also be available from administrative sources or collectible from country-level web surveys. Whatever the data collection methods, e-government indicators should be:

- Statistically feasible;
- Designed to enable international comparability;
- Substantively relevant;
- Consistent, thereby enabling reliable evidence of change over time;
- Understandable and accessible to policy makers and other data users; and
- Not so complex as to limit their collection and use.

Longer-term challenges

30. Longer-term challenges in e-government measurement relate to the relevance criterion above ('Substantively relevant') and reflect changing policies and technologies. They raise questions, such as:

- How should indicators evolve given technological change?
- What type of policy and strategy issues should be addressed through the indicator set?
- What is the broader impact assessment framework for e-government?
- How can e-government indicators be further elaborated?

31. The alignment of long-term development objectives of e-government measurement with technological change and societal needs is essential for strengthening the relevance of indicators and e-government measures.

Proposed set of e-government core indicators

32. For the purposes of this report, e-government indicators are classified into four areas:

- Use of ICT by employees of government (for example, use of computers);
- Availability of ICT to government organizations (for example, the Internet);
- Use of ICT by government organizations (for example, whether a website exists); and
- Supply of e-government services to citizens (by publicly accessible websites).

33. Like the other ICT indicators recommended by the *Partnership*, the proposed e-government indicators in this report are core indicators.[2] The list is not exhaustive – it is a starting point for countries to measure e-government using internationally agreed and comparable indicators.

34. Indicators addressing the use the Internet for various activities by individuals and businesses are part of the *Partnership*'s list of core ICT indicators (*Partnership*, 2010). Those relevant to government should be considered as complementary indicators to the seven presented in this report.

[2] Though note that one of the indicators, EG7, has been nominated as experimental until more experience is gained about its statistical feasibility.

35. They are:

- HH9 Internet activities undertaken by individuals in the last 12 months
  - Getting information from general government organizations
  - Interacting with general government organizations.
- B12 Proportion of businesses using the Internet by type of activity[3]
  - Getting information from general government organizations
  - Interacting with general government organizations.

36. While not within the mandate of this report, e-government impact assessment is also important and may be taken up by the *Partnership* separately in the context of another task group.

37. The next two chapters present the main focus of this report, that is, detailed technical specifications for the seven core e-government indicators (Chapter 4) and associated statistical standards (Chapter 3).

38. Table 1 presents the proposed e-government indicators. It is hoped that they will provide important strategic intelligence for policy makers, the technological community, international organizations and researchers involved in benchmarking global e-government development.

Table 1. List of the proposed core e-government indicators

Code	Name of the 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

[3] Eurostat's 2011 Enterprise Survey will devote a special module to the use of eGovernment by businesses, to shed light on the services they use, at what degree of sophistication, and in relation to the main barriers to usage. See: http://ec.europa.eu/information_society/eeurope/i2010/docs/benchmarking/benchmarking_digital_europe_2011-2015.pdf.

Chapter 3. Statistical standards

39. This chapter presents the statistical standards that apply to the core indicators, EG1 to EG7. It builds on the measurement challenges described in the last chapter and suggests solutions to those challenges.

40. For international reporting, countries should provide a 'statistical standards statement' providing metadata related to the core indicators. Elements of the statement include: the reference date that has been used, the central government organizations that have been included and how they are defined. Major coverage problems and use of different definitions of terms should also be addressed. For indicator, EG7, countries are asked to comment on any difficulties understanding, or completing, the question.

41. The statistical standards addressed in this chapter are scope, statistical units, classifications, weighting, time-related factors (reference date and frequency), supplementary data requirements and reporting core indicator data.

Scope

42. Indicators EG1 to EG6 refer to central government organizations, which constitute a subsector of the general government sector. The latter is defined in the 2008 System of National Accounts 2008 (2008 SNA) (EC *et al,* 2009) as consisting of all units of central, state or local government; all non-market non-profit institutions (NPIs) that are controlled by government units; and social security funds. The general government sector does not include public corporations, even when all the equity of such corporations is owned by government units. Nor does it include quasi-corporations that are owned and controlled by government units. However, unincorporated enterprises owned by government units that are not quasi-corporations remain integral parts of those units and are therefore included in the general government sector.

43. According to the 2008 SNA, the central government subsector consists of the institutional unit or units making up the central government plus non-market NPIs that are controlled by central government. The 2008 SNA describes the characteristics of central government in terms of its authority in areas such as imposition of taxes, national defence, maintenance of law and order and relations with foreign governments. The concept of control in respect of NPIs is defined by the 2008 SNA as the ability to determine the general policy or programme of the NPI, with five indicators of control to be considered. They include control according to enabling instruments (for example, constitution), contractual agreements, degree of funding and exposure to financial risk of the NPI. Control may be established using one or more of these criteria and, ultimately, the establishment of control is a judgemental in nature.

44. The International Standard Industrial Classification of All Economic Activities (ISIC) (UNDESA 2002, 2008a) is the international standard for classifying entities according to their economic activity. National Statistical Offices (NSOs) will generally classify units on their business register by ISIC or an equivalent national industrial classification. Where data for the e-government indicators are collected using a

survey run by a NSO, the business register may be used as a survey frame (or at least used as a starting point for constructing a frame). As ISIC refers to activities, not types of units, it cannot be used alone to determine government units (because some of the activities of government will be outside the ISIC section, *Public administration and defence*; *compulsory social security*, and, arguably, non government units may also have activities covered by this section). In addition, ISIC does not distinguish the activities of central government; these will vary for individual countries (as an example, countries with a level of 'state' or 'provincial' government will likely have more limited central government functions).

45. A scope extension for indicators EG1 to EG6 includes the other generally recognized levels of government, state (or provincial) and local. State and local government units are defined by the 2008 SNA as:

- State government units are described as "… institutional units whose fiscal, legislative and executive authority extends only over the individual "states" into which the country as a whole may be divided. Such "states" may be described by different terms in different countries. In some countries, especially small countries, individual states and state governments may not exist. However, in large countries, especially those that have federal constitutions, considerable powers and responsibilities may be assigned to state governments."
- Local government units are described as "…institutional units whose fiscal, legislative and executive authority extends over the smallest geographical areas distinguished for administrative and political purposes."

46. Following the 2008 SNA, where more than one level of government exists between central and local government; these should be included with the level of government (state or local), with which they are most closely associated.

47. Indicator EG7 refers to government more generally and includes both central and state levels of government. It is methodologically quite different from indicators EG1 to EG6, which refer to information in respect of central government entities. While the 'units comparability issue' described in Chapter 3 does not apply to EG7, at a country level, the indicator potentially relies on several data sources, some or all of which may be subjective. EG7 is considered *experimental* because of this uncertainty and because the method of data collection required is relatively untested.

Statistical units

48. Government units are defined according to the 2008 SNA as "… unique kinds of legal entities established by political processes that have legislative, judicial or executive authority over other institutional units within a given area. Viewed as institutional units, the principal functions of government are to assume responsibility for the provision of goods and services to the community or to individual households and to finance their provision out of taxation or other incomes; to redistribute income and wealth by means of transfers; and to engage in non-market production."

49. An institutional unit is defined by the 2008 SNA as "… an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities." An important attribute of the institutional unit is that a set of economic accounts exists or can be compiled for the unit. This set of accounts includes consolidated financial accounts and/or a balance sheet of assets and liabilities (EC *et al*, 2009).

50. According to the 2008 SNA "Central government is a large and complex sub-sector in most countries. It is generally composed of a central group of departments or ministries that make up a single institutional unit plus, in many countries, other institutional units."

51. For indicators of the type 'proportion of central government organizations with ICT', use of the institutional unit presents difficulties for those countries where a single institutional unit comprises all (or many) central government departments or ministries. In such cases, the institutional unit will consist of a number of subunits (for example, individual ministries and agencies), each of which has its own ICT characteristics. There will not be a clear indication of the ICT characteristics of the institutional unit, unless all the subunits have identical ICT characteristics.

52. A partial solution to this problem is to use a unit that is at a lower level than the institutional unit in cases where the institutional unit comprises all (or most) of central government. The 2008 SNA discusses a number of government units that may be part of an institutional unit or be institutional units in their own right. They include:

- Departments or ministries of central government that are part of a single institutional unit;
- Branch offices or agencies of central government (for example located in different parts of the country) that are part of a single institutional unit; and
- Agencies of central government with separate legal identity and substantial autonomy that may be established to carry out specific functions (such as road construction, or the non-market production of health or education services); these are separate institutional units if they maintain full sets of accounts.

53. In some cases, these types of units will be equivalent to sites or establishments. In others, they will be higher level units, with associated subunits including establishments. It is clear that it is impractical to collect or compile information in respect of all establishments that are part of a central government entity. In many countries, such 'excluded establishments' would include individual schools, hospitals, health centres, museums, police stations and post offices.

54. It is therefore suggested that, where a single institutional unit comprises all (or much) of central government, the highest level below the institutional unit should be selected as the appropriate statistical unit of central government. Such units would include portfolio departments (for example, education, health, education, culture, justice) and central government agencies such as national postal operators. Where there is no such unit between an establishment and a single institutional unit of central government, then the establishment would be the appropriate statistical unit. In some cases, a single institutional unit may be appropriate, for instance, where it is an agency of central government with a separate legal identity.

55. The suggested unit will, in many cases, be analogous to the kind-of-activity units defined by the 2008 SNA: "A kind-of-activity unit is an enterprise, or a part of an enterprise, that engages in only one kind of productive activity or in which the principal productive activity accounts for most of the value added." This is a higher level unit than the establishment level, which is location-based ("… an enterprise, or part of an enterprise, that is situated in a single location and in which only a single productive activity is carried out …")(EC *et al*, 2009).

56. Where the selected unit has one or more subunits that are not 'excluded establishments' and have different ICT characteristics from the selected statistical unit, the response should reflect the situation applying to the majority of persons employed. For example, a particular statistical unit is a government department with Internet access at its head office, where 100 people work. The department has several regional offices, all without Internet access and employing in total 150 employees. The response should indicate that the statistical unit does not have Internet access. In situations like this, it could be preferable to survey the unit and its subunits.

57. It is obvious that central government statistical units are very heterogeneous and are not able to be readily defined in a way that can be applied uniformly across countries. In addition, the functions of

central government will vary across countries, thus compounding comparability problems. In this situation, a classification of organizations by size is particularly important in creating some level of homogeneity of central government units across countries. A size classification is presented below.

58. Where countries' business registers (or equivalent registers of government units) have only institutional government units, countries may prefer to use those units as reporting units in preference to compiling a register of all subunits. In such cases, the reporting unit would respond in respect of each of its subunits (for example, departments or ministries, branch offices and agencies, but not 'excluded establishments' such as schools, hospitals, health centres, museums, police stations and post offices).

59. Countries using a business register to conduct surveys to measure any of the indicators EG1 to EG6 should ensure that they have covered all the central government units classified to ISIC Section O *Public administration and defence; compulsory social security*. It is reiterated that central government activities may be classified to various other ISIC classes, for instance (in ISIC Rev. 4), Section P Education; Section Q Human health and social work activities, and Section R Arts, entertainment and recreation. In addition, units that are not central government entities may be classified to ISIC Section O.

Classifications

60. For indicators EG1 and EG2, *persons employed* could be classified by characteristics applying to individuals, for example, occupation or gender.

61. As discussed in Chapter 3, the 'units comparability issue' is a major challenge for central government units. It is strongly recommended that output for at least indicators EG3 to EG6 be classified by size of central government organization, thus enabling comparison of similarly sized units across countries.[4] The size variable proposed is the number of persons employed by head count (HC) and the size ranges are the employment size categories used by the *Partnership* for businesses (*Partnership*, 2010). These are: 1–9, 10–49, 50-249 and 250 or more. HC refer to the number of persons employed, whether full-time, part-time or casual.

62. Where data for indicators EG1 to EG6 are collected by surveys, employment HC data should be collected in the same survey unless reliable data on employment by HC are available on countries' business registers (or other survey frames).

Weighting

63. Because of the heterogeneity of central government units, it is strongly suggested that indicators be weighted. This removes the effect of unit non-comparability, although it does introduce a weighting effect, which may cause the estimate to be biased. The weighting for each indicator has been chosen to be reasonably aligned with the nature of the indicator in order to reduce any weighting effects. The following weightings are recommended:

- For EG1 and EG2, the weighting is a component of the indicator, that is, the proportion of employees who routinely use a computer/the Internet; when aggregated to the total population, these indicators provide information on the proportion of all central government employees routinely using computers/the Internet.

[4] Note that the issue does not apply to EG7 and is less critical for EG1 and EG2.

- For EG3 to EG6, it is recommended that indicators be weighted according to the number of employees; this should be reasonably unbiased for indicators reflecting ICT use by employees (that is, EG3, EG4 and EG5). For EG6, employment weighting is less related to whether an organization has a website, though, arguably, larger organisations are more likely to have websites. The algebraic depiction of employment-weighted estimates is shown in the indicator boxes for EG3 to EG6.
- For EG7, the weighting is a component of the indicator, being the proportion of the relevant population with the theoretical ability to access selected Internet-based government services.

Time-related factors

Reference date

64. The indicators refer to the situation at a particular reference date. While it is obviously useful if countries harmonize this date in their data collections, it is considered impractical to recommend that. Therefore, no advice is offered on the selection of a particular reference date. For international reporting of the indicators, countries should include the reference date in a 'statistical standards statement'.

65. Reference dates are referred to in all of the indicators. The dates are left up to countries to determine. They could be at the end of a calendar year or a quarter. It could also be the day the survey was completed and therefore could differ slightly between organizations.

Frequency

66. Frequency refers to how frequently the indicators are produced by a country. This will be a function of several factors, including resources and the speed of change in the implementation of e-government. While no particular recommendations are made, it is considered that once every two years would be a suitable starting point.

Supplementary data requirements

67. Where data are collected by a survey, that survey should also collect data on the number of persons employed (on a HC basis by gender, if possible) at the *reference date*. This is required for size classification, to derive indicators EG1 and EG2, and to derive employment-weighted indicators for EG3 to EG6. *Persons employed* refer to all persons working for the government organization, not only those working in clerical jobs. They include part-time, short-term and casual employees. A suitable question is:

How many persons were employed by this organization at <reference date>? ____

How many of these were female? ____

How many of these were male? ____

Reporting core indicator data

68. For international reporting purposes, where possible, countries should provide numbers for indicators EG1 to EG6 rather than proportions. This makes it clear what the data mean and facilitates

comparison of data across countries. It also enables aggregation of sub-categories (for example, size categories). Population estimates for the total population, and for each sub-population (as indicated by the classificatory variables), also need to be provided so that proportions can be derived. Both sets of numbers should represent the whole population and not a sample. For EG7, countries should provide percentages (of the relevant population).

69. The numbers to be provided for indicators EG1 to EG6 are:

- TE: Total number of persons employed in central government organizations, split by organization size. Where possible, TE should also be split by male and female, by size. This is the denominator for EG1 and EG2, and also for employment-weighted versions of indicators EG3 to EG6.
- TGO: Total number of central government organizations, split by organization size. This is the denominator for indicators EG3 to EG6.
- TEUC: Total number of persons employed in central government organizations, routinely using computers, split by organization size. This is the numerator of EG1. Where possible, TEUC should be also split by male and female, by size.
- TEUI: Total number of persons employed in central government organizations routinely using the Internet, split by organization size. This is the numerator of EG2. Where possible, TEUI should be also split by male and female, by size.
- TGLAN: Total number of central government organizations with a LAN, split by organization size. This is the numerator for EG3.
- TEGLAN*:* Total number of persons employed in central government organizations with LAN. This is the numerator for the employment-weighted version of EG3.
- TGINTR: Total number of central government organizations with an intranet, split by organization size. This is the numerator for EG4.
- TEGINTR*:* Total number of persons employed in central government organizations with an intranet. This is the numerator for the employment-weighted version of EG4.
- TGINT: Total number of central government organizations with Internet access, split by organization size. This is the numerator for EG5 and is split by type of Internet access service used (as well as 'any Internet access').
- TEGINT: Total number of persons employed in central government organizations with <u>any</u> Internet access. This is the numerator for the employment-weighted version of EG5 and is not split by type of Internet access.
- TGWEB: Total number of central government organizations with a web presence, split by organization size. This is the numerator for EG6.
- TEGWEB: Total number of persons employed in central government organizations with a web presence. This is the numerator for the employment-weighted version of EG6.

Chapter 4. Technical specification of proposed e-government indicators

70. Table 2 in this chapter presents detailed technical specifications for the seven proposed core e-government indicators.

71. The first two indicators, EG1 and EG2, are presented as the *proportion of employees of government entities using [technology].* Indicators EG3 to EG6 are presented as the *proportion of central government entities using/with [technology].* Employment-weighted versions of EG3 to EG6 are also defined and recommended.

72. The last indicator, EG7, deals with the services offered by central and state government organizations, with a set of selected Internet-based services.

73. Sub-indicators for the indicators can be constructed using the classificatory variables, type of government organization and organization size, for example, the proportion of central government organizations with 250 or more employees, with an intranet. In particular, it is strongly suggested that the size classification presented in this chapter be applied by countries.

74. The presentation of technical specifications was influenced by *Guide to Measuring Information and Communication Technologies (ICT) in Education* by the UNESCO Institute for Statistics (UIS, 2009), and the *Regional proposal for core indicators on e-government: methodological guidelines* (OSILAC, 2010). Statistical standards for the core indicators are taken from a number of sources and are discussed in the previous chapter.

75. The proposed core e-government indicators are shown in Table 2 and are specified according to the following characteristics:

- Name of indicator;
- Definition of indicators (basic and employment-weighted);
- Method of data collection;
- Data requirements;
- Disaggregations;
- Formulae (how basic and employment-weighted indicators are calculated);
- Suggested model questions;
- Definitions of units and terms; and
- Notes, including scope extensions to other levels of government, statistical issues and the outline of a statistical standards statement for the purposes of international reporting.

Table 2. Technical specifications of proposed e-government indicators

EG1: Proportion of persons employed in central government organizations routinely using computers

Definition of indicator:

The *proportion of persons employed in central government organizations routinely using computers* is calculated by dividing the number of persons employed in central government organizations, who routinely use computers, by the total number of persons employed in central government organizations. The result is then multiplied by 100 to be expressed as a percentage.

An optional indicator may be calculated separately for male and female persons employed (or other individual characteristics).

Method of data collection:

Data may be collected by statistical surveys of central government organizations, or other methods, such as compilation from ministries' administrative records, where these are suitable.

Data requirements:

TEUC: Total number of persons employed in government organizations, routinely using computers.

TE: Total number of persons employed in government organizations.

Disaggregations:

The indicator is preferably disaggregated by size of central government organization in ranges of persons employed: 1-9, 10-49, 50-249, 250 and above.

The indicator may be extended to a disaggregation by gender, or other individual characteristics, where that information is available. The model questions below show a disaggregation by gender.

Formula:

$$EG1_S = \left[\frac{TEUC_S}{TE_S} \right] * 100$$

For each S in ['1' , '2' , '3']

Gender is defined by the letter S and values are between 1 and 3, as follows:

S = '1'→'Male persons employed'.

S = '2'→'Female persons employed'.

S = '3'→'Total number of persons employed'.

Suggested model questions:

How many persons were employed by this organization at <reference date>? ____

Optional extension:

How many of these were female? ____

How many of these were male? ____

How many persons employed by this organization routinely used a computer at work (for work purposes) as at <reference date>? ____

Optional extension:

How many of these were female? ____

How many of these were male? ____

EG1: Proportion of persons employed in central government organizations routinely using computers (continued)

Definitions of units and terms:

Central government organizations are defined according to the 2008 *System of National Accounts* (EC *et al*, 2009), which describes the *central government subsector* as "…generally composed of a central group of departments or ministries that make up a single institutional unit plus, in many countries, other institutional units."

Where the institutional unit comprises all (or most) of the entities that comprise central government, the highest level below the institutional unit should be selected as the appropriate statistical unit. Such units would include portfolio departments (e.g. education, health, education, culture, justice) and central government agencies such as national postal operators. Where there is no such unit between an establishment and a single institutional unit of central government, then the establishment would be the appropriate statistical unit. In some cases, an institutional unit may be appropriate, for instance, where it is an agency of central government with a separate legal identity.

'Excluded establishments' of central government such as individual schools, hospitals, health centres, museums, police stations and post offices are not statistical units, for the purposes of this indicator, except where there is no higher level unit above them. An example of the latter might be a national museum or national archives.

For more information on scope and definitions of statistical units, see Chapter 3.

A *computer* refers to a desktop or a laptop computer. It does not include equipment with some embedded computing abilities such as mobile cellular phones, personal digital assistants (PDAs) or TV sets (*Partnership*, 2010).

Persons employed refers to all persons working for the specified government organization, not only those working in clerical jobs. They include part-time, short-term and casual employees (*Partnership*, 2010).

Routinely refers to at least once a week (*Partnership*, 2010).

Use can be at the organization's premises or elsewhere but refers to use for work purposes.

The *reference date* for these questions could be at the end of a calendar year or quarter. It could also be the day the survey was completed and therefore could differ slightly between organizations.

Notes:

A useful scope extension for this indicator is to include the other generally recognized levels of government, state (or provincial) and local. See Chapter 3 for definitions of these levels of government.

The main statistical issue with this indicator is that the result reflects the functions and statistical units of central government organizations as well as the propensity towards computer use. For example, if a country has a large number of central government statistical units employing labourers, it may show a lower result on this indicator simply because labourers are less likely to use computers as part of their job than clerical workers.

For international reporting, countries should provide a 'statistical standards statement' indicating the reference date that has been used, which central government organizations have been included and how they are defined. Major coverage problems and use of different definitions of terms should also be addressed.

EG2: Proportion of persons employed in central government organizations routinely using the Internet

Definition of indicator:

The *proportion of persons employed in central government organizations routinely using the Internet* is calculated by dividing the number of persons employed by central government organizations, who routinely use the Internet, by the number of persons employed by central government organizations. The result is then multiplied by 100 to be expressed as a percentage.

An optional indicator may be calculated separately for male and female persons employed (or other individual characteristics).

Method of data collection:

Data may be collected by statistical surveys of central government organizations, or other methods, such as compilation from ministries' administrative records, where these are suitable.

Data requirements:

TEUI: Total number of persons employed in central government organizations routinely using the Internet.

TE: Total number of persons employed in central government organizations.

Disaggregations:

The indicator is preferably disaggregated by size of central government organization in ranges of persons employed: 1-9, 10-49, 50-249, 250 and above.

The indicator may be extended to a disaggregation by gender, or other individual characteristics, where that information is available. The model questions below show a disaggregation by gender.

Formula:

$$EG2_s = \left[\frac{TEUI_s}{TE_s} \right] * 100$$

For each S in ['1','2','3'].

Gender is defined by the letter S and values are between 1 and 3, as follows:

S = '1'→'Male persons employed'.

S = '2'→'Female persons employed'.

S = '3'→'Total number of persons employed'.

Suggested model questions:

How many persons were employed by this organization at <reference date>? ____

Optional extension:

How many of these were female? ____

How many of these were male? ____

How many persons employed by this organization routinely used the Internet at work (for work purposes) as at <reference date>? ____

Optional extension:

How many of these were female? ____

How many of these were male? ____

EG2: Proportion of persons employed in central government organizations routinely using the Internet (continued)

Definitions of units and terms:

Central government organizations are defined according to the 2008 *System of National Accounts* (EC *et al*, 2009), which describes the *central government subsector* as "…generally composed of a central group of departments or ministries that make up a single institutional unit plus, in many countries, other institutional units."

Where the institutional unit comprises all (or most) of the entities that comprise central government, the highest level below the institutional unit should be selected as the appropriate statistical unit. Such units would include portfolio departments (e.g. education, health, education, culture, justice) and central government agencies such as national postal operators. Where there is no such unit between an establishment and a single institutional unit of central government, then the establishment would be the appropriate statistical unit. In some cases, an institutional unit may be appropriate, for instance, where it is an agency of central government with a separate legal identity.

'Excluded establishments' of central government such as individual schools, hospitals, health centres, museums, police stations and post offices are not statistical units, for the purposes of this indicator, except where there is no higher level unit above them. An example of the latter might be a national museum or national archives.

For more information on scope and definitions of statistical units, see Chapter 3.

The *Internet* is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer − it may also be by mobile phone, PDA, game machine, digital TV or other device.) Internet access can be via a fixed or wireless network (*Partnership*, 2010).

Persons employed refers to all persons working for the specified government organization, not only those working in clerical jobs. They include part-time, short-term and casual employees (*Partnership*, 2010).

Routinely refers to at least once a week (*Partnership*, 2010).

Use can be at the organization's premises or elsewhere but refers to use for work purposes.

The *reference date* for these questions could be at the end of a calendar year or quarter. It could also be the day the survey was completed and therefore could differ slightly between organizations.

Notes:

A useful scope extension for this indicator is to include the other generally recognized levels of government, state (or provincial) and local. See Chapter 3 for definitions of these levels of government.

The main statistical issue with this indicator is that the result reflects the functions and statistical units of central government organizations as well as the propensity towards Internet use. For example, if a country has a large number of central government statistical units employing labourers, it may show a lower result on this indicator simply because labourers are less likely to use the Internet as part of their job than clerical workers.

For international reporting, countries should provide a 'statistical standards statement' indicating the reference date that has been used, which central government organizations have been included and how they are defined. Major coverage problems and use of different definitions of terms should also be addressed.

EG3: Proportion of central government organizations with a Local Area Network (LAN)

Definition of basic indicator:

The *proportion of central government organizations with a Local Area Network (LAN)* is calculated by dividing the number of central government organizations with a LAN by the number of central government organizations. The result is then multiplied by 100 to be expressed as a percentage.

Definition of employment-weighted indicator:

An *employment-weighted* version of the indicator is calculated by weighting responses by the number of employees in responding central government organizations. The resulting indicator is expressed as follows: *central government organizations with a LAN account for x per cent of the total number of persons employed in government organizations*. Note that this is different from the employment weighting used in EG1 and EG2. However, like those indicators, it requires that total employment be collected in surveys of central government organizations.

Method of data collection:

Data may be collected by statistical surveys of central government organizations, or other methods, such as compilation from ministries' administrative records, where these are suitable.

Data requirements:

TGLAN: Total number of central government organizations with a LAN

TGO: Total number of central government organizations.

TEGLAN: Total number of persons employed in central government organizations with LAN.

TE: Total number of persons employed in central government organizations.

Disaggregations:

The basic indicator should be disaggregated by size of central government organization in ranges of persons employed: 1-9, 10-49, 50-249, 250 and above.

Formulae:

$$EG3 = \left[\frac{TGLAN}{TGO} \right] * 100$$

The employment weighted estimate is:

$$EG3_{ew} = \left[\frac{TEGLAN}{TE} \right] * 100$$

Suggested model question:

Did this organization have a Local Area Network (LAN) as at <reference date>?

Yes ☐ No ☐

Definitions of units and terms:

Central government organizations are defined according to the *2008 System of National Accounts* (EC *et al*, 2009), which describes the *central government subsector* as "…generally composed of a central group of departments or ministries that make up a single institutional unit plus, in many countries, other institutional units."

Where the institutional unit comprises all (or most) of the entities that comprise central government, the highest level below the institutional unit should be selected as the appropriate statistical unit. Such units would include portfolio departments (e.g. education, health, education, culture, justice) and central government agencies such as national postal operators. Where there is no such unit between an establishment and a single institutional unit of central government, then the establishment would be the appropriate statistical unit. In some cases, an institutional unit may be appropriate, for instance, where it is an agency of central government with a separate legal identity.

Where the ICT characteristics of subunits vary (for example, between a head office and regional offices), either, all units should be surveyed (apart from 'excluded establishments' such as individual schools, hospitals, health centres, museums, police stations and post offices) or the response should reflect the situation applying to the majority of persons employed.

For more information on scope, definitions of statistical units and treatment where ICT characteristics differ, see Chapter 3.

A *LAN* refers to a network connecting computers within a localized area such as a single building, department or site; it may be wireless (*Partnership*, 2010).

The *reference date* for these questions could be at the end of a calendar year or quarter. It could also be the day the survey was completed and therefore could differ slightly between organizations.

Notes:

A useful scope extension for this indicator is to include the other generally recognized levels of government, state (or provincial) and local. See Chapter 3 for definitions of these levels of government.

A major statistical issue with this indicator is the 'units comparability issue' discussed in Chapter 2. The impact of this issue can be reduced by adherence to the standards described in this report, including tabulation of output by size of organization and employment weighting.

For international reporting, countries should provide a 'statistical standards statement' indicating the reference date that has been used, which central government organizations have been included and how they are defined. Major coverage problems and use of different definitions of terms should also be addressed.

EG4: Proportion of central government organizations with an intranet

Definition of basic indicator:

The *proportion of central government organizations with an intranet* is calculated by dividing the number of central government organizations with an intranet by the number of central government organizations. The result is then multiplied by 100 to be expressed as a percentage.

Definition of employment-weighted indicator:

An *employment-weighted* version of the indicator is calculated by weighting responses by the number of employees in responding central government organizations. The resulting indicator is expressed as follows: *central government organizations with an intranet account for x per cent of the total number of persons employed in central government organizations*. Note that this is different from the employment weighting used in EG1 and EG2. However, like those indicators, it requires that total employment be collected in surveys of central government organizations.

Method of data collection:

Data may be collected by statistical surveys of central government organizations, or other methods, such as compilation from ministries' administrative records, where these are suitable.

Data requirements:

TGINTR: Total number of central government organizations with an intranet.

TGO: Total number of central government organizations.

TEGINTR: Total number of persons employed in central government organizations with an intranet.

TE: Total number of persons employed in central government organizations.

Disaggregations:

The basic indicator should be disaggregated by size of central government organization in ranges of persons employed: 1-9, 10-49, 50-249, 250 and above.

Formulae:

$$EG4 = \left[\frac{TGINTR}{TGO} \right] * 100$$

The employment weighted estimate is:

$$EG4_{ew} = \left[\frac{TEGINTR}{TE} \right] * 100$$

Suggested model question:

Did this organization have an intranet as at <reference date>?

Yes ☐ No ☐

Definitions of units and terms:

Central government organizations are defined according to the *2008 System of National Accounts* (EC *et al*, 2009), which describes the *central government subsector* as "…generally composed of a central group of departments or ministries that make up a single institutional unit plus, in many countries, other institutional units."

Where the institutional unit comprises all (or most) of the entities that comprise central government, the highest level below the institutional unit should be selected as the appropriate statistical unit. Such units would include portfolio departments (e.g. education, health, education, culture, justice) and central government agencies such as national postal operators. Where there is no such unit between an establishment and a single institutional unit of central government, then the establishment would be the appropriate statistical unit. In some cases, an institutional unit may be appropriate, for instance, where it is an agency of central government with a separate legal identity.

Where the ICT characteristics of subunits vary (for example, between a head office and regional offices), either, all units should be surveyed (apart from 'excluded establishments' such as individual schools, hospitals, health centres, museums, police stations and post offices) or the response should reflect the situation applying to the majority of persons employed.

For more information on scope, definitions of statistical units and treatment where ICT characteristics differ, see Chapter 3.

An *intranet* refers to an internal communications network using Internet protocols and allowing communication within an organization (and to other authorized persons). It is typically set up behind a firewall to control access (*Partnership*, 2010).

The *reference date* for these questions could be at the end of a calendar year or quarter. It could also be the day the survey was completed and therefore could differ slightly between organizations.

Notes:

A useful scope extension for this indicator is to include the other generally recognized levels of government, state (or provincial) and local. See Chapter 3 for definitions of these levels of government.

A major statistical issue with this indicator is the 'units comparability issue' discussed in Chapter 2. The impact of this issue can be reduced by adherence to the standards described in this report, including tabulation of output by size of organization and employment weighting.

For international reporting, countries should provide a 'statistical standards statement' indicating the reference date that has been used, which central government organizations have been included and how they are defined. Major coverage problems and use of different definitions of terms should also be addressed.

EG5: Proportion of central government organizations with Internet access, by type of access

Definition of basic indicator:

The *proportion of government organizations with Internet access, by type of access* is calculated by dividing the total number of central government organizations with Internet access (by each type of access and 'any' access) by the total number of central government organizations. The result is then multiplied by 100 to be expressed as a percentage.

Note that the sum of percentages of each type of access is likely to exceed 100, as many central government organizations will have more than one type of access service.

Definition of employment-weighted indicator:

An *employment-weighted* version of the indicator for any Internet access is calculated by weighting responses by the number of employees in responding central government organizations. The resulting indicator is expressed as follows: *central government organizations with Internet access account for x per cent of the total number of persons employed in central government organizations*. Note that this is different from employment weighting used in EG1 and EG2. However, like those indicators, it requires that total employment be collected in surveys of central government organizations.

Method of data collection:

Data may be collected by statistical surveys of central government organizations, or other methods, such as compilation from ministries' administrative records, where these are suitable. Where a survey is used, countries should include an instruction that the respondent should consult their information technology area (or equivalent) if unsure about the meaning of the definitions.

Data requirements:

TGINT: Total number of central government organizations with Internet access (by type).

TGO: Total number of central government organizations.

TEGINT: Total number of persons employed in central government organizations with <u>any</u> Internet access.

TE: Total number of persons employed in central government organizations.

Disaggregations:

The basic indicator should be disaggregated by size of central government organization in ranges of persons employed: 1-9, 10-49, 50-249, 250 and above.

Formulae:

$$EG5_T = \left[\frac{TGINT_T}{TGO} \right] * 100$$

$$\text{For each } T \text{ in } ['1','2','3','4'].$$

The employment weighted estimate refers to organizations with <u>any</u> form of Internet access and is:

$$EG5_{ew} = \left[\frac{TEGINT}{TE} \right] * 100$$

Types of access to Internet access are defined by the letter T and their values are between 1 and 4, as follows:

T = '1'→'Narrowband'.

T = '2'→'Fixed (wired) broadband'.

T = '3'→' Wireless broadband'.

T = '4'→'Any Internet access'.

Suggested model question:

Did this organization have Internet access as at <reference date>?

Yes ☐ No ☐

If 'Yes':

Did this organization have narrowband Internet access as at <reference date>?

Yes ☐ No ☐

Did this organization have fixed (wired) broadband Internet access as at <reference date>?

Yes ☐ No ☐

Did this organization have wireless broadband Internet access as at <reference date>?

Yes ☐ No ☐

EG5: Proportion of central government organizations with Internet access, by type of access (continued)

Definitions of units and terms:

Central government organizations are defined according to the *2008 System of National Accounts* (EC *et al*, 2009), which describes the *central government subsector* as "…generally composed of a central group of departments or ministries that make up a single institutional unit plus, in many countries, other institutional units."

Where the institutional unit comprises all (or most) of the entities that comprise central government, the highest level below the institutional unit should be selected as the appropriate statistical unit. Such units would include portfolio departments (e.g. education, health, education, culture, justice) and central government agencies such as national postal operators. Where there is no such unit between an establishment and a single institutional unit of central government, then the establishment would be the appropriate statistical unit. In some cases, an institutional unit may be appropriate, for instance, where it is an agency of central government with a separate legal identity.

Where the ICT characteristics of subunits vary (for example, between a head office and regional offices), either, all units should be surveyed (apart from 'excluded establishments' such as individual schools, hospitals, health centres, museums, police stations and post offices) or the response should reflect the situation applying to the majority of persons employed.

For more information on scope, definitions of statistical units and treatment where ICT characteristics differ, see Chapter 3.

The *Internet* is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files (*Partnership*, 2010).

Narrowband includes analogue modem (dial-up via standard phone line), ISDN (Integrated Services Digital Network), DSL at speeds below 256 kbit/s, and mobile phone and other forms of access with an advertised download speed of less than 256 kbit/s. Note that narrowband mobile phone access services include CDMA 1x (Release 0), GPRS, WAP and i-mode (ITU, 2011).

Fixed (wired) broadband refers to fixed (wired) high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 kbit/s. This includes cable modem, DSL, fibre-to-the-home/building and other fixed (wired) broadband subscriptions. It excludes wireless broadband services as defined below (ITU, 2011).

Wireless broadband refers to wireless high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 kbit/s. This can include satellite Internet, terrestrial fixed wireless (including fixed WiMax) and broadband access via mobile cellular networks (ITU, 2011).

Internet access can be via any device (mobile cellular phone, laptop, PDA, etc.). The Internet connection/s should be functional, that is any equipment, software or services needed should be in working condition. Access can be via a fixed or wireless network (*Partnership*, 2010).

The *reference date* for these questions could be at the end of a calendar year or quarter. It could also be the day the survey was completed and therefore could differ slightly between organizations.

Notes:

A useful scope extension for this indicator is to include the other generally recognized levels of government, state (or provincial) and local. See Chapter 3 for definitions of these levels of government.

A major statistical issue with this indicator is the 'units comparability issue' discussed in Chapter 2. The impact of this issue can be reduced by adherence to the standards described in this report, including tabulation of output by size of organization and employment weighting.

Another possible statistical issue is the technical nature of the categories and the possibility that respondents will not know what kind of Internet access service/s they have.

For international reporting, countries should provide a 'statistical standards statement' indicating the reference date that has been used, which central government organizations have been included and how they are defined. Major coverage problems and use of different definitions of terms should also be addressed.

EG6: Proportion of central government organizations with a web presence

Definition of basic indicator:

The *proportion of central government organizations with a web presence* is calculated by dividing the number of central government organizations with a web presence by the number of central government organizations. The result is then multiplied by 100 to be expressed as a percentage.

Definition of employment-weighted indicator:

An *employment-weighted* version of the indicator is calculated by weighting responses by the number of employees in responding central government organizations. The resulting indicator is expressed as follows: *central government organizations with a web presence account for x per cent of the total number of persons employed in central government organizations*. Note that this is different from employment weighting used in EG1 and EG2. However, like those indicators, it requires that total employment be collected in surveys of central government organizations.

Method of data collection:

Data may be collected by statistical surveys of central government organizations, or other methods, such as compilation from ministries' administrative records, where these are suitable.

Data requirements:

TGWEB: Total number of central government organizations with a web presence.

TGO: Total number of central government organizations.

TEGWEB: Total number of persons employed in central government organizations with a web presence.

TE: Total number of persons employed in central government organizations.

Disaggregations:

The basic indicator should be disaggregated by size of central government organization in ranges of persons employed: 1-9, 10-49, 50-249, 250 and above.

Formulae:

$$EG6 = \left[\frac{TGWEB}{TGO} \right] * 100$$

The employment-weighted estimate is:

$$EG6_{ew} = \left[\frac{TEGWEB}{TE} \right] * 100$$

Suggested model questions:

Did this organization have a web presence as at <reference date>?

Yes ☐ No ☐

Please give the web address (URL) of this organization's main web presence: _____

EG6: Proportion of central government organizations with a web presence (continued)

Definitions of units and terms:

Central government organizations are defined according to the *2008 System of National Accounts* (EC *et al*, 2009), which describes the *central government subsector* as "…generally composed of a central group of departments or ministries that make up a single institutional unit plus, in many countries, other institutional units."

Where the institutional unit comprises all (or most) of the entities that comprise central government, the highest level below the institutional unit should be selected as the appropriate statistical unit. Such units would include portfolio departments (e.g. education, health, education, culture, justice) and central government agencies such as national postal operators. Where there is no such unit between an establishment and a single institutional unit of central government, then the establishment would be the appropriate statistical unit. In some cases, an institutional unit may be appropriate, for instance, where it is an agency of central government with a separate legal identity.

Where the ICT characteristics of subunits vary (for example, between a head office and regional offices), either, all units should be surveyed (apart from 'excluded establishments' such as individual schools, hospitals, health centres, museums, police stations and post offices) or the response should reflect the situation applying to the majority of persons employed.

For more information on scope, definitions of statistical units and treatment where ICT characteristics differ, see Chapter 3.

A *web presence* includes a website, home page or presence on another entity's website (including a related organization). It excludes inclusion in an on-line directory and any other web pages where the organization does not have control over the content of the page (*Partnership*, 2010).

The *reference date* for these questions could be at the end of a calendar year or quarter. It could also be the day the survey was completed and therefore could differ slightly between organizations.

Notes:

A useful scope extension for this indicator is to include the other generally recognized levels of government, state (or provincial) and local. See Chapter 3 for definitions of these levels of government.

A major statistical issue with this indicator is the 'units comparability issue' discussed in Chapter 2. The impact of this issue can be reduced by adherence to the standards described in this report, including tabulation of output by size of organization and employment weighting.

For international reporting, countries should provide a 'statistical standards statement' indicating the reference date that has been used, which central government organizations have been included and how they are defined. Major coverage problems and use of different definitions of terms should also be addressed.

EG7: Selected Internet-based services available to citizens, by level of sophistication of service	
Definition of indicator: Unlike indicators EG1 to EG6, this indicator refers to both central and state/provincial levels of government. This is necessary to ensure international comparability as the services selected may be offered by different levels of government across countries. Because the approach taken to measuring Internet-based services is relatively untested[5] and because responses may be somewhat subjective, the indicator is initially considered to be 'experimental'. The indicator is weighted by population in order to show the significance of government Internet-based services at the national level. The indicator is expressed in terms of the percentage of a country's population that is theoretically able to access each Internet-based service. Note that this does not refer to whether a citizen has the equipment or knowledge necessary to access those services, whether s/he needs to access those services or whether s/he directly benefits (for example, most of the services are not relevant to children). The ability to access each service will usually be linked to the relevant jurisdiction, for example, a citizen residing in a particular state will theoretically be able to access Internet-based services offered by that state government, though may not need to, wish to, or be technically capable of doing so.	
Method of data collection: Data are likely to be collected by countries using available information and/or by searches of relevant websites for each jurisdiction. Two data collection approaches are possible. The first provides a model question as a 'reporting proforma' to be completed at the country level, for example, by a single national agency or national expert. It is not like the model questions for EG1 to EG6, which are suitable for inclusion on surveys of individual government organizations. Some countries may prefer to send the question to jurisdictions (e.g. state governments) to complete. In this case, each jurisdiction would complete the second version of the model question ('jurisdiction level') and, for each level (1 to 4) for each service, provide a 'Yes', 'No' or 'Not relevant' response. The national compiling agency would then aggregate the information, using jurisdiction level total population data, and complete the reporting proforma. See **Definitions of units and terms** below for more information.	
Data requirements: Availability of selected Internet-based services as shown in the model questions below. Total populations governed, for each jurisdiction (e.g. one national and several state governments).	**Disaggregations:** By central/federal and state/provincial levels of government, as shown in the model questions below.

[5] Web surveys of government sites are conducted by several organizations. However, it is not known whether data are weighted by the theoretical population able to access the service. At an individual country level, the Czech Statistical Office conducts an annual web survey that collects data on the availability of particular online services (personal documents, certificates, construction permit, announcement of change of address and social contributions) from some municipal governments. The researcher examines public administration web sites as if s/he were a normal citizen searching for specific information and services. See http://www.czso.cz/csu/2010edicniplan.nsf/engt/F300431D09/$File/970310m2_EN.pdf. Other web-based surveys collect information on some or all for these services, for example, the EU benchmarking surveys, which were used as a guide for some of the selected services (Capgemini, 2006).

EG7: Selected Internet-based services available to citizens, by level of sophistication of service (continued)

Suggested model question (reporting proforma version) for EG7:

Indicate below the percentage of citizens theoretically able to access the following Internet-based services offered by each level of government in your country as at <reference date>. Note that this does not refer to whether a citizen has the equipment or knowledge necessary to access those services, or whether s/he needs to, or wishes to, access the services.

Internet-based services for citizens	**Central/federal government**	**State/provincial government** ☐ Tick if this level of government does not exist
Level 1: Obtain information from publicly accessible websites necessary to:		
Enrol to vote for the first time in government elections.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Complete and lodge personal income tax return, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain unemployment benefits, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain child allowance, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Renew an international passport, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Renew a driver's licence, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Make an official declaration of theft to the relevant police.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain a copy of a birth certificate.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain a copy of a marriage certificate.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Register a motor vehicle, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant

Internet-based services for citizens	**Central/federal government**	**State/provincial government** ☐ Tick if this level of government does not exist
Level 2: Request printed forms or download forms (e.g. in pdf format) from publicly accessible websites necessary to:		
Enrol to vote for the first time in government elections.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Complete and lodge personal income tax return, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain unemployment benefits, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain child allowance, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Renew an international passport, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Renew a driver's licence, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Make an official declaration of theft to the relevant police.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain a copy of a birth certificate.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain a copy of a marriage certificate.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Register a motor vehicle, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant

EG7: Selected Internet-based services available to citizens, by level of sophistication of service (continued)

Suggested model question (reporting proforma version) for EG7 (continued):

Indicate below the percentage of citizens theoretically able to access the following Internet-based services offered by each level of government in your country as at <reference date>. Note that this does not refer to whether a citizen has the equipment or knowledge necessary to access those services, or whether s/he needs to, or wishes to, access the services.

Internet-based services for citizens	**Central/federal government**	**State/provincial government** ☐ Tick if this level of government does not exist
Level 3: Fill in online forms available on publicly accessible websites to:		
Enrol to vote for the first time in government elections.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Complete and lodge personal income tax return, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain unemployment benefits, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain child allowance, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Renew an international passport, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Renew a driver's licence, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Make an official declaration of theft to the relevant police.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain a copy of a birth certificate.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain a copy of a marriage certificate.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Register a motor vehicle, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant

Internet-based services for citizens	**Central/federal government**	**State/provincial government** ☐ Tick if this level of government does not exist
Level 4: Undertake the complete process, via publicly accessible websites, to:		
Enrol to vote for the first time in government elections.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Complete and lodge personal income tax return, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain unemployment benefits, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Obtain child allowance, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant
Register a motor vehicle, least complex situation.	____% of citizens Yes ____% of citizens Not relevant	____% of citizens Yes ____% of citizens Not relevant

EG7: Selected Internet-based services available to citizens, by level of sophistication of service (continued)

Suggested model question (jurisdiction level) for EG7:

For each jurisdiction, indicate whether citizens were theoretically able to access the following Internet-based government services as at <reference date>. Note that this does not refer to whether citizens have the equipment or knowledge necessary to access those services, or whether they need to, or wish to, access the services.

Internet-based services for citizens	**Name of jurisdiction** _____
Level 1: Obtain information from publicly accessible websites necessary to:	
Enrol to vote for the first time in government elections.	Yes ☐ No ☐ Not relevant ☐
Complete and lodge personal income tax return, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Obtain unemployment benefits, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Obtain child allowance, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Renew an international passport, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Renew a driver's licence, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Make an official declaration of theft to the relevant police.	Yes ☐ No ☐ Not relevant ☐
Obtain a copy of a birth certificate.	Yes ☐ No ☐ Not relevant ☐
Obtain a copy of a marriage certificate.	Yes ☐ No ☐ Not relevant ☐
Register a motor vehicle, least complex situation.	Yes ☐ No ☐ Not relevant ☐

Internet-based services for citizens	**Name of jurisdiction** _____
Level 2: Request printed forms or download forms (e.g. in pdf format) from publicly accessible websites necessary to:	
Enrol to vote for the first time in government elections.	Yes ☐ No ☐ Not relevant ☐
Complete and lodge personal income tax return, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Obtain unemployment benefits, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Obtain child allowance, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Renew an international passport, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Renew a driver's licence, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Make an official declaration of theft to the relevant police.	Yes ☐ No ☐ Not relevant ☐
Obtain a copy of a birth certificate.	Yes ☐ No ☐ Not relevant ☐
Obtain a copy of a marriage certificate.	Yes ☐ No ☐ Not relevant ☐
Register a motor vehicle, least complex situation.	Yes ☐ No ☐ Not relevant ☐

EG7: Selected Internet-based services available to citizens, by level of sophistication of service (continued)

Suggested model question (jurisdiction level) for EG7 (continued):

For each jurisdiction, indicate whether citizens were theoretically able to access the following Internet-based government services as at <reference date>. Note that this does not refer to whether citizens have the equipment or knowledge necessary to access those services, or whether they need to, or wish to, access the services.

Internet-based services for citizens	**Name of jurisdiction** _____
Level 3: Fill in online forms available on publicly accessible websites to:	
Enrol to vote for the first time in government elections.	Yes ☐ No ☐ Not relevant ☐
Complete and lodge personal income tax return, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Obtain unemployment benefits, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Obtain child allowance, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Renew an international passport, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Renew a driver's licence, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Make an official declaration of theft to the relevant police.	Yes ☐ No ☐ Not relevant ☐
Obtain a copy of a birth certificate.	Yes ☐ No ☐ Not relevant ☐
Obtain a copy of a marriage certificate.	Yes ☐ No ☐ Not relevant ☐
Register a motor vehicle, least complex situation.	Yes ☐ No ☐ Not relevant ☐

Internet-based services for citizens	**Name of jurisdiction** _____
Level 4: Undertake the complete process, via publicly accessible websites, to:	
Enrol to vote for the first time in government elections.	Yes ☐ No ☐ Not relevant ☐
Complete and lodge personal income tax return, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Obtain unemployment benefits, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Obtain child allowance, least complex situation.	Yes ☐ No ☐ Not relevant ☐
Register a motor vehicle, least complex situation.	Yes ☐ No ☐ Not relevant ☐

EG7: Selected Internet-based services available to citizens, by level of sophistication of service (continued)

Definitions of units and terms:

Levels of government organizations are defined according to the *2008 System of National Accounts* (EC *et al*, 2009) as central, state and local.[6] Following the 2008 SNA, where more than one level of government exists between central and state/provincial government, these should be included with the level of government, with which they are most closely associated.

Central government units are described by the 2008 SNA as "… institutional unit or units making up the central government plus non-market NPIs that are controlled by central government. The political authority of central government extends over the entire territory of the country." The SNA describes the characteristics of central government in terms of its authority in areas such as imposition of taxes, national defence, maintenance of law and order and relations with foreign governments.

State government units are described by the 2008 SNA as "… institutional units whose fiscal, legislative and executive authority extends only over the individual "states" into which the country as a whole may be divided. Such "states" may be described by different terms in different countries. In some countries, especially small countries, individual states and state governments may not exist. However, in large countries, especially those that have federal constitutions, considerable powers and responsibilities may be assigned to state governments."

Internet-based services, for the purposes of this indicator, refers to services that are accessible (at least initially) via a publicly available website. They include situations where an application is downloaded from a website and used on an individual's computer. Such a process may also involve lodgement via the Internet.

Publicly accessible websites may require an individual to register as a user and obtain a logon ID, a password and/or other forms of security.

% of citizens refers to the percentage of the population theoretically able to access each Internet-based service. The population data are used to weight responses and thus ascertain the significance of each service at a national level. As an example, if three state governments in a country offer information on their website on how to enrol to vote in state government elections but two others do not, then the *% of citizens* under *State/provincial government* at Level 1 *Enrol to vote for the first time in government elections* would refer to the percentage of the country's citizens who reside in those three states.

For central government, it is expected that the *% of citizens* will usually be either 100% or zero. However, there will be situations where a central government service is not theoretically available to all citizens of the jurisdiction, for example, where services are regionally based. This situation may also apply to state/province governments. While the 'reporting proforma' caters for this situation (by showing *% of citizens Not relevant*), countries will need to amend the 'jurisdiction level' question to indicate the percentage of citizens in the jurisdiction for which the service is *Not relevant*. In this case, the 'reporting proforma' could be applied to each jurisdiction. Even though most of the services are not relevant to children, they are still included in the population. This is both for weighting purposes and because, arguably, children also benefit when adults in their family are able to access Internet-based services.

Not relevant means that the service (whether undertaken online or offline) is not relevant for that particular level of government. For example, where the central government has no involvement in motor vehicle registration, the box against 'Not relevant' under 'Central/federal government' would be ticked for all service levels (1 to 4) involving registering a motor vehicle. For some countries and some services, *Not relevant* may be an appropriate response for both levels of government. As discussed above, a service may be *Not relevant* at a sub-jurisdiction level, for example, if some regions in a jurisdiction have an Internet-based service available but others do not.

Note the distinction between *Not relevant* and zero. As an example, if none of a country's jurisdictions provides unemployment benefits to its citizens, then *Not relevant* applies to both levels of government and 100% of citizens for all services at all levels. However, if all of the country's state/provincial governments provide unemployment benefits, but none offer Internet-based services for obtaining unemployment benefits, then the appropriate response for state/provincial government is 0% (reporting proforma) and 'No' (jurisdiction proforma).

Least complex situation refers to the simplest standard procedure in the country. For example, for motor vehicle registration, the simplest procedure might be renewal of a relatively new, privately registered vehicle already located in the jurisdiction.

The *reference date* for these questions could be at the end of a calendar year or quarter, or the date the research was carried out.

[6] The SNA allows two methods of sub-sectoring general government. The second method distinguishes central, state and local government.

EG7: Selected Internet-based services available to citizens, by level of sophistication of service (continued)

Notes:

The results of this indicator show the level of sophistication of Internet-based e-government for the selected services. Sophistication levels are defined according to the following model.

Level 1 – involves no interaction and is limited to obtaining relevant information from publicly available websites.

Level 2 – one-way interaction, involving simple requests from the user to send printed forms or allowing users to download forms (e.g. in pdf format) to be printed by the user and completed offline.

Level 3 – reflects more complex website facilities, for example, a facility enabling users to fill in forms online. Information from the form may be processed automatically, thus potentially providing efficiency benefits for the government agency.

Level 4 – reflects relatively complex website facilities and information processing applications; enables a complete process (e.g. an application and its outcome) to be carried out via a publicly available website (at least initially). This could include downloading of applications, decision, delivery and payment (from, or to, the user). This level may also be described as "full electronic case handling".

The main statistical issue with this indicator is that the model question is relatively untested.[5] Internet-based services are difficult to define in a consistent way, so the approach taken with this indicator is to ask information about a selection of services, chosen for their usefulness and understandability.

The scope could be extended to include some Internet-based services offered to businesses, with no weighting by population numbers. Selected services offered to businesses could be added to the jurisdiction level question and a separate compilation at national level would show the availability ('Yes/No/Not relevant') for each level (1 to 4) of each service, for each jurisdiction. See Capgemini, 2006 for possible business services.

For international reporting, countries should provide a 'statistical standards statement' indicating the reference date that has been used; any definitional differences and major coverage problems should also be addressed. Because the indicator is considered 'experimental', respondents are asked to comment on any difficulties they had understanding, or responding to, the suggested model question/s.

Chapter 5. Conclusions

76. One of the imperatives of development is to employ ICT applications for the creation of economic opportunities and human development. Within the framework of the WSIS, national governments and other stakeholders are engaged in conceptualizing and deploying e-government applications in support of development.

77. Inherent to these efforts is the issue of monitoring. The indicators proposed in this report emphasise assessment of e-government in terms of use of ICT and provision of Internet-based services. They capture an important aspect of the enabling environment for e-government and provide a platform for extending e-government indicators to other areas and levels of government.

78. The proposed list of e-government indicators in this report, if endorsed, would join the core ICT indicators developed and promulgated by the Partnership on Measuring ICT for Development.

79. The list of indicators represents a starting point for measuring e-government. Suggestions for expanding the scope of questions have been included for each indicator. They include extending indicators EG1 to EG6 to include other levels of government, splitting indicators EG1 and EG2 by gender and adding to EG7 a set of Internet-based government services directed to businesses. An important area not covered in this report is delivery of government services to mobile telephones (especially where Internet access is limited). It is expected that the list of indicators and their scope will grow with experience. Countries are encouraged to share their experiences with the *Partnership* in order to facilitate such development.

80. Adherence to the indicator definitions and standards will improve international comparability of e-government data. Countries are urged to carefully consider the core indicators when designing or re-designing surveys that collect e-government data.

81. It is acknowledged that countries may be restricted in mounting new surveys to collect indicators EG1 to EG6. However, collection of data for EG7 is likely to be a relatively inexpensive task for most countries, which are therefore asked to trial the model question and provide feedback to the *Partnership*.

82. As with existing ICT core indicators, the resources of the *Partnership* will be available to assist in statistical data collection. A manual on collection of the data required to construct the core e-government indicators is expected to be produced in 2012.

References

Capgemini (2006), *Online Availability of Public Services: How Is Europe Progressing? Web Based Survey on Electronic Public Services, Report of the 6th Measurement June 2006,* Report prepared for the European Commission, http://ec.europa.eu/information_society/eeurope/i2010/docs/benchmarking/online_availability_2006.pdf.

Capgemini (2010), *Digitizing Public Services in Europe: Putting ambition into action, 9th Benchmark Measurement*, Report prepared for the European Commission, http://ec.europa.eu/information_society/newsroom/cf/document.cfm?action=display&doc_id=747.

ECA (United Nations Economic Commission for Africa) (2005), *The Scan-ICT phase 2 methodology: a tool Kit for the development of information society ICT4D status and impact monitoring, assessment and measurement indicators*, http://repository.uneca.org/handle/10855/4539.

EC (European Commission) (2011), *Information Society Portal*, http://ec.europa.eu/information_society/activities/egovernment/index_en.htm (accessed 10 September 2011).

European Commission, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations and World Bank (2009), *System of National Accounts 2008*, http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf.

ITU (International Telecommunication Union) (2005), *WSIS Outcome Documents: Geneva 2003 – Tunis 2005,* http://www.itu.int/wsis/outcome/booklet.pdf.

ITU (2010), *World Telecommunication/ICT Development Report 2010: Monitoring the WSIS Targets, A mid-term review*, http://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-WTDR-2010-PDF-E.pdf.

ITU (2011), *Handbook for the collection of administrative data on telecommunications/ICT*.

OSILAC (Observatory for the Information Society in Latin America and the Caribbean) (2010), *Regional proposal for core indicators on e-government: methodological guidelines*, Document prepared by OSILAC, in cooperation with the Working Group on Information and Communications Technologies (ICT) of the Statistical Conference of the Americas of the Economic Commission for Latin America and the Caribbean (ECLAC), http://www.eclac.cl/socinfo/noticias/noticias/1/40221/Regional_proposal_for_core_indicators_on_e-government_-methodological_guidelines.pdf.

OECD (2009a), *Guide to Measuring the Information Society, 2009*, www.oecd.org/sti/measuring-infoeconomy/guide.

OECD (2009b), *Glossary of Statistical Terms*, http://stats.oecd.org/glossary/.

Palvia, S.C.J. and S.S. Sharma (2007), "E-Government and E-Governance: Definitions/Domain Framework and Status around the World", *Foundations of e-government*, ICEG, 2007, pp.1-12, http://www.iceg.net/2007/books/1/1_369.pdf.

Partnership on Measuring ICT for Development (2005), *Core ICT Indicators*, http://new.unctad.org/upload/docs/Core%20ICT%20Indicators_Eng.pdf.

Partnership on Measuring ICT for Development (2010), *Core ICT Indicators*, http://new.unctad.org/default____575.aspx.

Partnership on Measuring ICT for Development (2011), *Measuring the WSIS Targets: A statistical framework*, http://www.itu.int/ITU-D/ict/partnership/wsistargets/index.html.

UNDESA (United Nations Department of Economic and Social Affairs) (2002), *International Standard Industrial Classification of all Economic Activities Rev. 3.1*, http://unstats.un.org/unsd/cr/family2.asp?Cl=17.

UNDESA (2003), *UN Global E-government Survey 2003*, http://unpan1.un.org/intradoc/groups/public/documents/un/unpan016066.pdf.

UNDESA (2004), *Global E-Government Readiness Report 2004: Towards Access for Opportunity*, http://unpan1.un.org/intradoc/groups/public/documents/un/unpan019207.pdf.

UNDESA (2005), *United Nations Global E-Government Readiness Report 2005: From E-government to E-inclusion*, http://unpan1.un.org/intradoc/groups/public/documents/un/unpan021888.pdf.

UNDESA (2008a), *International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4*, http://unstats.un.org/unsd/cr/registry/isic-4.asp.

UNDESA (2008b), *UN E-Government Survey 2008: From E-Government to Connected Governance*, http://unpan1.un.org/intradoc/groups/public/documents/un/unpan028607.pdf.

UNDESA (2010), *United Nations E-Government Survey 2010: Leveraging e-government at a time of financial and economic crisis*, http://unpan1.un.org/intradoc/groups/public/documents/un/unpan038851.pdf.

UIS (UNESCO Institute for Statistics) (2009), *Guide to Measuring Information and Communication Technologies (ICT) in Education*, http://www.uis.unesco.org/template/pdf/cscl/ICT/ICT_Guide_EN.pdf.

UNSC (United Nations Statistical Commission) (2007), "Report on the thirty-eighth session (27 February to 2 March 2007)", E/2007/24 and E/CN.3/2007/30, http://unstats.un.org/unsd/statcom/doc07/FinalReport-Unedited.pdf.

World Bank (2011), "Definition of E-Government", available at: http://go.worldbank.org/M1JHE0Z280 (accessed 10 September 2011).