



**CONNET ALL  
CENTRAL GOVERNMENT  
DEPARTMENTS AND  
ESTABLISH WEBSITES**

# Target 6: Connect all central government departments and establish websites<sup>1</sup>

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## Executive summary

Target 6 reflects the growing importance of e-government in terms of connecting government departments and equipping them with a web presence. The Geneva *Plan of Action* (ITU, 2005) called for developing national e-government initiatives and services to achieve greater transparency and accountability at all levels of government for better service delivery. E-government as a tool for public sector reform and development enables better inter-organizational linkages and consolidation of government systems, improvements in service delivery and efficacy in government functioning.<sup>2</sup>

Governments are increasingly looking towards e-government to achieve maximum cost savings and improved service delivery, by focusing on the provision of services at the front end supported by integration, consolidation and innovation in back-end processes and systems. While many countries have initiated public administration reform through e-government by strengthening infrastructure and enhancing online service delivery in support of socio economic development goals, disparities remain in the use of ICT in government across countries, thus contributing to a global digital divide that is expected to diminish slowly over time.

Target 6 is assessed by seven indicators falling into two categories: use of technology by government employees and organizations, and e-services to citizens. A review of this target indicates that, for most of the indicators, progress is not uniform across regions and countries, with many countries still not utilizing the full potential of ICT in government.

Data on the use of ICT in government also remains scarce because either countries do not collect data on the use of ICT in government as a matter of routine, or because of rapid advances in technology, the type of data collected becomes obsolete. This makes quantitative assessment on the achievements of much of Target 6 challenging.

An assessment of the self-reported national level data, where available, indicates disparities between developed and developing countries. Whereas the majority of developed countries (75–100 per cent) indicated routine use of computers and the Internet by government employees, the same was at times less than 50 per cent in some developing countries. A similar pattern was observed in the availability of local area networks (LANs) and the Internet, with the majority of developed countries reporting 80–100 per cent availability and developing countries reporting much lower levels.

However, in terms of e-services, countries have addressed a wide array of issues in the last ten years. These include provision of more public services online and meeting the growing demands of citizens for e-participation in public policy decision-making. Considerable progress has been made globally on establishing government agencies' websites, with all countries having a government web presence in 2014. Countries also advanced further in interactive, transactional and connected services to citizens. These indicators assess different types of services including:

- online documents on laws, policies etc.

- public services such as taxes, fines, licences, which comprise transactional services
- e-participation information and services, which assess the level of inclusion by the government in public policy and are termed "connected services".

Online information and services on government website portals increased threefold in the last decade, with 70 per cent of countries providing a one-stop shop portal in 2012, compared to 26 per cent in 2003. By 2014, almost all of the countries of Europe, and the majority in the Americas and Asia, provided information on education, health, finance, social welfare, labour and environment. The proportion was less in other regions, such as countries in Africa, which ranged from 31 per cent in social welfare to much higher at 65 per cent in finance. In terms of transactional services in 2014, about half the countries of the world provided for creation of a personal online account and in 73 countries (38 per cent) income taxes could be paid online.

Notwithstanding progress, considerable disparities remain between developed and developing countries. It appears that governments that have benefited most from the opportunities offered by ICT are those that have successfully addressed the issues of development priorities, including resource availability, regulatory frameworks and human and technological infrastructure.

To adequately assess future progress, it is recommended that the target on e-government be retained, as most countries are far from fully utilizing the benefits of ICT in government. However there is a need to address the scarcity of global comparable data. In this context, there may be a need to revisit the indicators on access to, and use of, ICT in government for a post-WSIS target.

Some specific recommendations are:

- Governments need to address challenges in capturing data on use of ICT in government.
- Development of a secondary set of e-government indicators may help to broaden the scope of monitoring and feedback.
- Review the framework for supporting and monitoring e-government at the global level.

Develop a strategic framework for how ICT can be better utilized by governments.

## Introduction

The use of ICT in government – e-government – is a key tool for effective functioning of government. Many countries are adopting a greater use of ICT in government as advances in technology and the changing world environment enable them to exploit synergies between e-government and public sector efficiency. Acceptance is gaining ground among policy-makers that e-government can effectively contribute to improving efficiency in government, along with greater public service delivery.

ICTs can enhance and streamline processes across government agencies, thereby improving public administration. Use of ICT in government also serves to improve the internal workings of the public sector by reducing financial costs and transaction times, and strengthening linkages between different government agencies, the private sector and the civil society.

Recognition of the important role of e-government has led many countries to reform, modernise and augment the use of ICT in public administration systems. This includes strengthening the ICT infrastructure that enables online service delivery in support of socio economic development goals, including the millennium development goals. Nevertheless, huge disparities remain in the use of ICT in government across countries, thus contributing to a global digital divide that is expected to diminish slowly over time.

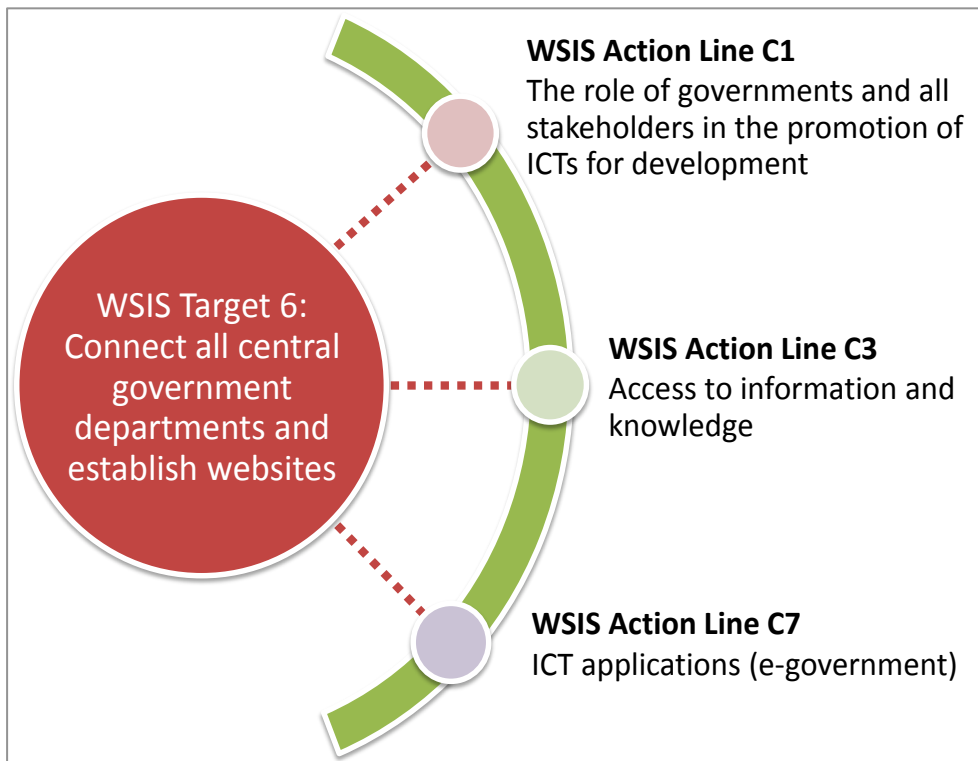
Governments can contribute to an open environment by sharing previously ‘locked-up’ data sets, a trend that is increasingly being adopted in both developed and developing countries. By opening up their information, government present opportunities for everyone (including scientific and research centres) to use the raw information, repurpose it, or integrate economic, social and environmental data to advance sustainable development (UNDESA, 2012).

The United Nations has been central in promoting multistakeholder cooperation and the development of e-government across regions – including, through lessons of experience in the use of ICT by governments and the development of global information repositories and databases. Discussions of concepts and good practices have contributed to the development of innovative solutions in many countries of the world and have advanced the vision and concrete agenda set by the WSIS.

The United Nations Department of Economic and Social Affairs (UNDESA) is the leading agency in international e-government benchmarking of e-government services. UNDESA has had an important role in implementation of the *Geneva Plan of Action* and the *Agenda of the WSIS* (ITU, 2005) as the focal point for implementation and follow-up of the following action lines:

- C1: The role of public governance authorities and all stakeholders in the promotion of ICTs for development
- C7: ICT applications: benefits in all aspects of life – focusing on e-Government
- C11: International and regional cooperation.

Figure 6.1: Relevance of Target 6 to WSIS action lines



## WSIS Target 6: framework and scope of review

Policy-makers at the WSIS in 2003 had already recognized that the use of ICT in government is crucial for development. The WSIS Geneva *Plan of Action* stated that "ICT applications can support sustainable development, in the fields of public administration, business, education and training, health, employment, environment, agriculture and science within the framework of national e-strategies" and in respect of e-government called on governments to:

"(a) Implement e-government strategies focusing on applications aimed at innovating and promoting transparency in public administrations and democratic processes, improving efficiency and strengthening relations with citizens.

(b) Develop national e-government initiatives and services, at all levels, adapted to the needs of citizens and business, to achieve a more efficient allocation of resources and public goods.

(c) Support international cooperation initiatives in the field of e-government, in order to enhance transparency, accountability and efficiency at all levels of government." (Action Line C7, ITU, 2005)

Within this framework, the WSIS set targets to measure progress in the use of ICT by governments. For the advancement of e-government, the Geneva *Plan of Action* identified a target to "Connect all local and central government departments and establish websites and email addresses". In constituting the WSIS target for e-government, it was deemed important that national and local/municipal governments and departments be connected online.

### Box 6.1: The Task Group on e-Government (TGEG)

The Task Group on E-government (TGEG) was established in 2006 by the Partnership on Measuring ICT for Development. The United Nations Statistical Commission (UNSC), at its 2007 meeting, asked the *Partnership* to extend the core list of ICT indicators to include indicators on ICT use in government (UNSC, 2007).

The TGEG has been working on the development of consistent, sound, relevant e-government development indicators for cross-country comparisons. It has developed a core list of e-government indicators, which were endorsed by the UN Statistical Commission in its forty-third session. For the work of TGEG, see the *World Telecommunication/ICT Development Report* (ITU, 2010) and the *Framework for a set of e-government core indicators* (*Partnership* and UNECA, 2012). A training manual on the use of the e-government indicators has also been developed (*Partnership* and UNECA, 2013) and will be translated from English to French for dissemination.

The members of the Task Group are UNECA (coordinator), UNECLAC, UNESCAP, UNESCWA, Eurostat, ITU, OECD, UNCTAD, UNDESA and the World Bank. Among its terms of reference were development and recommendation of a core set of statistical indicators which can be collected by countries.

In 2009, ITU, along with UNDESA, UIS and WHO, initiated a quantitative mid-term review of the WSIS targets to identify the challenges in measuring ICT, including e-government, and to ascertain whether a review of the scope of the WSIS targets was required in light of the rapid advancements in the adoption of ICT use. To ensure a globally consistent approach for review and assessment, the WSIS e-government target, "Connect all local and central government departments and establish websites and email addresses", was clarified and interpreted as comprising three distinct goals:

1. Connect central and local government departments.
2. Establish websites for central and local government departments.
3. Establish e-mail addresses for central and local government departments.

The wording of the target was changed for measurability purposes in the 2011 WSIS statistical framework (*Partnership*, 2011). The scope was changed from the original "local and central government" to "central government" and the reference to "e-mail addresses" was dropped. Notwithstanding the revisions to the target in 2011, it still poses considerable measurement challenges. The WTDR 2010 noted that the term "connect" in reference to governments or "establish a website" could be open to interpretation as government offices could have Internet access and/or an established website of varying degrees of sophistication. Access to the Internet or availability of computers does not automatically imply that all offices and staff in the departments are fully equipped with ICTs, or that links have been established between different government entities. The lack of effective and integrated use of ICT by government departments and entities would have implications for the effectiveness of public administration and public sector service delivery. Other measurement challenges include the heterogeneity of government departments; this is further discussed below.

In response to a UNSC request to extend the core list of ICT indicators to include indicators on ICT use in government (see Box 6.1), the *Partnership*, through its Task Group on e-Government (TGEG), prepared a set of measurable e-government indicators to help monitor progress towards achieving Target 6. These were presented in the publications: *Monitoring the WSIS Targets, A mid-term review* (ITU, 2010) and *Measuring the WSIS Targets. A statistical framework* (*Partnership*, 2011). They were subsequently elaborated in *Framework for a set of e-government core indicators* (*Partnership* and UNECA, 2012), which proposes a set of seven globally comparative e-government core indicators,

along with their associated statistical standards and definitions. The set of indicators was endorsed by the UNSC in its forty-third session in 2012 (UNSC, 2012).

Significant challenges were encountered in the development of the e-government indicators in terms of statistical feasibility, cross-country comparability, data collection costs and burden on countries. The scope and statistical units for the indicators, that is, what units of government they encompass and how these are to be defined, pose a particular challenge – as government statistical units are heterogeneous and are therefore not easily defined in a way that can be applied uniformly across all countries. In addition, the functions of central government will vary across countries, thus compounding comparability problems. For example, in some countries, schools, hospitals, health centres, museums, police stations or post offices could be under the control of central government, while in others these may be controlled by provincial/state, or even local, authorities. To overcome these challenges, the E-government framework recommends that indicators be classified and weighted by size of central government organization, thus enabling comparison of similarly sized units across countries.

The detailed measurement framework served the purpose of defining the parameters of the quantitative assessment of the progress made on e-government for the WSIS +10 review and has formed the basis for national and international data collection with respect to the monitoring of the WSIS targets.

Progress against Target 6 is tracked by the seven indicators, which are presented in Box 6.2. All but one of them (6.7) are core e-government indicators of the *Partnership*.

### **Box 6.2: Developing indicators for the WSIS target on e-government**

#### **Target 6**

WSIS Target 6 (2003): Connect all local and central government departments and establish websites and e-mail addresses.

WSIS Target 6 (revised, 2011): Connect all central government departments and establish websites.

#### **A set of e-government indicators to measure the revised target:**

EG1<sup>3</sup>–6.1 Proportion of persons employed in central government organizations routinely using computers

EG2–6.2 Proportion of persons employed in central government organizations routinely using the Internet

EG3–6.3 Proportion of central government organizations with a local area network (LAN)

EG4–6.4 Proportion of central government organizations with an intranet

EG5–6.5 Proportion of central government organizations with Internet access, by type of access

EG6–6.6 Proportion of central government organizations with a web presence

6.7 Level of development of online service delivery by national governments

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

The WSIS Geneva *Plan of Action* stated in Action Line C7 that "ICT applications can support sustainable development, in the fields of public administration ...". Box 6.3 describes research on electronic governance for sustainable development.

**Box 6.3: Electronic governance for sustainable development research**

Governments formulate and implement public policies that provide security, generate economic growth, deliver public services and generally advance socio-economic development. Given this role, the use of ICT by governments is not only a matter of improving their internal performance, but also determining the effectiveness of development policies in general. Governments have diverse objectives in using ICTs, including: improving internal government operations and delivering better public services; supporting institutional and administrative reforms; engaging citizens and other non-state actors in government decision-making processes; and directly contributing to policy and development goals in areas such as health, education, economy and the environment. The use of ICT by government has evolved over time and four phases are recognized: technology in government, electronic government, electronic governance and policy-driven electronic governance. Each phase is characterized by three binary variables: whether ICT development is accompanied by government transformation; whether this transformation is internal to government or also affects its relationships with citizens, businesses and other non-state actors; and whether this transformation is context-independent or dependent on different locations or sectors.

The following table (Janowski, 2014) depicts the incremental nature of these phases and how they are characterized:

Phases	Variables		
	Transformation of government?	Includes non-state actors?	Location- and sector-specific?
1 Technology in government	no	no	no
2 Electronic government	yes	no	no
3 Electronic governance (EGOV)	yes	yes	no
4 Policy-driven electronic governance	yes	yes	yes

In particular, electronic governance for sustainable development (EGOV4SD) is an instance of policy-driven electronic governance, which entails transformational use of ICT by governments to improve internally and in relation to citizens and the public, while ensuring and advancing sustainable development goals. The EGOV4SD domain can be defined at the non-symmetric intersection of the electronic governance (EGOV) and sustainable development (SD) domains. The assessment of 417 research papers published during 2011 and 2012, including EGOV papers contributing to SD goals or SD papers applying EGOV to further such goals, found that:

- EGOV4SD research problems are distributed across the social (33 percent), institutional (28 percent), economic (20 percent) and environmental (19 percent) dimensions of SD.
- Under half (41 per cent) of the papers address internal government issues and 41 per cent address its relationships with society.
- Many papers (42 percent) lack theoretical foundations and the remaining ones rely on models (16 percent), frameworks (12 percent), concepts (12 percent), categories (12 percent) or theories (5 percent).
- Most of the papers (62 percent) have no theoretical contribution while 15 per cent contribute to theory through models.
- Nearly half of the papers (49 percent) contribute to practice through capacity-building and nearly one-third (31 percent) through policy recommendations.

Typical areas for EGOV4SD research include: policy, planning, monitoring, urban and community issues, governance, services, agreements, geographic information systems, value, access, inclusion, development, taxes, emissions, waste reductions, and prevention and protection measures. Typical problems addressed by such research include: delivering public services, particularly to vulnerable groups; delivering basic services like water, electricity, housing and waste management; providing access and reducing digital divide; developing infrastructure; promoting governance at the local, regional, national and international levels; assessing community needs to determine areas for policy intervention; prioritizing and raising awareness about environmental issues; promoting innovation; planning urban systems; creating value; and monitoring and enforcing regulations.

Source: Janowski (2014), Estevez & Janowski (2013). **There are no sources in the current document.**



## Data availability and scope

Data on the use of ICT in government remains sparse, with most countries not routinely collecting these data. This makes quantitative assessment of Target 6 particularly challenging.

For the current review, the *Partnership* sent out the *Partnership on Measuring ICT for Development WSIS Targets Questionnaire, 2013* (*Partnership*, 2013) to 195 countries requesting information on each of the WSIS target indicators, including the seven e-government indicators identified by the 2011 WSIS statistical framework. A total of 30 countries responded to the questions on e-government, which is about 13 per cent of all UN regional commission member states. Table 6.1 shows the composition of responses received.

**Table 6.1: Data availability on use of ICT in government**

Countries in the region	Regional commission <sup>4</sup>	Countries responding to survey	Countries responding with e-govt data	% response with e-govt data	% of total regional commission countries
44	UNECLAC	10	5	50	11
53	UNECA	5	3	60	6
53	UNESCAP	10	8	80	15
17	UNESCWA	5	2	40	12
56	UNECE	22	12	55	21
<b>223*</b>		<b>52</b>	<b>30</b>	<b>58</b>	<b>13</b>

Source: Partnership on Measuring ICT for Development WSIS Targets Questionnaire, 2013 (*Partnership*, 2013).

Note: \* The total exceeds 193 countries as a few countries are not UN member states (for example, Palestinian Territories), while some may belong to more than one regional commission. Sri Lanka is not included as its data were obtained from external sources.

Not all of countries shown in Table 6.1 provided information on all seven e-government indicators. An analysis of the results of the questionnaire indicates that the number of replies per e-government indicator 6.1 to 6.5 varied from between 3 in UNECA to 12 in the UNECE. In particular, the majority of countries either did not respond on indicator 6.5 'Proportion of central government organizations with Internet access, by type of access', or did not provide the appropriate breakdown by type of access, that is, fixed broadband, narrowband, mobile broadband etc. No country in the *Partnership* survey reported on 6.6 and 6.7, which have therefore been compiled using data from the UNDESA E-Government Survey.

In addition, the latest year of data provided by countries ranged from 2004 to 2013, making direct comparability difficult. Caution should therefore be exercised when using the data presented in this report.

One of the reasons for the low response rate on e-government is that not many countries are measuring it. There are various reasons for this but they include the fact that the field of e-government measurement is young compared to established socio-economic indicators, and that rapid advances in the field of ICT, and the adoption of new technologies by governments, have rendered some of the indicators obsolete.

Finally, it is important to note that the data are self-reported by countries. It is not clear whether definitions, scope and the suggested parameters of each indicator were followed. For example, for some countries it is not clear if the data refer to the reporting agency or were being reported by the

agency for the entire central government (for example, Sudan). In the case of others (for example, Nigeria) only state level data are reported. As such, data on indicators 6.1 to 6.5 may not be statistically consistent and comparable across countries.

For measurement of e-government services, the United Nations Department of Economic and Social Affairs (UNDESA) is the lead agency in international e-government benchmarking. In this report, UN E-Government Survey data, from 2003 to 2014, are used for analysis of indicator 6.6 'proportion of central government organizations with a web presence' and 6.7 'level of development of online service delivery by national governments'. Since 2003, UNDESA has tracked and monitored e-government development through the United Nations E-Government Survey, now in its 7th edition (UNDESA, 2014). The survey covers all United Nations member states and is carried out by the UNDESA Division for Public Administration and Development Management (DPADM).

The E-Government Survey assesses government websites based on a quantitative multi-stage model of a country's online presence. For countries that have established an online presence, the model defines stages of e-government development according to a scale of progressively sophisticated public services.

### Achievements against Target 6

A review of the WSIS targets on the use of ICT in government shows that much progress has been made since 2003. However, progress is not uniform across regions and countries, with many still not utilizing the full potential of ICT in government.

#### Persons employed in central government organizations routinely using computers

One of the most important areas of e-government has been to utilize ICTs to improve the internal workings of the public sector. Benefits include reduction of costs and transaction time, and better management of work flows and processes. Access by government employees to computers has spread in recent years, thus improving institutional linkages between government agencies and enabling efficiency in public administration. Some countries in the vanguard of e-government adopted practices for public administration streamlining early on. For example, by the year 2000, in the Republic of Korea, more than 80 per cent of the central Government's documents had been computerized and 55 per cent of the government's documents were handled electronically.<sup>5</sup>

Because of lack of data, there is very limited information on the extent to which countries have deployed computers to public sector employees. The self-reported data available for the few countries shown in Table 6.2 indicate a disparity among countries, with persons employed in central government in the developed countries having 80 to 100 per cent access, compared to less than 50 per cent in some developing countries. Access in Europe was the highest, with Estonia and Moldova, along with some developing countries, such as Azerbaijan, reporting full access. The proportion was much less in the Americas and Africa, with El Salvador, Burundi and Gambia at 35, 40 and 45 per cent respectively.

**Table 6.2: Persons employed in central government routinely using computers, 2013 or LYA<sup>6</sup>**

Asia	%	Americas	%	Africa	%	Arab States	%	Europe	%
Azerbaijan	99	Colombia	50	Burundi	40	Oman	51	Estonia	100
Bhutan	87	El Salvador	35	Gambia	45			Lithuania	80
Iran, Islamic Rep.	> 73	Uruguay	43					Moldova	100
Japan	100							Spain	80
Nauru	95								
Thailand	49								

Source: Partnership on Measuring ICT for Development WSIS Targets Questionnaire, 2013.

Access to computers by government employees does not guarantee their effective use. In addition to access to computers, an appropriate level of skill in using the equipment is a critical requirement. Further, while e-literacy will enable employees to use computers, it will not ensure optimal use.

In many developing countries, effective use may be a function of several factors including access, skills, level of the person, job description, culture and attitudes. For example, one survey conducted in 2007 in Sri Lanka, before it undertook a program of modernizing ICT use in government, indicated that despite adequate e-literacy, there was a significant difference in the provision as well as the use of ICT facilities between the executive and non-executive ranks of government employees. Two-thirds of executive officers had access to ICT facilities compared to only around one-fifth of non-executives. However, the pattern of use of ICT was the opposite – with around one-fifth of the executives using the available facilities compared to three-fifths of non-executives (ICTA, 2008).

### Persons employed in central government organizations routinely using the Internet

A similar picture emerges with respect to the use of Internet by government employees. Table 6.3 presents the percentage of government employees routinely using the Internet in 2013 (or latest year available). The developed countries that provided data indicated that 70 to 100 per cent of employees in the central government routinely used the Internet in the reference year. Among the regions, Europe had the highest proportion, while the Americas had the lowest. In Asia, Singapore had 100 per cent of government employees routinely using the Internet, followed by Nauru, Azerbaijan and Bhutan. Lowest in Asia was the Philippines, reporting only 15 per cent.

**Table 6.3: Persons employed in central government routinely using Internet, 2013 or LYA<sup>6</sup>**

Asia	%	Americas	%	Africa	%	Arab States	%	Europe	%
Azerbaijan	91	Colombia	39	Burundi	70	Oman	29	Bulgaria	100
Bhutan	87	El Salvador	22	Gambia	53			Estonia	100
Iran, Islamic Rep.	> 60	Uruguay	43					Lithuania	71
Japan	100							Moldova	100
Nauru	95							Spain	70
Philippines	15								
Singapore	100								
Thailand	51								

Source: Partnership on Measuring ICT for Development WSIS Targets Questionnaire, 2013.

### Central government organizations with a local area network (LAN)

A local area network was defined in the 2011 WSIS statistical framework as "... a network connecting computers within a localized area such as a single building, department or site; it may be wireless."

Table 6.4 indicates that the majority of countries reported high usage of LANs in central government agencies. In Europe, Portugal was lowest at 85 per cent. The results were similar in Asia, with only the Philippines and Sri Lanka not reporting almost universal access to LANs. However, for Sri Lanka some progress should be noted; under the *e-Sri Lanka Development Project* the Information and Communication Technology Agency of Sri Lanka (ICTA) has undertaken programs to increase the use of ICT in government. As a result, the proportion of government institutions with corporate networks (LAN, intranet, extranet) went from 24 per cent in 2007 to 69 per cent in 2010 (ICTA, 2011).

**Table 6.4: Central government organizations with a LAN, 2013 or LYA<sup>6</sup>**

Asia	%	Americas	%	Africa	%	Europe	%
Azerbaijan	100	Chile	100	Burundi	90	Bulgaria	99
Bhutan	100	Colombia	98	Gambia	86	Cyprus	100
Iran, Islamic Rep.	100	El Salvador	100	Sudan	100	Czech Republic	99
Japan	100	Uruguay	100			Estonia	100
Nauru	100					Moldova	100
Philippines	85					Poland	100
Singapore	100					Portugal	85
Sri Lanka	69						
Thailand	96						

Source: Partnership on Measuring ICT for Development WSIS Targets Questionnaire, 2013; Sri Lanka data, ICTA (2011).

### Central government organizations with an intranet

Access to an intranet by central government employees is reflective of the ability of government organizations to share information, operational systems or computing services within the organization.

Intranet was defined in the 2011 WSIS statistical framework as "... 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."

As shown in Table 6.5, access to an intranet was low among some developing countries, in particular Gambia at 20 per cent and Yemen at under 1 per cent.

In most of the countries of Europe that provided data, the proportion of central government organizations with an intranet in the reference year was 100 per cent, the exceptions being Portugal (83 per cent), the Czech Republic (82 per cent) and Poland (80 per cent). Of the Asian countries reporting data, all had 100 per cent access, except for Nauru, the Philippines and Thailand.

**Table 6.5: Central government organizations with an intranet, 2013 or LYA<sup>6</sup>**

Asia	% Americas	% Africa	% Arab States	% Europe	%
Azerbaijan	100	Chile 98	Burundi 90	Oman 85	Cyprus 100
Bhutan	100	Colombia 79	Gambia 20	Yemen < 1	Czech 82
Iran, Islamic Rep.	100	El Salvador 71	Sudan	Estonia	100
Japan	100			Moldova	100
Nauru	50			Poland	80
Philippines	55			Portugal	83
Singapore	100			Spain	100
Thailand	85				
Viet Nam	100				

Source: Partnership on Measuring ICT for Development WSIS Targets Questionnaire, 2013.

### Central government organizations with Internet access

Internationally comparable data on the type of government connection (broadband or other) is particularly scarce. Table 6.6 presents the percentage of government entities with Internet access in 2013 for those countries that responded to the survey. Most of these reported close to 100 per cent of government entities with Internet access. This held true across all regions of the world.

However, the majority did not provide a breakdown by type of Internet access. It is likely that most developed countries, including those shown in Table 6.6, have broadband access in most or all of their government organizations. In the developing world, Bhutan, Colombia and Uruguay have a high level of broadband connectivity.

The provision of high speed Internet by the developing countries is evidence of the recognition of the role of ICT by government in improving efficiency and effectiveness. Some have made considerable progress in the last few years, perhaps partly due to a drop in broadband prices. Analysis of trends in broadband pricing in more than 160 countries shows that, in the four years between 2008 and 2012, fixed-broadband prices fell by 82 per cent overall, from 115 per cent of average monthly income per capita (GNI p.c.) in 2008 to 22 per cent in 2012, with the biggest drop occurring in developing countries, where fixed-broadband prices fell by an average of 30 per cent each year between 2008 and 2011.<sup>7</sup>

Many developing countries have taken advantage of this price fall. In Sri Lanka by 2010, 93 per cent of all ministries and 92 per cent of all departments were utilizing some form of broadband connectivity and the per cent of government institutions with different types of access to the Internet had gone up from ADSL (at 512 kbit/s 29 per cent; 2 Mbit/s 29 per cent) in 2007 to ADSL

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(512 kbit/s 36 per cent; 2 Mbit/s 27 per cent; 62 kbit/s 3 per cent) by 2010 (ICTA, 2011). Despite a drop in price, provision of the Internet via fixed broadband was a challenge for other developing countries in the reference year, including Yemen (22 per cent).

**Table 6.6: Central government organizations with Internet access, by type, 2013 or LYA<sup>6</sup>**

Asia	% Americas	% Africa	% Arab States	% Europe	%				
Azerbaijan	100	Chile	100	Burundi	90	Yemen	22	Cyprus	100
Bhutan(1)	100	Colombia(2)	Note(2)	Gambia	100			Czech Republic(3)	100
Iran, Islamic Rep.	100	El Salvador	81	Sudan	100			Denmark	100
Japan	100	Uruguay(4)	100					Estonia	100
Nauru	100							Lithuania(5)	100
Philippines	99							Moldova	100
Singapore	100							Poland(6)	100
Sri Lanka(7)	Note(7)							Portugal(8)	99
Thailand	96							Romania	100
Viet Nam	100							Spain	100

Source: Partnership on Measuring ICT for Development WSIS Targets Questionnaire, 2013.

Notes:

1. 100% fixed broadband.
2. < 1 Mbit/s 10%; >= 1 Mbit/s 91%; mobile broadband 19%.
3. 98% broadband (>= 256 kbit/s).
4. 100% broadband.
5. Narrowband 12%; fixed broadband 91%; wireless broadband 39%.
6. 100% broadband (>= 2 Mbit/s).
7. ADSL (512 Kbit/s 36%; 2 Mbit/s 27%; 62 Kbit/s 3%). Data for Sri Lanka are from ICTA (2011).
8. Narrowband 34%; fixed broadband 95%; mobile broadband 62%.

### Central government organizations with a web presence

The WSIS target indicator to '... establish websites' for central government departments was reformulated as 6.6, 'proportion of central government organizations with a web presence'.

The capabilities of governments are changing with the adoption and use of ICT. Many countries of the world have found that increasing use of ICT to provide timely and relevant public services has led to a growing interest by citizens for governments to provide online services across sectors such as education, health and finance. In the advanced countries, where access to networks is more widely diffused, there is a growing number of experiments with ICT applications to support government activities.

The UN E-Government Survey tracks web presence on a range of services, including a national portal or an official home page; links to regional/local governments; current and archived information, such as policies, laws and regulation, and newsletters; and more sophisticated interactive, transactional services and networked services. As such, the UN E-Government Survey provides key benchmarking data for the current review (see tables 6.7 and 6.8).

Table 6.7: Central government web presence 2003–2014

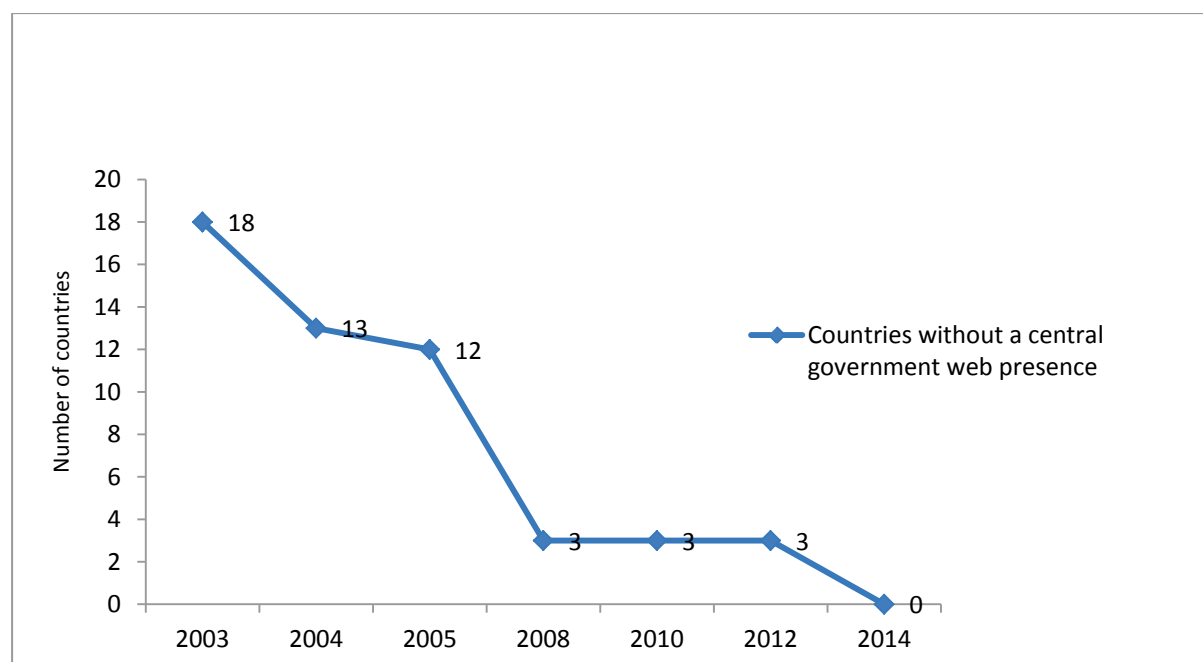
	2003	2004	2005	2008	2010	2012	2014
	Number						
<b>Countries with an established central government web presence</b>	173	178	179	189	189	190	193
<b>Countries without an established central government web presence</b>	18	13	12	3	3	3	0
<b>Total UN member states</b>	<b>191</b>	<b>191</b>	<b>191</b>	<b>192*</b>	<b>192</b>	<b>193*</b>	<b>193</b>

Source: UNDESA, based on UN E-Government Survey data, various editions.

Note: \* On 28 June 2006, Montenegro was accepted as a United Nations member state; in 2011, South Sudan became the 193rd UN member state.

During the last decade, member states have made steady progress in establishing a web presence. In 2003, when the UN began tracking online government service provision, 18 countries did not have a central government web presence. By 2010, nine more countries had established a central government web presence and by 2012, only three countries – the Central African Republic, Guinea and Libya – did not have a web presence (see Chart 6.1).

Chart 6.1: Countries without a central government web presence, 2003–2014



Source: UNDESA, based on UN E-Government Survey data, various editions.

Increasingly, central governments are linking to lower administrative tiers of government. In 2014, 105 countries (54 per cent) provided links to regional and/or local governments on their national website. This compared with 97 countries in 2012 (Table 6.8). The 105 countries that offered such links comprised around three-quarters of all countries in Europe, three-quarters of Asian countries, nearly half of the countries in the Americas, and about one-third of countries in Africa and Oceania.

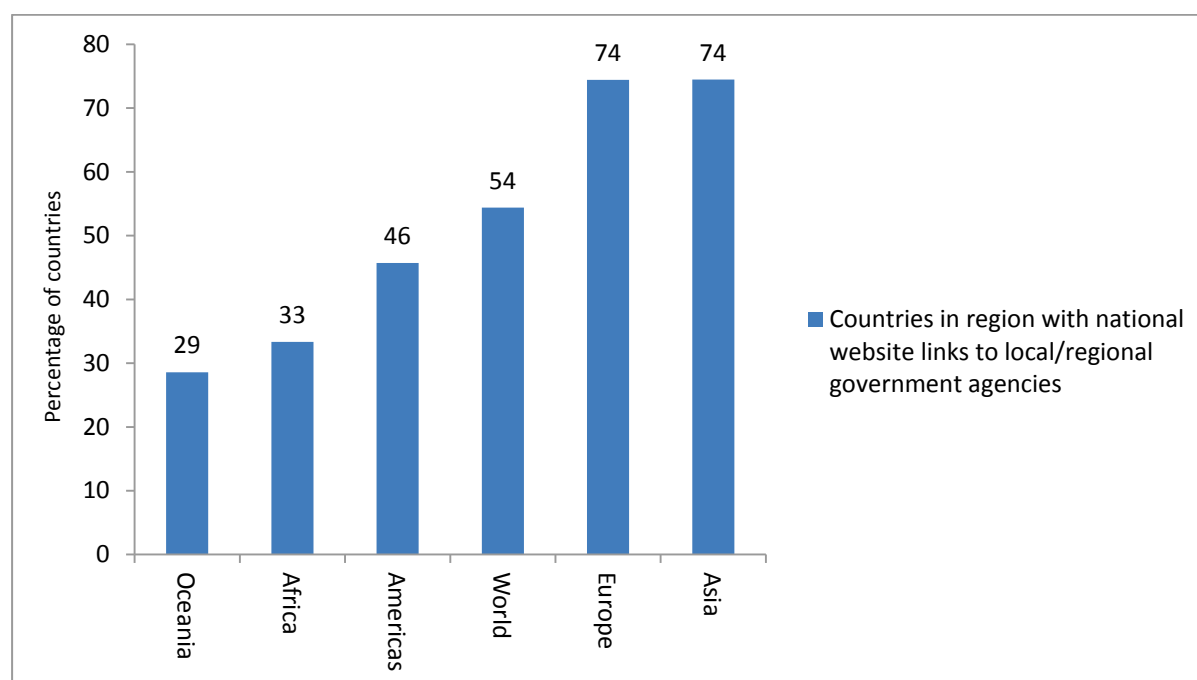
**Table 6.8: National website links to local/regional government agencies**

	2014	2012
<b>No of countries</b>	105	97
<b>% of countries</b>	54	50

Source: UNDESA, UN E-Government Survey data 2012 and 2014, forthcoming.

Chart 6.2 shows the proportion of countries in each region where the national website links to regional and/or local governments. The lowest proportion of countries in 2014 was in Oceania (29 per cent) and the highest in Asia and Europe (both 74 per cent).

**Chart 6.2: National website links to regional/local governments, by region, 2014**



Source: UNDESA. Data from United Nations E-Government Survey 2014, forthcoming.

By 2014, the specific target of WSIS on establishing central government websites can be largely considered met. However progress on connecting the lower administrative tier to central government lags behind.

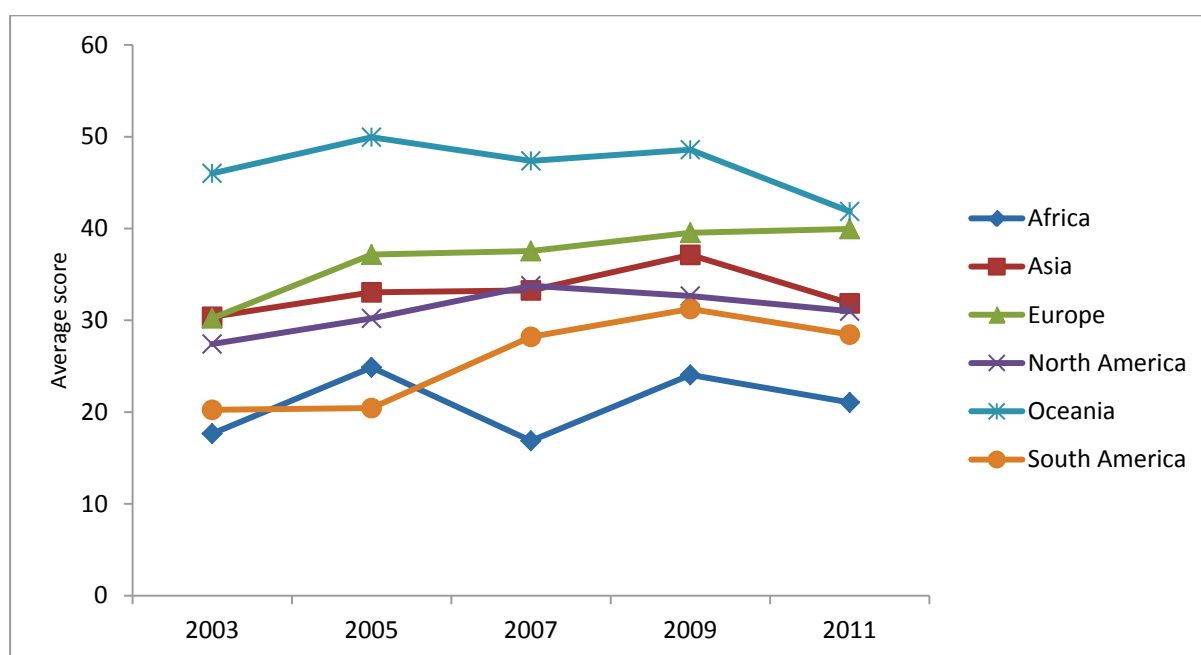
### Lower levels of government

While levels of government below central government are out of scope of the revised Target 6, they were included in the original WSIS target. A few studies exist at the regional or local administrative level assessing some aspects of ICT use. The Digital Governance in Municipalities Worldwide Survey (Holzer and Manoharan, 2012) assessed the official websites of the largest city (by population) of the top 100 "most wired" countries as at 2011 (Chart 6.3). They analysed: privacy/security, usability, content of websites, the type of online services offered, and citizen response and participation. The overall score of a city level government is the weighted average of scores in the above five categories. To date, there have been five surveys – in 2003, 2005, 2007, 2009 and 2011. In 2011, of the 100 cities selected, 92 were found to have official websites (Table 6.9). Based on the 2011 evaluation, the top city level services were offered by Seoul, Republic of Korea (score 82) followed by Toronto, Canada (score 64); Madrid, Spain (score 64); Prague, Czech Republic (score 62) and China,



Hong Kong (score 61). By comparison, in 2005, 81 of the largest cities belonging to the top 100 most wired countries had their own websites.

**Chart 6.3: Official website scores, largest city, top 100 most wired countries, 2003–2011**



Source: Holzer and Manoharan (2012).

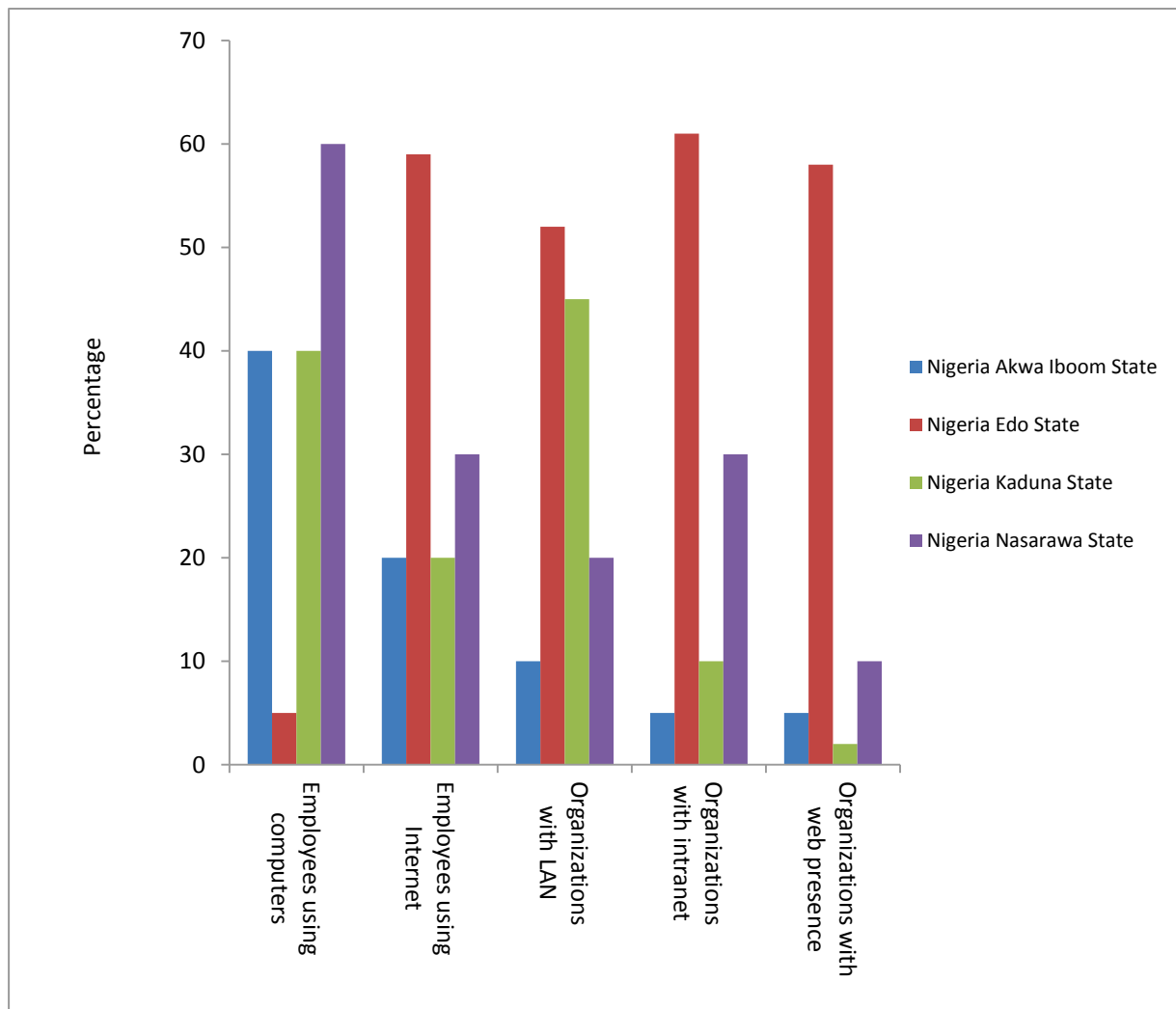
**Table 6.9: Cities offering official websites 2005–2011**

Number				
	2005	2007	2009	2011
	81	86	87	92

Source: Holzer and Manoharan (2012).

While there appears to be progress in putting local governments online, much of this progress is limited to developed countries and large cities in developing countries. Smaller cities or lower tier administrations are likely to have fewer resources or a lack of integration with central government, both of which lead to with slow adoption. The disparity at the regional level within one country is illustrated by varying rates of utilization of ICT in the four states of Nigeria. As Chart 6.4 shows, Nigeria Edo State was more advanced in the provision of Internet, and connection of state organisations with LAN and intranet, than other regions in the country.

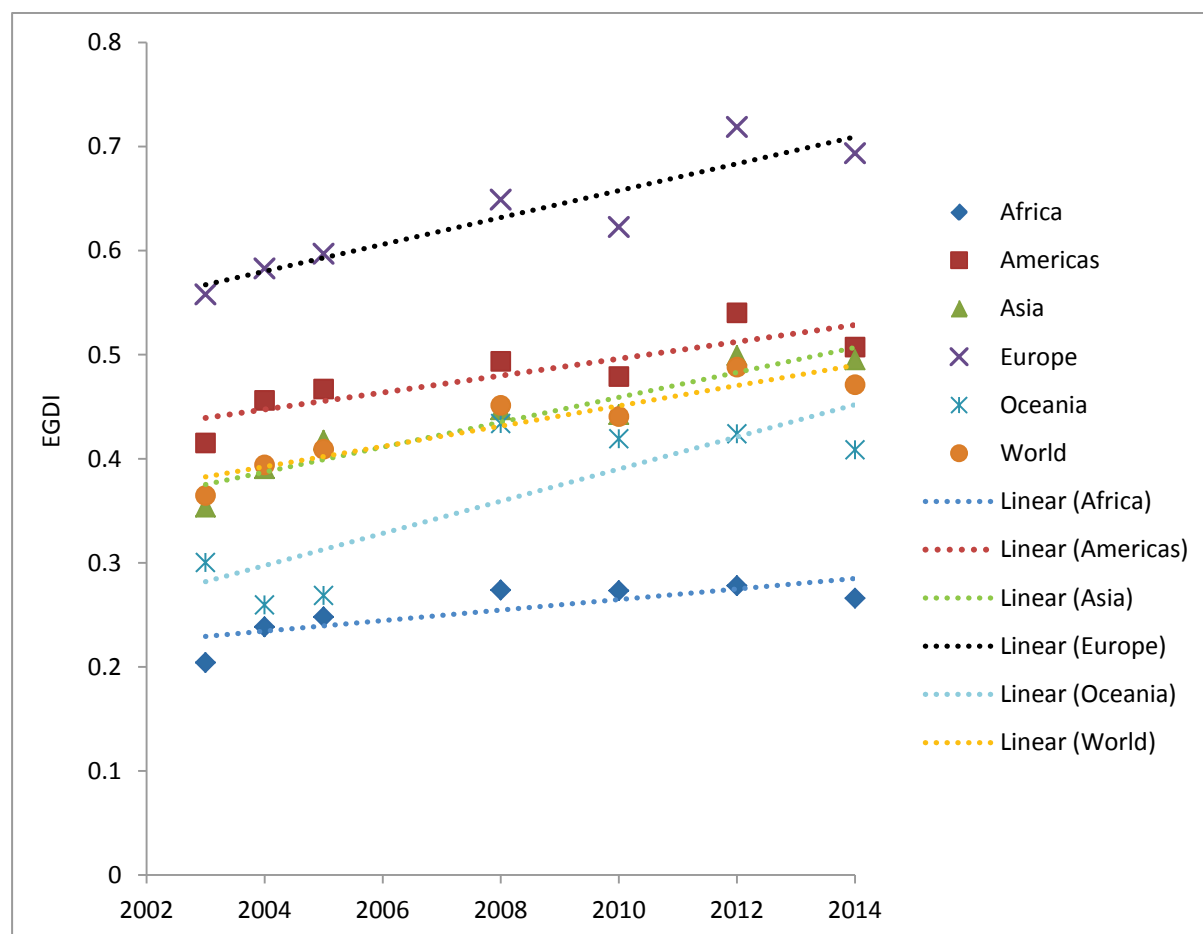
Chart 6.4: Nigeria, e-government at the state level, 2013



Source: Nigeria Government response to the *Partnership* survey, data are in respect of 2013.

Notwithstanding challenges at the local level, the overall assessment of how e-government has fared in the last decade indicates progress. UNDESA tracks overall e-government development through its E-government Development Index (EGDI), which is a composite benchmarking indicator based on a direct assessment of the state of national online services, telecommunications infrastructure and human capital. Progress in e-government development for the period 2003 to 2014 can be gauged by the upward trend in the EGDI as shown in Chart 6.5. E-government development as a whole is highest in Europe, followed by the Americas. Asia, which started out below the world average in 2003, achieved higher than world average growth in e-government development and was closer to the Americas by 2014. Progress in Africa has been relatively slow.

Chart 6.5: Trends in progress in e-government development, 2003–2014



Source: UNDESA. Data from United Nations E-Government Survey, forthcoming.

### Level of development of online service delivery by national governments

Indicator 6.7 has been reformulated to encompass several aspects of e-service delivery as follows:

- interactive services
- transactional services
- connected services.

The UN E-Government Survey provides consistent data for a comparative assessment on the provision of e-services by government. It monitors the progress of countries in a four-stage model as they move towards higher levels of service delivery.

The model is ascending in nature and builds upon the previous level of sophistication of a country's online presence. For countries that have established an online presence, the model defines stages of e readiness according to a scale of progressively sophisticated citizen services. Countries are ranked according to what they provide online, as described in Box 6.4.

### Box 6.4: Stages of e-government in the UN E-Government Readiness Survey

**Stage 1.** Emerging information services: Government websites provide information on public policy, governance, laws, regulations, relevant documentation and types of government services provided. They have links to ministries, departments and other branches of government. Citizens are easily able to obtain information on what is new in the national government and ministries and can follow links to archived information.

**Stage 2.** Enhanced information services: Government websites deliver enhanced one-way or simple two-way e-communication between government and citizen, such as downloadable forms for government services and applications. The sites have audio and video capabilities and are multi-lingual, among others.

**Stage 3.** Transactional services: Government websites engage in two-way communication with their citizens, including requesting and receiving inputs on government policies, programmes, regulations, etc. Some form of electronic authentication of the citizen's identity is required to successfully complete the exchange. Government websites process non-financial transactions, for example, e-voting, downloading and uploading forms, filing taxes online or applying for certificates, licenses and permits. They also handle financial transactions, that is, where money is transferred on a secure network to government.

**Stage 4.** Connected services: Government websites have changed the way governments communicate with their citizens. They are proactive in requesting information and opinions from the citizens using Web 2.0 and other interactive tools. E-services and e-solutions cut across the departments and ministries in a seamless manner. Information, data and knowledge are transferred from government agencies through integrated applications. Governments have moved from a government-centric to a citizen-centric approach, where e-services are targeted to citizens through life cycle events and segmented groups to provide tailor-made services. Governments create an environment that empowers citizens to be more involved with government activities so as to have a voice in decision-making.

Source: UNDESA. UN E-Government Survey, 2012, pp 123–124,

<http://www.un.org/en/development/desa/publications/connecting-governments-to-citizens.html>.

Within the four stages, the UN E-Government Survey assesses different types of services, including:

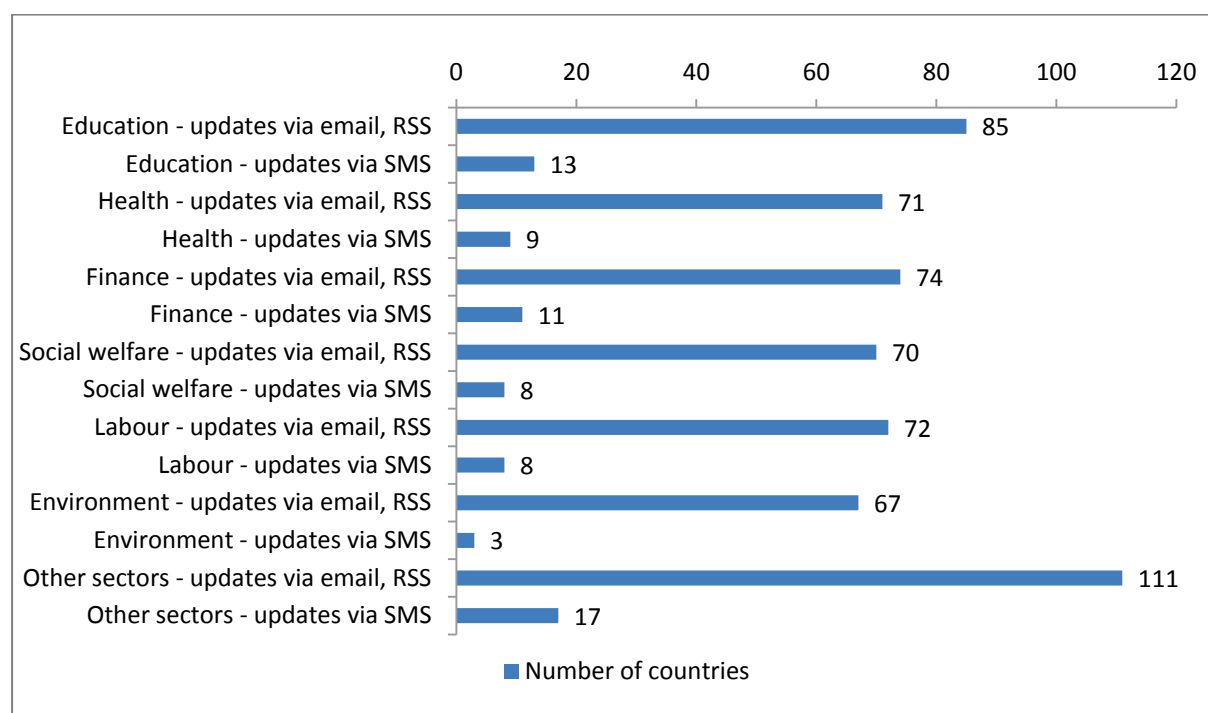
- Information such as documents on laws, policies etc. across sectors of education, health, finance, social welfare and labour, which together, would be of relevance to the citizen. These fall under interactive services for the purposes of this chapter.
- Public services such as taxes, fines, licenses, which comprise transactional services.
- E-participation services, which assess the level of inclusion by the government in public policy and are grouped under stage 4 (connected services).
- Technical features (audio, video, RSS, etc.), which provide a conduit for free flow of information and services between the government and the citizen.

An assessment of these services is grouped into interactive, transactional and connected services.

*Interactive e-services offered by governments*

It is notable that many countries have not only established websites, but have advanced further in providing interactive services for citizens. These comprise provision of information and a few services but remain one-way, that is, largely 'G-to-C' services. As seen in Chart 6.6, governments were fairly advanced in providing information via e-mail and RSS on education, health, finance, social welfare labour and environment – but considerably less advanced in providing information via SMS.

**Chart 6.6: Countries providing information by e-mail or RSS, and SMS, 2014**

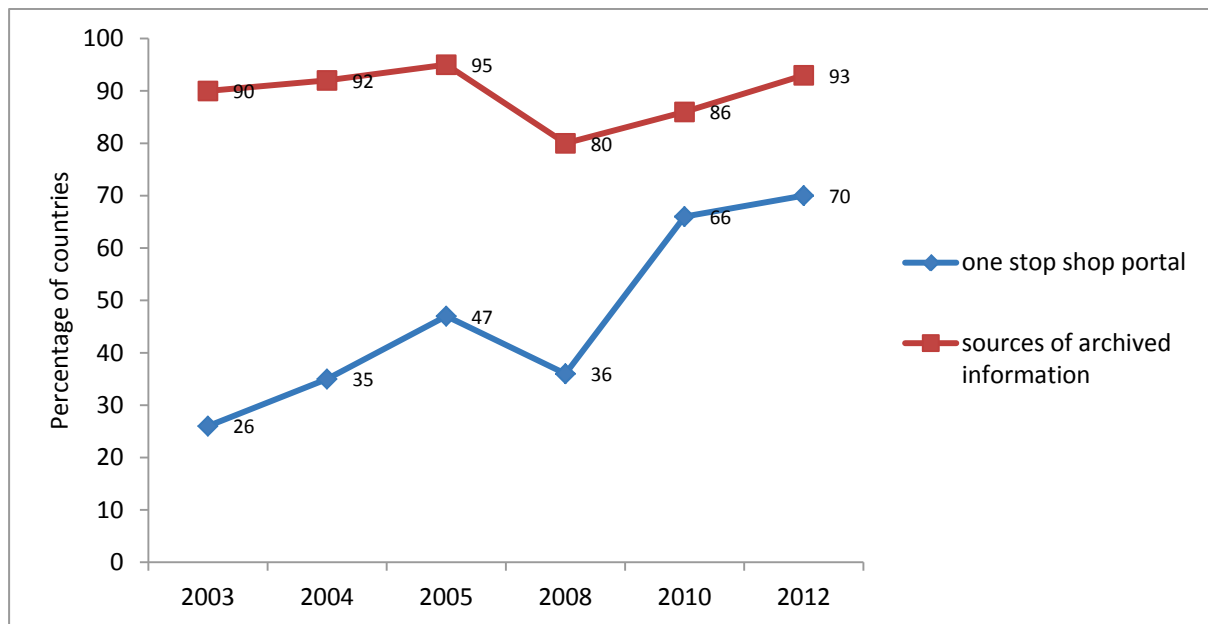


Source: UNDESA. Data from United Nations E-Government Survey, forthcoming.

Advancement in the concept of interactive services was witnessed in the form of integration of government websites providing information. By 2014, many countries had moved from a decentralized single-purpose organizational model towards connecting departments and divisions in a centralized single portal, where citizens could access all government-supplied services irrespective of which government authority provided them (see Chart 6.7). Integration of online information and services on portals increased threefold between 2003 and 2012, with 70 per cent of countries providing a one-stop shop portal in 2012, compared with 26 per cent in 2003. Among the developed and developing countries which had integrated portals were: Australia, Belize, Bhutan, Egypt, El Salvador, Greece, Grenada, Portugal, Qatar, Republic of Korea and Mongolia.

This whole-of-government approach is based on a philosophy of interconnected departments and divisions to improve efficiency and effectiveness. For example, the official gateway of Qatar Hukoomi (<http://portal.www.gov.qa/wps/portal/frontpage>) integrates government services, programs and initiatives to improve efficiency, responsiveness to users and accessibility. It also integrates back-office processes to allow easy access to over a 100 topics and articles with detailed information about Qatari law and society (UNDESA, 2012). Other examples are the U.S. FirstGov portal (<http://www.usa.gov/>) and Singapore (<http://www.gov.sg/>); they provide an integrated portal as the main gateway, with links to other service delivery portals aimed at different users.

Chart 6.7: Integrated approaches in e-government, 2003–2012



Source: UNDESA. Based on UN E-Government Survey data, various editions.

Note: The decline in aggregate values in 2008 is attributable to the slight change in the types of services as more innovative services were brought into the assessment methodology. The catch-up by 2012 is notable.

Recent advances in technology, coupled with the need to devise innovative ways to meet the development challenges facing national governments, are affecting the ICT models in government. In many countries, these have led to governments putting information online, simplifying administrative procedures, streamlining bureaucratic functions and increasingly providing open government data.

In 2014, some countries took this further and were providing various types of archival information via links to the central government website (see Table 6.10). Around three-quarters of all governments provided information on education and health; 82 per cent provided information on finance and about two-thirds on each of social welfare, labour and environment.

Almost all of the countries of Europe and the majority in the Americas and Asia provided information in respect of all these sectors. Examples of developing countries that offered archived information on education and/or health are: Bangladesh, Bosnia and Herzegovina, China, Colombia, Gambia, India, Lebanon, Mozambique, Suriname, Togo and Uruguay. Among those offering information on finance were Botswana, Comoros, Djibouti, Lithuania, Mali, Senegal, Serbia, Viet Nam and Zambia.

Table 6.10: Provision of archived information by region, 2014

	Education	Health	Finance	Social welfare	Labour	Environment
Percentage of countries in the region						
<b>World</b>	76	78	82	64	68	67
<b>Africa</b>	52	61	65	31	41	43
<b>Americas</b>	86	86	89	69	77	69
<b>Asia</b>	87	85	94	77	74	79
<b>Europe</b>	98	95	95	95	98	98
<b>Oceania</b>	36	50	57	36	43	29

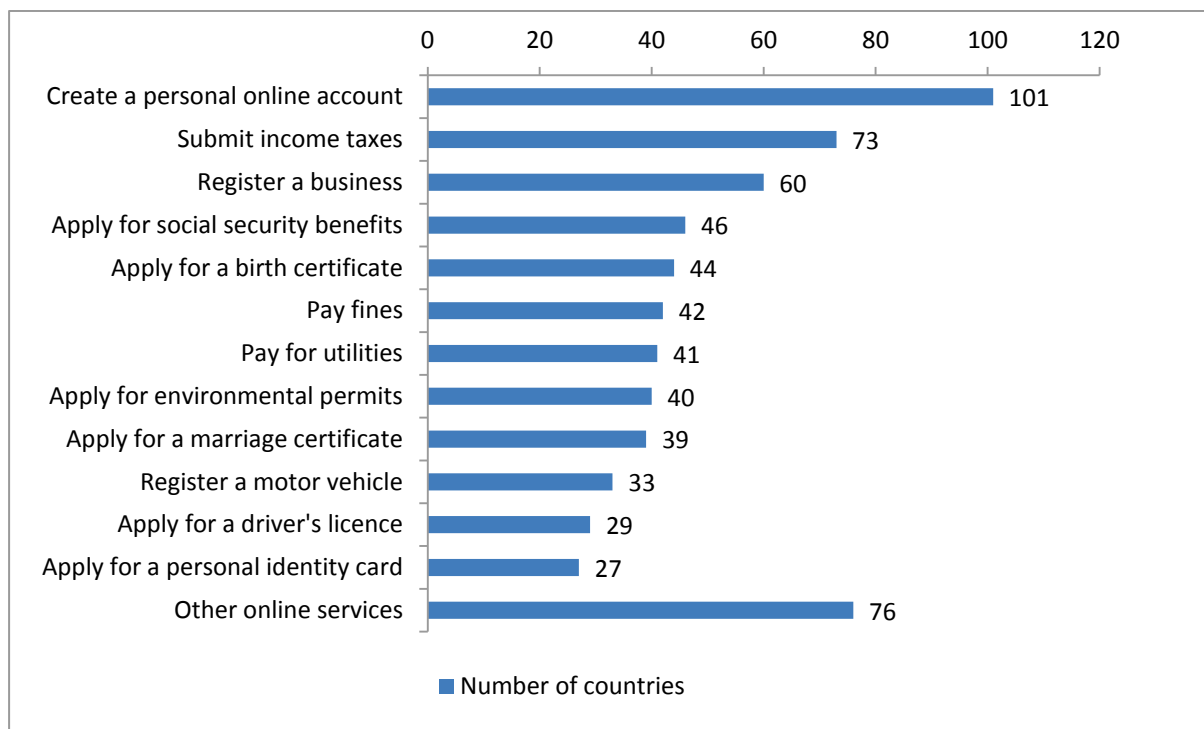
Source: UNDESA. Data from United Nation E-Government Survey 2014, forthcoming.

### *Transactional e-services offered by governments*

In order to make governing more effective, inclusive and service-oriented, governments are providing an increasing number of public services online. Previously, mature services were mostly limited to developed countries; however, more and more developing countries are now putting basic transactional services online.

In 2004, transactional services were limited to those few countries where financial and banking systems were developed enough to allow for basic transactions, including payments, to be made online. Since then, considerable progress has been made in all regions of the world. In 2014, about half of the countries in the world provided for the creation of a personal online account and in 73 countries (38 per cent) income taxes could be paid online. Sixty countries allowed for online business registration and in 40 countries environmental permits could be sought over the Internet (see Chart 6.8). Countries of Europe are in the vanguard in providing transactional services. Among those countries that allow online income tax payments are: Belgium, Denmark, Estonia, Finland, Germany, Hungary, Iceland, Italy and the United Kingdom.

Chart 6.8: Countries providing transactional e-services, 2014



Source: UNDESA. Data from United Nation E-Government Survey 2014, forthcoming.

Developing countries have not been left out of these advances. In Kazakhstan, for instance, the use of ICT for the reform of administrative systems has led to more than 1 300 codes, laws, decrees, orders etc. being integrated into the national portal. Each e-service has several icons stating whether this service can be paid online/or can be obtained through electronic signature.<sup>8</sup>

Part of the progress in this area can be attributed to other technology advances, especially in mobile banking, which has allowed many developing countries to overcome the barriers of security and financial system development. This is evidenced in initiatives such as *M-Pesa*, a mobile phone based money transfer service operating in Kenya and Tanzania, which provides e-services involving payments to government agencies or receipt of social welfare entitlements (UNDESA, 2014).

### Connected e-services offered by governments

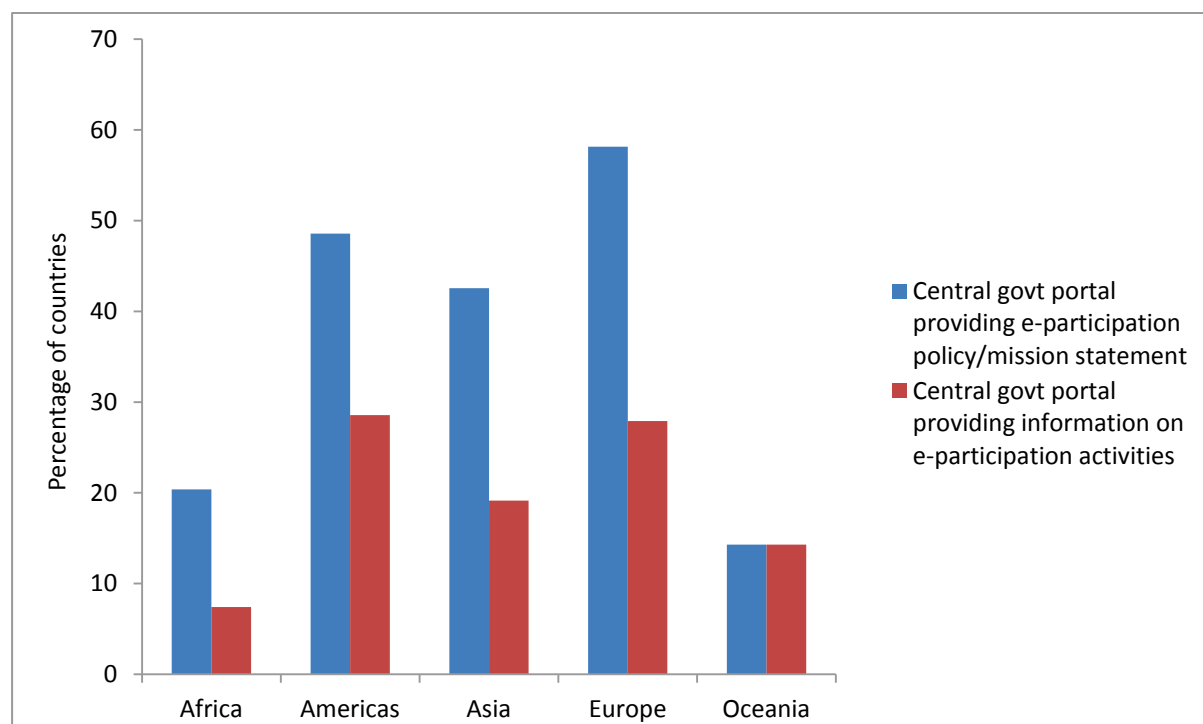
It is not so long ago that new technologies, notably the Internet, enabled e-participation by providing citizens with the opportunity to make decisions that were otherwise the domain of their representatives.

National governments around the world have been increasingly reaching out and giving people access to information on how their government operates and how they can participate in government – to improve their own lives and take part in change processes.

Provision of connected e-services is steadily increasing. In 2014, around one-fifth of member states provided information on e-participation activities on their websites, including how to participate (Chart 6.9). In addition, 39 per cent of member states worldwide had an official e-participation policy on the central government website (or a link to it).



Chart 6.9: Connected e-services, 2014



Source: UNDESA. Data from United Nation E-Government Survey 2014, forthcoming.

## Conclusions and recommendations

The ten-year review of the WSIS *Plan of Action* and implementation on e-government indicates that much progress has been made since 2003. Countries have moved far beyond the WSIS original e-government target of 'Connect all local and central government departments and establish websites and e-mail addresses' to wider applications of e-government. However, progress has been uneven.

Data are lacking for indicators 6.1 to 6.5, on access to, and use of, ICT in government by persons and organizations. Very few countries are tracking these e-government indicators and data that are available are generally not statistically consistent for cross-country monitoring. Based on the data that are available, it appears that progress is uneven across countries. Many of the advanced countries could be considered to have met the WSIS targets; however, for most developing countries, use of ICT by government employees and organizations may be low or restricted to basic functions.

The specific target of WSIS as revised 'Connect all central government departments and establish websites' is considered to be met inasmuch as all countries had a functioning central government website by 2014 (Indicator 6.6). However, progress on connecting the lower administrative tiers of government lags behind.

Service delivery (Indicator 6.7) has seen significant progress, with most governments offering information and transactional services online. Central government websites indicate innovative models encompassing varied services across sectors in most countries, including developing countries. However, wide differences remain in the extent of such offerings and target achievement cannot be considered complete.

To adequately assess future progress, it is recommended that a target on e-government be retained post-WSIS – as most countries are far from fully utilizing the benefits of ICT in government. However, there is a need to address the scarcity of globally comparable data. It is recommended that governments identify and address challenges in monitoring the use of ICT in governments more energetically. The UN Statistical Commission has endorsed a set of seven core e-government indicators developed by the Partnership on Measuring ICT for Development. These correspond with the indicators used in this report and are obvious candidates for international benchmarking (*Partnership* and UNECA, 2012 and 2013).

Parallel efforts are required to extend the initial set of seven core e-government indicators. As governments move from deployment of basic technology to more complex e-government solutions, a secondary set of e-government indicators may help to improve the relevance of monitoring efforts.

Though much progress is observed in e-government since WSIS Geneva and Tunis laid out a plan of vision for the use of ICT, much still remains to be done. Some broad conclusions emerge from the current review.

First, use of ICT has come to dominate the government sector in the last decade. It is no longer a question of whether to use ICT to further government functioning and operations, but a question of which is the most effective way for ICTs to help in the delivery of development objectives. Progress on the use of ICT in government is evident in all regions of the world and across all countries.

Second, under the banner of e-government, in the last ten years, countries have addressed a wide array of issues. These include promoting accessibility of ICT for government employees, but have gone beyond this to address increasing efficiency and effectiveness of departmental operations, provision of more public services online and meeting the growing demand of citizens for e-participation in public policy decision-making. Innovative models of the use of ICT in government have emerged, with the aim of addressing national and local challenges. A particular development is the use of ICT by government for greater service delivery and public value.

Third, despite this progress, wide disparities remain across, and between, countries of the world. It appears that governments that have benefited most from the opportunities offered by ICT for development are generally the early adopters of ICT. A major global challenge in the utilization of e-government for economic and social development is the inequitable access to, and use of, ICT. In some cases, the digital divide between those who have fully benefited from the use of ICT in government and those who have not, remains wide and is perhaps increasing, in many parts of the world.

A large part of the divergent pattern of the use of ICT in governments can be explained by varying levels of investment in the sector. However, a closer look reveals that the models of e-government reflect, among other things, economic and social systems, resource availability, institutional frameworks, political ideologies and cultural attitudes.

Given the global disparity in use of ICT by governments, it is imperative that the UN and the international community continue to support country efforts to enhance ICT use by governments. It is suggested that the international community focuses on developing a strategic framework for how ICT can be better utilized by governments in the context of the forthcoming post-2015 development agenda. Countries may look to holistic approaches to integrating ICT to support sectors, such as education, health, commerce, industry, law enforcement and security.

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## Endnotes

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<sup>1</sup> The original WSIS indicator was worded somewhat differently “Connect all local and central government departments and establish websites and email addresses”.

<sup>2</sup> World Summit on the Information Society. The Geneva *Declaration of Principles and Plan of Action*. December 2003, <https://www.itu.int/wsis/docs/promotional/brochure-dop-poa.pdf>.

<sup>3</sup> The EG indicators refer to the *Partnership's* names for the core e-government indicators.

<sup>4</sup> United Nations Economic Commission for Africa (UNECA); United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP); United Nations Economic Commission for Europe (UNECE); United Nations Economic Commission for Latin America and the Caribbean (UNECLAC); United Nations Economic and Social Commission for Western Asia (UNESCWA).

<sup>5</sup> See [http://www.itu.int/ITU-D/ict\\_stories/themes/e-government.html](http://www.itu.int/ITU-D/ict_stories/themes/e-government.html).

<sup>6</sup> Latest year available. All data refer to 2013 except for the following countries for which data are for the year cited: Philippines 2004; Nauru 2013 estimate; Thailand 2012; Viet Nam 2011; Lithuania 2012; Portugal 2012; Bulgaria 2012; Romania 2011; Poland 2008, 2010 and 2011.

<sup>7</sup> See [http://www.itu.int/net/pressoffice/press\\_releases/2013/41.aspx#.UsjBLE2A1Dw](http://www.itu.int/net/pressoffice/press_releases/2013/41.aspx#.UsjBLE2A1Dw).

<sup>8</sup> There are other convenient sites, such as <http://www.epay.gov.kz> and <http://www.elicense.kz>, where one can access specific services, payments (UNDESA, 2012, 2014).