

**UN Global E-government  
Survey 2003**

## **Acknowledgements**

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## **I. The Imperative of E-Government**

Governments are increasingly becoming aware of the importance of employing e-government to improve the delivery of public services to the people. This recognition has come about as a result of two recent interrelated phenomena. First, the rapid pace of globalization has interwoven the intra-country trade, investment and finance opportunities of the world into transnational networks, with countries seeking new ways to provide more competitive products and services. Second, recent advances in Information and Communication Technology (ICT) have presented new approaches for the integration of these networks and the improvement of the efficiency of businesses and services worldwide. Led by the private sector, innovative applications have highlighted the potential of using ICT to reduce costs and improve the productivity and efficiency of transactions. In the process, the revolution in information technology has made unprecedented amounts of information available around the globe, leading to an expanded global marketplace for goods, services and ideas.

Governments the world over are recognizing the power of global communication tools, such as the Internet, in revolutionizing markets, providing access to learning and knowledge infrastructure, and forming cross-boundary virtual communities for collective action. At the same time, people are learning of the immense opportunities presented by virtual global networks for reforming political, economic and social power structures.

Many countries are adapting their public sector systems in accordance with the changing environment. Information Technology (IT) applications, especially innovative e-government programmes are increasingly becoming the cornerstone of government operations. However, some countries are finding it difficult to divert scarce resources towards ICT applications. It is this disparity between opportunity and feasibility that could lead to a deepening of the “digital divide”.

Whereas the technological revolution has created new opportunities to tackle socio-economic development, it has also generated a new challenge for many countries where technological capability and human resources are not sufficiently developed. The states are also faced with the complex challenges posed by the proliferation of transnational global e-networks, which impinge on what was traditionally government domain.

### **I.1 The challenge of e-government for development**

The potential of e-government as a development tool hinges upon three pre-requisites - a minimum threshold level of technological infrastructure, human capital and e-connectivity - for all. E-government readiness strategies and programmes will be able to be effective and “*include all*” people only if, at the very minimum, all have functional literacy and education, which includes knowledge of computer and Internet use; all are connected to a computer; and all have access to the Internet. The primary challenge of e-government for development therefore, is how to accomplish this.

Effective e-government strategies and programmes require revisiting the traditional systems of transactions among government, business and society. In many instances, training for the new modes of business is necessary. All this needs to be backed up by reform of the legislative and regulatory framework, to complement efforts at digitizing government for interaction with business and the public, and to make these interactions accessible, secure and private.

Furthermore, considerable financial resources are required to establish, expand and constantly update e-networks. Effective integration of e-service delivery into development strategies requires programming and planning; research and development; and creating monitoring and feedback systems, all of which require outlays of government expenditure.

Funds for such purposes are not available in many parts of the world, where already scarce resources are devoted to more traditional models of economic, human and technological development. Around 24 per cent of the world's people live below the poverty line on \$1.08/day<sup>1</sup>; around 20 per cent do not have access to safe water and sanitation<sup>2</sup>; and 57 out of 191 member states of the UN have populations where one in five can neither read nor write.<sup>13</sup>

Furthermore, roughly half of the world's population of six billion has never made a telephone call<sup>14</sup> while, in 2003, only 9.5 per cent of the population had on-line access.<sup>15</sup>

In evaluating the extent of regional disparities, the UN Secretary-General's Report on the Commission On Science And Technology states that "...in absolute terms, the gap between the leaders (primarily OECD countries) and laggards (primarily African and some CIS countries) is growing. Within the OECD countries that are leading in connectivity, there appears to be convergence. Analysis of relative measures such as the population-weighted Gini coefficient for inequality reveals high initial levels of inequality - approximately twice the average country level of income inequality. More mature technologies (e.g. telephone lines) are more evenly distributed, compared to more recent technologies (e.g. Internet hosts)... In general, African and South Asian countries are falling behind, Latin American and transition economies are keeping up, while OECD countries and South Eastern Asian "Tigers" are getting ahead...<sup>6</sup> In the initial stage of the evolution of e-government there is a fear of the widening of the digital divide within and among countries.

E-government is transforming the ways in which the government, business and the public at large interact with one another. If unchecked, the impact of the digital divide in today's globalized world is likely to greatly exacerbate the economic divide, the social divide and the democratic divide among peoples of the world.<sup>7</sup> The cost of inaction far outweighs the benefit of adopting a global and holistic approach to sustainable development that takes full account of the potential of e-government.

Governments worldwide are aware of both the challenges and the potential of e-government. They are also becoming aware that the rapidly developing knowledge societies - even though they constitute a small proportion of today's population - have the potential to generate a greater demand for increased participation and empowerment by people, worldwide. With increasing business and people e-networks, the cost of inaction could lead to a shift of power structures outside the traditional parameters of the state.

## **I.2 The potential of e-government: a historic opportunity**

Despite challenges, the potential for e-government in the service of people is vast. As the UN Secretary-General has stated, "...information technologies can give developing countries the chance to leapfrog some of the long and painful stages of development that other countries had to go through...."<sup>8</sup> It is this potential, which the future promises, that energizes planners to bring the use of e-government into national development strategies.

Realizing this potential, quite a few countries have initiated innovative e-government programmes for providing socio-economic services to all. To wit, the Government of Sweden has established a one-stop shop for all Swedish higher education opportunities, as well as information about careers and postgraduate studies. A meta-data application ensures that the search engine can find up-to-date information on every single course.<sup>9</sup> An U.K. government endeavour has made it possible for teachers to access all curricula on line.<sup>10</sup> All that is needed is access to a computer with Internet and the willingness to learn. Similarly, in Australia teachers can upgrade skills/information at an on-line website provided for this purpose.<sup>11</sup> From April 2003, the U.K. government is providing up-to-date, cross-referenced health and social care information through the Internet to all in

the country. With simple on-line access both patients and doctors can access reference information on a variety of diseases, conditions and treatments.<sup>12</sup> Several countries are engaged in providing on-line databases for employment. Sweden has an on-line job vacancies portal comprising six labour market databases that are steadily growing in scope and use.<sup>13</sup>

Some developing countries, too, have initiated highly innovative e-government programmes that are also cost effective and vastly enhance the delivery of social services.

In India, the “Gyandoot” project is recognized as an example of how innovative e-government programmes can support public services in far-flung areas, even with minimum financial investment. It was launched in 2000 to establish community-owned, technologically innovative and sustainable information kiosks in a poverty-stricken, tribal dominated rural area of Madhya Pradesh. Along with the installation of a low cost rural Intranet covering 20 villages, information kiosks were established in these villages. These information kiosks have dial-up connectivity through local exchanges on optical fibre or UHF links. The server hub is a Remote Access Server housed in the computer room in the District Panchayat. Today it offers many services, saving the farmers - many of whom cannot even read or write - time, money and effort in their daily transactions.

Making a serious commitment to e-government in 2000, the Government of Colombia mandated all federal government agencies to develop a portal that would make public information more readily available to the public, and thereby make government more accountable.<sup>14</sup> Development of an integrated e-government facility is supported by an Internet legal framework, investment plans and strong relationships with the private sector in ICT-related projects. By May 2001, 94 per cent (190 out of 203) of all Colombian government agencies had a presence on the Web.<sup>15</sup> All government regulations since 1900 are available on line. In addition, businesses (and the public at large) can access government procurement information on line. The Colombia integrated services website is an example of a one-stop national portal with links to every government agency website and easy access to government-related information.<sup>16</sup>

### **I.3 UN efforts towards bridging the digital divide**

For its part, the UN system is providing assistance to enable member states to avail themselves of the opportunity to “leap frog” in their development cycle. The UN ICT Task Force, established in 2001, is “... helping to formulate strategies for the development of information and communication technologies and putting those technologies at the service of development and, on the basis of consultations with all stakeholders and Member States, forging a strategic partnership between the United Nations system, private industry and financing trusts and foundations, donors, programme countries and other relevant stakeholders in accordance with relevant United Nations resolutions.”<sup>17</sup>

With the help of UNESCO, the Government of Sri Lanka has launched a truly inventive rural-based e-government programme that encapsulates the potential of e-government according to the vision laid out by the UN. The Kothmale Community Radio Internet Project is one of the most innovative e-government pilot projects. It uses a community radio programme as an interface between the community and the Internet through a pioneering “Radio-browse” model, thereby introducing indirect mass access to cyberspace through a daily one-hour interactive radio programme.<sup>18</sup> Supported by resource personnel, the broadcasters browse the Internet on-air together with their listeners and discuss and contextualize information in the local language. Thus, the radio programme raises awareness about the Internet in a participatory manner.

The World Health Organization has established a Health InterNetwork that creates websites for hospitals, clinics and public health facilities in the developing world, to bring high-quality information within reach and to facilitate communication in the public health



community. (See Box I.1.) It aims to improve public health by facilitating the flow of health information and ensuring equitable access to health information, using the Internet.

### **Box 1.1**

#### **E-health for all: UN supports the developing world**

In September 2000 the Secretary-General of the United Nations launched a public-private initiative to bridge the digital divide in health. Spearheaded by the World Health Organization (WHO), the Health InterNetwork brings together international agencies, the private sector, foundations, non-governmental organizations and country partners under the principle of ensuring equitable access to health information.

As a key component of the project, the Health InterNetwork portal provides a vast library of the latest and best information on public health. The portal will also make available information technology health applications such as geographical information systems and epidemiological tools, plus courses and training offered through distance learning.

#### ***Connectivity: for information and communication***

The Health InterNetwork seeks to establish or upgrade thousands of Internet-connected sites in public and not-for-profit institutions in developing countries. Guided by a technology advisory group, foundations, development agencies, non-governmental organizations and corporate and local private sector partners are involved in specifying, providing and supporting hardware, software and Internet connectivity to pilot sites.

Source: <http://www.healthinternetwork.org/src/millennium.php>

As the website for the UN/WHO Health InterNetwork states, "...The Health InterNetwork was created with one single purpose: to bridge the digital divide in health. Towards that end, health information - relevant, timely and appropriate - must become unrestricted and affordable worldwide, so that all communities can benefit from this global public good..."<sup>19</sup>

Such programmes can greatly benefit social service infrastructure deficit countries by jumping the timeline of traditional, long gestation programmes in education, health or social service delivery, especially in far-flung areas where lack of human and physical infrastructure has traditionally been expensive, difficult to monitor, and therefore often neglected. Those seeking more education, skills or health information need only access an on-line computer, perhaps a shared community one, to improve skills and knowledge or seek initial guidance on an emergency medical problem. With instantaneous transmission of two-way information, social service practitioners and beneficiaries can gain access to state-of-the-art solutions to their problems; have their concerns transmitted to the relevant policy makers; and participate in home-grown solutions in a much reduced time frame and at their convenience. Job seekers in far-flung areas need not be limited to the local markets in their search for employment. They can have the world at their fingertips.

With government providing the initial lead in the developing countries, such endeavours could also mushroom into citizen-to-citizen provision of services. People could have access to information about charitable organizations, social work, NGOs and other philanthropic ventures providing guidance, solutions and financial assistance. The coming

together of the global community will further opportunities for knowledge and people's empowerment.

### **I.3.1 The UN vision of development for all**

In September 2000, the 189 member states of the United Nations General Assembly adopted the Millennium Declaration, which set out a vision for the future based on principles of "... a more peaceful, prosperous and just world...." It confirmed the commitment of the member states "...to making the right to development a reality for everyone and to freeing the entire human race from want..."<sup>20</sup> By setting specific, monitorable targets for, among other things, poverty reduction, education, health and environment, the member states "...agreed that peace, prosperity and justice constitute a social context that is best suited for achieving human development, a context in which globalization can benefit all..."<sup>21</sup> One commitment they made was to "ensure that the benefits of new technologies, especially information and communication technologies, are available to all."<sup>22</sup>

The challenge of development today requires revisiting political, economic and social structures. Innovative approaches are needed, to government and governance; business and consumers; and culture and society. For states, this requires developing the effective use of e-government programmes for governance. As a researcher points out, "the new model (of governance) brings information systems (IS) to the heart of reform..."<sup>23</sup>

Though still in its infancy, e-government - if applied correctly - holds the promise of delivering in instances where many other innovative approaches could not in the past.

**The promise of e-government is that it offers an historic opportunity to make the impossible possible for developing countries.**

However, it should be noted that e-government is not a universal panacea. It is only a tool, albeit a powerful one. The ultimate goal remains development with the opportunity for people's empowerment.

And it is this opportunity for the "inclusion of all" that is the vision of the United Nations.

## **II. Benchmarking E-government**

The conceptual framework adopted by this Survey is the vision of human development provided by the UN Millennium Declaration. As such, **first of all**, e-government in this Survey is considered to be the means to an end, the end being development for all. It is considered to be a tool at the disposal of the government, which, if applied effectively, can contribute substantially to promoting human development. It supports, but does not supplant, the development efforts of member states.

**Second**, the Survey and its results must be placed in the context of the overall pattern and level of development of the country concerned. It is vital that the assessment of web-sites done by the Survey does not provide a distorted picture of the progress made - and challenges faced - by the countries. At the same time, it is equally important to highlight the promise of e-government. Therefore, main measurements in this Survey are based on e-government readiness, which duly takes into account not only countries' specific e-government initiatives, as evidenced by web presence, but also their infrastructure and human resource endowments.

**Third**, this is an issues-based Survey. Its focus is on the question, "Is e-government, as a tool, contributing to the socio-economic uplift of the people?" In attempting to answer this question, the Survey conceptualizes models and quantitatively assesses the strengths and weaknesses in e-government initiatives of countries worldwide.

**Fourth**, in keeping with the UN Millennium Declaration, the focus of the Survey is on provision of socio-economic services to the population through the use of e-government as a programmatic tool, as well as on participation.

**Finally**, the Survey assesses e-government readiness worldwide, taking the view that the ultimate objective remains the “inclusion of all” in development.

This Survey contributes to the development efforts of countries by providing a benchmark to gauge the comparative state of e-government readiness and e-participation for development in a rapidly globalizing world

It should be noted that the Survey does not imply that “higher” rankings are necessarily a “better” outcome or even a desirable one. Each country has to decide upon its level and extent of e-government initiatives in keeping with its indigenous development framework. At any given point in time, e-government readiness and e-participation rankings are mere snapshots of the state of a country’s e-government programme.

Studying various aspects of ICT-related readiness of countries around the world is currently a growth industry. E-government and/or e-government readiness surveys range in geographical coverage from those that focus on a handful of developed countries to those covering most countries of the world. A few assess customer services through products and services offered on several websites in a country, sometimes complemented by the results of interviews with government officials. Others focus on more sophisticated issues of privacy and electronic voting. A few delve into assessing government provision of state and local level services. The majority, however, focus on the burgeoning on-line business services, mostly in the industrialized countries. Almost all allow a qualitative assessment in their numerical scores.

Furthermore, almost all previous surveys have only provided an assessment of the websites. E-government and e-government readiness are, among other factors, a function of not only a country’s state of readiness, but also its technological and telecommunication infrastructure and the level of its human resource development. E-government initiatives, however, sophisticated as they might be, are unlikely to contribute significantly to development if they reach only the privileged few.

This Survey contributes to the development efforts of the member states by providing a benchmark against which to gauge their comparative state of e-government readiness and e-participation within an overall framework.

## **II.1 The UN Global E-government Survey 2003**

The UN Global E-government Survey 2003 expands and builds upon the UN Report “Bench-Marking E-government: A Global Perspective” published in 2002. Using a model for the measurement of digitized services, the Survey assesses the 191 member states of the UN according to a composite index of e-government readiness based on website assessment, telecommunication infrastructure and human resource endowment.

As before, it assumes that a “government” encompasses the executive, legislative and judiciary organs of the State, while “consumer/citizen” includes any member of the public at large (individuals as well as organizations). It assumes that e-government comprises electronic interactions of three types: government-to government (G2G); government-to-business (G2B) and its reverse; and government-to-consumer/citizen (G2C) and its reverse.

## Box. 2.1

### E-government nomenclature

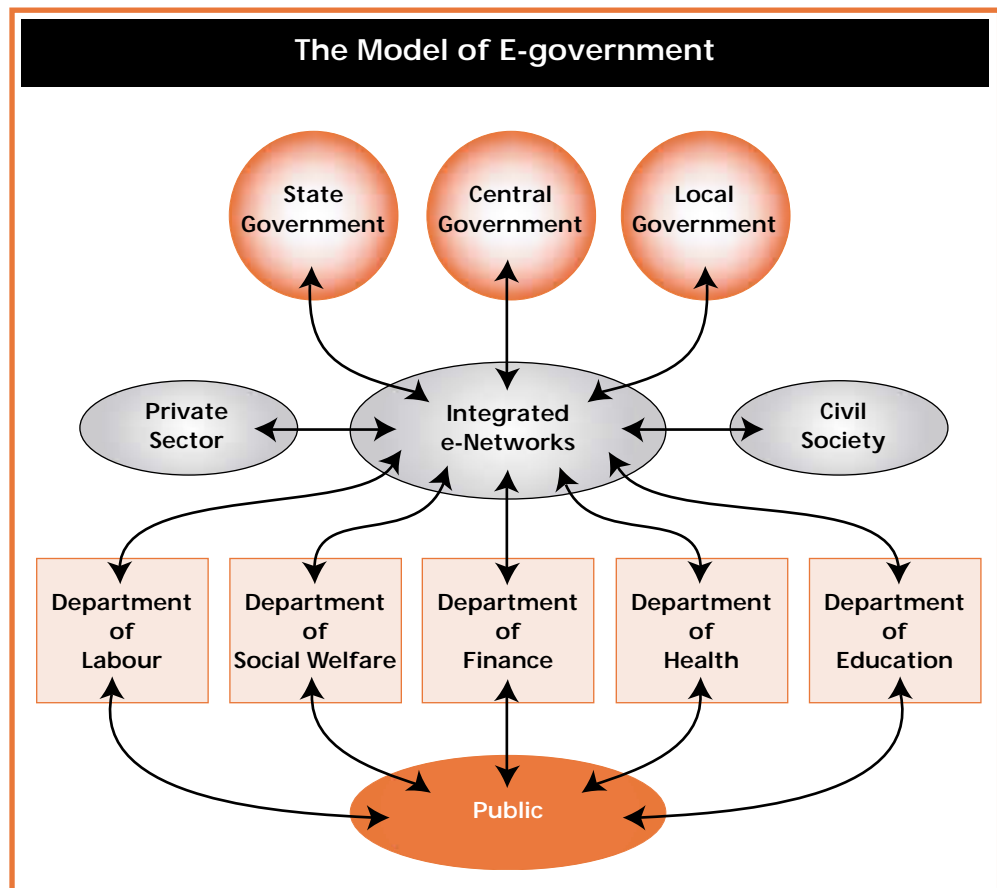
Government-to-Government (G2G) involves sharing data and conducting electronic exchanges between governmental actors. This involves both intra- and inter-agency exchanges at the national level, as well as exchanges among the national, provincial and local levels.

Government-to-Business (G2B) involves business-specific transactions (e.g. payments with regard to sale and purchase of goods and services) as well as provision on line of business-focussed services.

Government-to-Consumer/Citizen (G2C) involves initiatives designed to facilitate people's interaction with government as consumers of public services and as citizens. This includes interactions related to the delivery of public services as well as to participation in the consultation and decision-making process.

Based on this perspective, the Survey adopts a people-centric approach to e-government. It limits itself to exploring government-to-consumer/citizen (G2C) and consumer/citizen-to-government (C2G) relationships. Although the Survey does not assess G2G services, in the comparative measurement of G2C and C2G relationships is an implicit assessment of G2G, since improvements in G2C and C2G are closely linked to G2G improvements.

The two-way information flows between the government and the consumer/citizen are presented below graphically in the Model of E-government adopted by the Survey.



### **The objectives of the Survey are to:**

1. Present a snapshot of the state of comparative e-government readiness of the countries of the world;
2. Provide an appraisal of the use of e-government as a tool in the delivery of services to the public in its capacity as consumer of such services;
3. Provide a comparative assessment of the willingness and ability of governments to involve the public in e-participation; and
4. Provide a benchmarking tool for monitoring the progress of countries as they move towards higher levels of digital public service delivery in the future.

Drawing on broader, more expanded research, the Survey focuses on the issue of how willing and ready governments around the world are to employ the vast opportunities offered by e-government to improve access to - and the quality of - basic social services to the people. While not detracting from the importance of other forms of assessment of IT applications, this Survey confines itself to an assessment of the e-facilities on line.

*This Survey presents a snapshot of the state of comparative e-government readiness of the countries of the world;*

*This Survey provides an appraisal of the use of e-government as a tool in the delivery of services to the consumer;*

*This Survey provides a comparative assessment of the willingness and ability of governments to involve the public in e-participation;*

*This Survey provides a benchmarking tool for monitoring the progress of countries as they move towards higher levels of digital public service delivery in the future.*

### **II.1.1 The conceptual framework, methodology and data measurement**

The UN Global E-government Survey 2003 presents a comparative ranking of the countries of the world according to two primary indicators:

1. The state of e-government readiness; and
2. The extent of e-participation

The concept of e-government in this Survey espouses two aspects:

- \* The generic capacity or aptitude of the public sector to use ICT for encapsulating in public services and deploying to the public, high quality information (explicit knowledge)<sup>24</sup> and effective communication tools that support human development. The Survey names this the e-government readiness; and,
- \* The willingness, on the part of the government, to use ICT to provide high quality information (explicit knowledge) and effective communication tools for the specific purpose of empowering people for able participation in consultations and decision-making, both in their capacity as consumers of public services and as citizens. The Survey names this as e-participation.

It should be noted that while the E-government Readiness Index assesses the quantity of information and services provided, e-participation assesses the same from a qualitative perspective, with a special focus on consultation and decision making.

#### **A. The state of e-government readiness**

##### **E-government Readiness Index 2003**

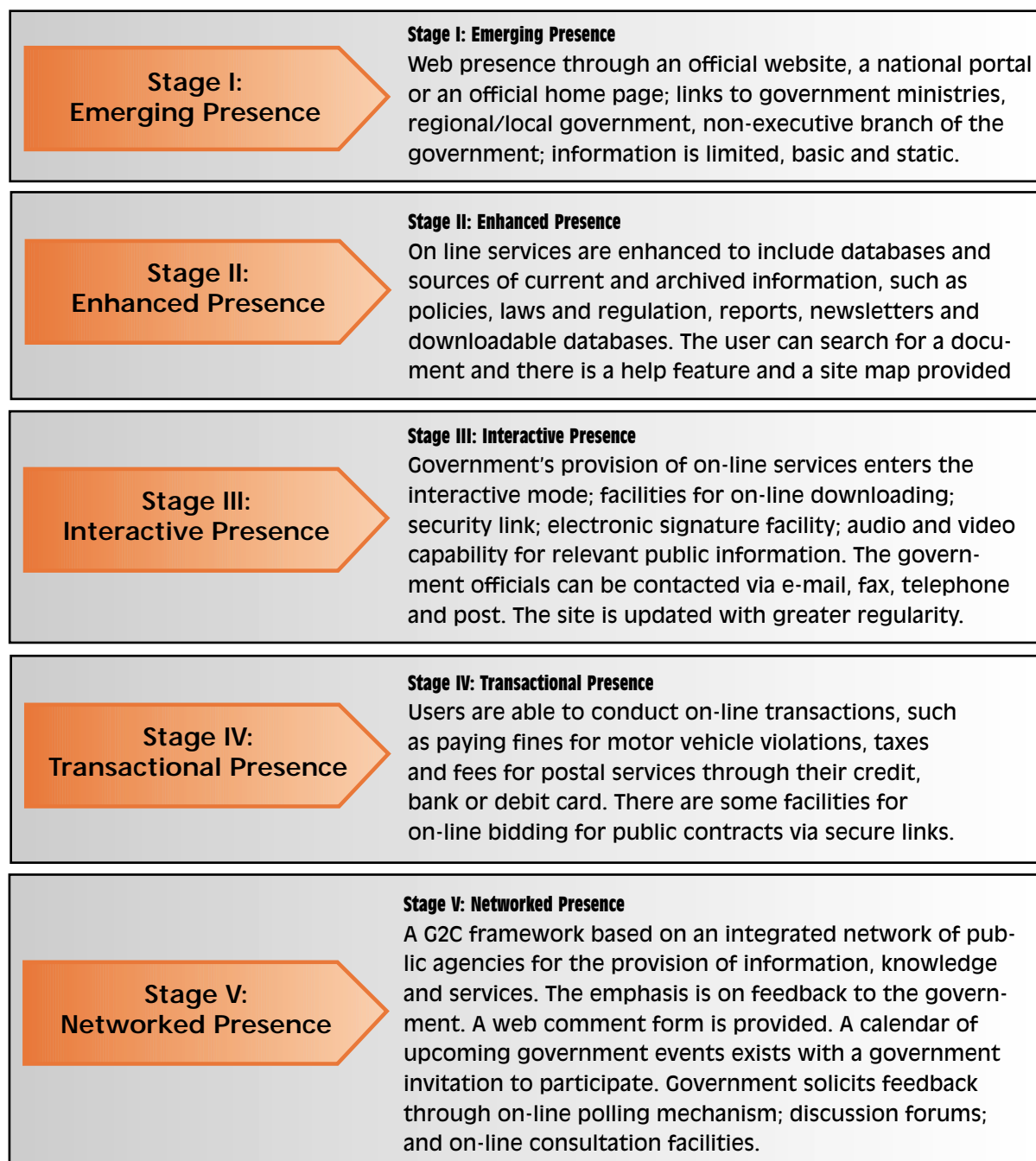
The E-Government Readiness Index is a composite index comprising the Web Measure Index, the Telecommunication Infrastructure Index and the Human Capital Index.

##### **i. Web Measure Index**

The Web Measure Index is a quantitative index, which has been revised and enhanced from last year's version to measure the generic aptitude of governments to employ e-government as a tool to inform, interact, transact and network.

It is based upon a theoretical **Web Presence Measurement Model**, which is a quantitative five-stage model, ascending in nature, and building upon the previous level of sophistication of a government's on-line presence. For the governments that have established an on-line presence, the model defines stages of e-government readiness according to a scale of progressively sophisticated services. As countries progress in both coverage and sophistication of their state-provided e-service and e-product availability they are ranked higher in the Model according to a numerical classification corresponding to five stages. (See chart.) The five stages, given in the schema below, are theoretically ascending in the level of maturity or sophistication of e-government presence on-line. They are: Emerging Presence, Enhanced Presence, Interactive Presence, Transactional Presence and Networked Presence.

## Web Presence Measurement Model



Countries are scored on the basis of whether they provide specific products and services. The model, by design, does not attempt to measure the quality of those products or services provided by the government, thus setting it apart from other models/surveys that combine access to, and delivery of, services/products, as well as quality measurements, all in one indicator. As such, the Survey eliminates any discretionary rating, which however perfect, introduces a value judgment based on the researcher's perspective. The purely quantitative nature of the Web Measure Index assures minimizing the bias inherent in combining qualitative assessments with quantitative measures.

**Emerging Presence.** This is the first stage of e-government readiness, representing information that is limited and basic. A government web presence is established through an official website, a national portal or an official home page. Some archived information such as the head of state's message or a document such as the constitution may be available on line. Links to ministries/departments of education, health, social welfare, labour and finance may exist, as well as links to regional/local government and branches other than the executive one of the federal government. But most information remains static.

**Enhanced Presence.** Though offering some enhanced capabilities, e-government efforts are still limited to providing one-way information to the public. At this stage, the government provides sources of current and archived information, such as policies, budgets, laws and regulations, reports, newsletters and downloadable databases. The user can search for a document and a help feature and site map are provided. On the public participation side, a greater menu of relevant government documents may be available such as strategies and policy briefs on specific issues. Though more sophisticated, the interaction is still primarily unidirectional, i.e. from G2C.

**Interactive Presence.** This is the third, and relatively more sophisticated, stage in the schema, where e-government readiness for provision of on-line public services enters the interactive mode with services to enhance convenience of the users. These may include downloadable forms for tax payment, applications for license renewal etc. that need to be printed but may be mailed back to an agency - a task that traditionally could only be carried out by making a trip to the agency concerned. Audio and video capability is provided for relevant public information. The government officials can be contacted via e-mail, fax, telephone and post. The site is updated with greater regularity to keep the information current and up to date. The government at this stage has not employed e-government to fully inculcate citizen participation, though some form of input from the public is admitted through provision of e-mail and other contact information to answer simple questions.

**Transactional Presence.** This, the fourth stage in the evolution of e-government initiatives, allows users to complete entire tasks electronically at any time. Backed by simple user-friendly instructions, these obviate the necessity for the physical presence of the users or utilization of other than electronic means for paying taxes or applying for ID cards, birth certificates/passports, license renewals and other similar C2G interactions by allowing him/her to submit these on line 24 hours a day, seven days a week. The users are able to pay for relevant public services or expenses (e.g. fines for motor vehicle violations, taxes, fees for postal services) through their credit, bank or debit cards. E-procurement facilities are available with providers of goods and services able to bid on line for public contracts via secure links.

**Networked Presence.** This is the highest mode of e-government initiatives in the schema characterized by an integration of G2G, G2B (and its reverse) and G2C (and its reverse) interactions. The government is willing and able to involve the society in a two-way dialogue. Through employing the use of web comment forms, and innovative on-line consultation mechanisms, the government actively solicits the views of people acting in their capacities as consumers of public services and as citizens. Implicit in this stage of the model is the integration of consultation and collective decision making.

The 2003 Web Measure Index builds upon the previous year's assessment in several ways.

First, the coverage has been expanded to include all UN member states. A total of 191 countries were assessed.

Second, the Web Measure assessments are purely quantitative in nature. They are based on a questionnaire that required the researchers to assign a binary value to the indicator based on the presence/absence of specific electronic facilities/services available.



Third, since the use of integrated portals or websites is gaining in importance in the e-government strategies of states worldwide, the primary site was the National Portal or the official homepage of the government. Since many governments do not have one-stop portals, additional government sites were assessed.

Fourth, to ensure consistency across countries, the same number of functionally same/similar sites were assessed in each country. Since the numerical index is dependent upon the sites chosen, which may differ in sophistication within a country, the Survey limited itself to a pre-chosen set of five government ministries or departments. This removed the arbitrariness of choosing which site to assess from among the multiple government sites available.

Finally, these additional five sites were chosen to reflect the people-centred approach of the Survey. Since the Survey's primary objective is to measure e-government effectiveness in the delivery of basic economic and social services, the additional sectoral sites chosen for assessment were the Ministries/Departments of Health, Education, Social Welfare, Labour and Finance. These were representative of what services the public requires most from the government. To accurately differentiate the level of sophistication of each functional site, each ministerial site was assessed using the same set of questions. The research team assessed the websites on the quantity and the maturity (or level of sophistication) of services dispensed electronically.

In all, 288 services and facilities for 191 countries were assessed across the above mentioned sectors. While acknowledging that many governments dispense economic and social services via state/local websites, the Survey confined itself in 2003 to central government website assessments only, to provide a consistent platform for comparative analysis across the countries studied. Not surprisingly, a wide difference emerged among countries in the level of economic and social services offered on the government websites. Countries with decentralized structures of national and provincial government and governance in the dispensation of public services, such as education and health, had little or nothing on line on the central government's ministerial/departmental site. In such instances, numerical scores were adjusted accordingly so as not to penalize them.

A caveat is in order about the web measurement in the Survey. The assessment of on-line services was carried out during April-May 2003. The sites were carefully checked and revisited several times. However it should be kept in mind that websites worldwide are rapidly being updated with the addition of new features. Therefore some of the websites assessed in the Survey may have been augmented during the period that elapsed between the time when the research was undertaken and the official launch date of the Survey in November 2003. This, however, does not detract from the comprehensiveness of the Survey and is unlikely to impact on the comparative e-government readiness ranking of countries presented here.

## **ii. Telecommunications Infrastructure Index**

The Telecommunication Infrastructure Index 2003 builds upon and expands the 2002 Infrastructure Index. It is a composite, weighted average index of six primary indices, based on basic infrastructural indicators that define a country's ICT infrastructure capacity. These are: PCs/1,000 persons; Internet users/1,000 persons; Telephone Lines/1,000 persons; On-line population/1,000 persons; Mobile phones/1,000 persons; and TVs/1,000 persons. Data for the UN member states was taken primarily from the UN International Telecommunication Union (ITU) and the UN Statistics Division and supplemented by the World Bank. The data across countries was standardized by constructing six separate indices for the indicators. (See Technical Notes in Annex II for details on the construction of the indices.)

### iii. Human Capital Index

The data for the Human Capital Index 2003 relies on the United Nations Development Programme (UNDP) “education index”. This is a composite of the adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio, with two thirds of the weight given to adult literacy and one third to the gross enrolment ratio. (See Technical Notes for details.)

## B. The extent of e-participation

### i. The E-participation conceptual framework

Included in the vision of the UN General Assembly Millennium Declaration is the reaffirmation by the member states that they “...resolve to work collectively for more inclusive political processes, allowing genuine participation by all citizens in all (our) countries... and the right of the public to have access to information...”<sup>25</sup>

Within this framework, e-participation is defined here to be a “participatory, inclusive, deliberative process of decision-making.” This can be achieved via:

- a) Using ICT to increase the supply of information useful in the process of consultation and for decision making;
- b) Using ICT to enhance consultation; and
- c) Using ICT to support decision making by facilitating people’s participation within the framework of G2C and C2G interactions.

In devising the conceptual framework for e-participation, the Survey does not make any value judgement on democracy in its traditional nuanced meaning. The concept employed here holds a deliberative thought process to be superior, irrespective of any differences in political, economic, social and cultural regimes across countries.

#### Box.2.2

#### E-participation framework

***E-information:***

The government websites offer information on policies and programmes, budgets, laws and regulations, and other briefs of key public interest. Tools for dissemination of information exist for timely access and use of public information, including web forums, e-mail lists, newsgroups and chat rooms.

***E-consultation:***

The government website explains e-consultation mechanisms and tools. It offers a choice of public policy topics on line for discussion with real time and archived access to audios and videos of public meetings. The government encourages citizens to participate in discussions.

***E-decision making:***

The government indicates that it will take citizen input into account in decision making and provides actual feedback on the outcome of specific issues.

Whereas e-participation endeavours around the world are not limited to state sponsored e-groups but encompass a plethora of interactions that involve citizens, NGOs and business organizations, this Survey limits itself to exploring only government willingness to promote such groups through the use of the ICT. As such, it confines itself to citizen-

to-government (C2G) and government-to-citizen (G2C) interaction only.

As stated earlier, the Web Measure Index includes a quantitative assessment of e-participation. E-participation, on the other hand, is a qualitative measure employing proxy indicators for the:

- i. **quality** of the services/products it offers on the websites for this purpose;
- ii. **relevancy** of the information and services provided;
- iii. **usefulness** to the citizen as a user; and
- iv. **willingness** (if any) of the government to provide relevant information and services; and encourage the public to be active in promoting deliberative, participatory decision making in public policy matters.

A few words of caution in interpreting the e-participation data are necessary. First, the measurement of the “willingness” to provide information and services, necessarily, requires a qualitative assessment. This Survey acknowledges that any measurement of a “utility” indicator will impart a bias in scores based on the researcher’s perspective. Whereas every caution was taken to limit this bias, the resulting scores should be interpreted with caution.

Second, as this Survey has stated earlier, for effective e-government readiness, financial constraints, especially on developing countries, are an important determinant of the level and extent of all e-government programmes.

Third, the Survey also acknowledges that e-government programmes worldwide reflect political economy models and levels of development. The determinant of the willingness of countries in terms of what they put out on their websites are political ideology and commitment, economic and social systems, level of development, financial and other resources, human and technological infrastructure, and finally, the regulatory and administrative framework. For example, some countries may choose to put out information while others may not. Consequently these parameters have an impact on the comparative e-participation scores and the ranking of the countries.

Fourth, though an extremely important indicator of the effectiveness of e-government programmes, the Survey makes no claim to conducting any impact assessment of the e-government readiness and e-participation endeavours of member states.

Fifth, the measurement of willingness, quality and relevancy above rests primarily on website assessments. The comparative ranking of countries is purely for illustrative purposes.

Finally, the Survey found it difficult to construct a questionnaire with a full range of the features of political e-participation, as described in Chapter III, Part I of this Report. This would have resulted in a score of zero or very close to zero for the overwhelming majority of countries. Therefore, the questionnaire and consequently the results were tuned to the reality, as it exists. For instance, on the side of politics, an effort was made to look for government attempts to use ICT to engage citizens, but more in the consultative rather than in the direct decision-making process. Thus, the results assume the existence of e-participation at a rather rudimentary level.

## **ii. Data and methodology for the e-participation index**

An assessment of a total of 21 public informative and participatory services and facilities was undertaken for 191 countries in e-information, e-consultation and e-decision making across six general, economic and social sectors: general, education, health, social welfare, finance and employment. A scale of 0-4 was used in the assessment process.<sup>26</sup> The index was constructed by standardizing the scores.

### III. Research Findings and Analysis

#### A. Major findings

##### Global e-government expansion and design

1. Governments have made rapid progress worldwide in embracing ICT technologies for e-government in the past year. In 2001, the UN E-government Survey listed 143 member states as using the Internet in some capacity; by 2003, 91 per cent or 173 out of 191 member states had a website presence. Eighteen countries were not on line. <sup>27</sup>
2. English appears to have become the language for e-government presence on line. One hundred and twenty-five out of 173 countries provide websites in the English language in addition to their native language. Eighty-eight per cent of the countries surveyed have websites with information in one or more of the six UN languages, i.e. English, French, Spanish, Arabic, Chinese and Russian.
3. About 88 per cent of South and Central American and Caribbean countries provide websites in either Spanish, English or both. In Africa, 81 per cent of countries provide website information in either English or French, while in Western Asia the majority of state websites are in Arabic.
4. There is no one model of e-government development. At present e-government websites are mushrooming around the globe in a haphazard manner. State and sectoral websites reflect wide variations among - and between - countries in the provision of on-line information and basic public services.
5. There appears to be a gradual, but steady, trend toward national portal/gateway sites, specialty portals and one-stop service sites. However the ability of the various governments to develop and present them in an integrated, unified fashion is uneven.
6. There is a strong correlation between the existence of a formal e-government policy/statement and/or e-government portal and the overall quality and ranking of a nation's sites on the various web measure indices. More and more countries are employing a one-stop-shop portal for integrated delivery of information and services. Twenty-four of the top 25 countries and 39 of the top 50 countries have either or both, a clear e-government policy/statement and a specific e-government portal.
7. There are no evolutionary development stages in e-government. Countries can - and do - jump from the stage of emerging or enhanced presence with limited information to the transactional stage or networked stage in a short time.

##### E-government readiness rankings

8. This Survey confirms that **North America (0.867) and Europe (0.558)** lead among the world regions. <sup>28</sup>
9. In the rest of the world, **South and Central America (0.442)** have the highest aggregate state of e-government readiness followed by **South and Eastern Asia (0.437)**, **Western Asia (0.410)**, the **Caribbean (0.401)**, **Oceania (0.351)**, **South-central Asia (0.292)** and finally, **Africa (0.241)**.

10. The **U.S. (0.927)** is the world leader followed by **Sweden (0.840)**, **Australia (0.831)**, **Denmark (0.820)**, the **U.K. (0.814)**, **Canada (0.806)** and **Norway (0.778)**.
11. Among the developing countries **Singapore (0.746)** leads, followed by the Republic of **Korea (0.744)**, **Estonia (0.697)** and **Chile (0.671)**.
12. The world average e-government readiness is 0.402.

### **E-participation and the promise of “inclusion of all”**

13. The research affirms that the state of e-government readiness in a country is a function of the combined levels of its economic and technological development and human resource development.
14. There is no standard formula for effective e-government. The determinants of differences in e-government services range from political and economic models to inequities in financial, human and technical capital.
15. Since the websites are *inter alia* a reflection of the country’s willingness to share information and knowledge with the people, in several instances, political ideologies appear to determine what is to be public knowledge.
16. Despite popular belief, only a handful of countries worldwide are utilizing close to the full potential of e-government.
17. Many developed countries are not fully utilizing the possibility of “including all”. Many industrialized nations are not as advanced as popularly perceived in providing people-centred transactional and networked services.
18. There is a real possibility of the digital divide widening between e-haves and e-have-nots in the developed and in the developing world. Inequities inside and among countries in telecommunication and human capital development pose serious constraints on the use of e-government for knowledge creation and the empowerment of people.
19. At present, ICT-facilitated information and services reach only the privileged few in the developing countries.
20. Most developing countries are at the initial three stages of e-government development with little or no transactional or networked services.
21. Despite difficulties, some developing countries have taken a great leap forward. Their examples provide model illustrations of the *promise of e-government*.
22. A few low-income developing countries lead the way in adopting indigenous approaches to use of an e-government on-line presence to provide information and services to populations in far-flung areas - populations that are neither literate nor connected to a computer.
23. Finally, everything that the Survey has revealed confirms that the imperative for effective e-government remains a multi-pronged approach to its development, based on

ICT and human and telecommunications infrastructure development. If effectively utilized, e-government can push the frontiers of development around the globe.

## B. Global e-government readiness rankings

Table 3.1 and Graph 3.1 present the global e-government readiness rankings for the top 25 countries among the UN member states. Most of the high-income developed economies rank the highest and considerably higher than the global average of 0.402. Though the industrialized countries make up the majority, a few middle-income developing countries are in the group, indicating a fast “catch up”.

The **United States** is the current global leader with the highest index of 0.927, followed by **Sweden (0.84)**, **Australia (0.831)**, **Denmark (0.820)**, the **United Kingdom (0.814)** and **Canada (0.806)**. Among the developing countries, **Singapore (0.746)**, the **Republic of Korea (0.744)**, **Estonia (0.697)** and **Chile (0.671)** are among the top 25 e-government ready countries. With a global average of 0.402, these top 25 countries are far ahead of the rest of the world with rankings that range 60 to 200 per cent higher than the global average. Region wise, 16 out of 25 countries belong to Europe, two to North America, three to South and Eastern Asia, two to Oceania and one each to Western Asia and South and Central America. No country from South-central Asia or Africa made it into the list of the top 25 e-government ready countries.

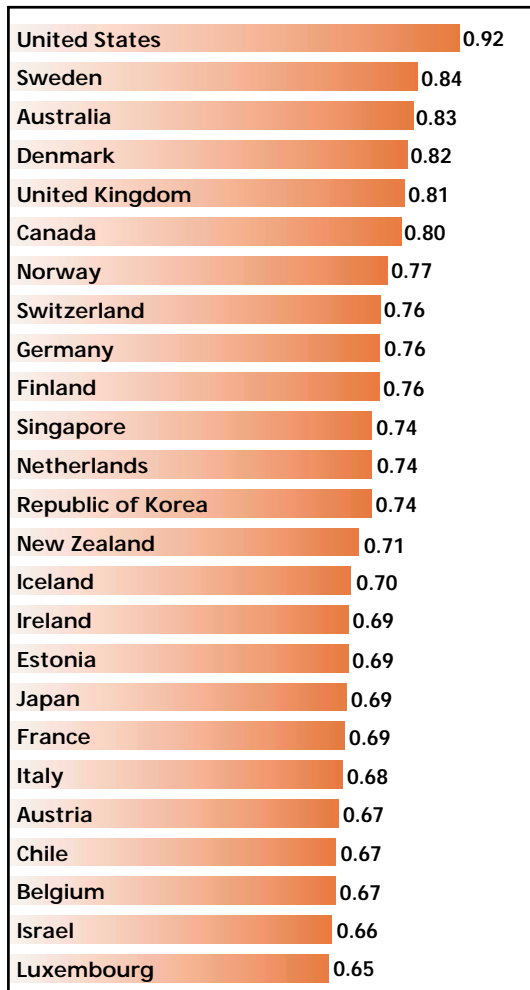
**Table 3.1**

### Global E-government Readiness Rankings 2003: Top 25 Countries

	Country	E-government Readiness Index
1.	United States	0.927
2.	Sweden	0.840
3.	Australia	0.831
4.	Denmark	0.820
5.	United Kingdom	0.814
6.	Canada	0.806
7.	Norway	0.778
8.	Switzerland	0.764
9.	Germany	0.762
10.	Finland	0.761
11.	Netherlands	0.746
12.	Singapore	0.746
13.	Republic of Korea	0.737
14.	New Zealand	0.718
15.	Iceland	0.702
16.	Estonia	0.697
17.	Ireland	0.697
18.	Japan	0.693
19.	France	0.690
20.	Italy	0.685
21.	Austria	0.676
22.	Chile	0.671
23.	Belgium	0.670
24.	Israel	0.663
25.	Luxembourg	0.656

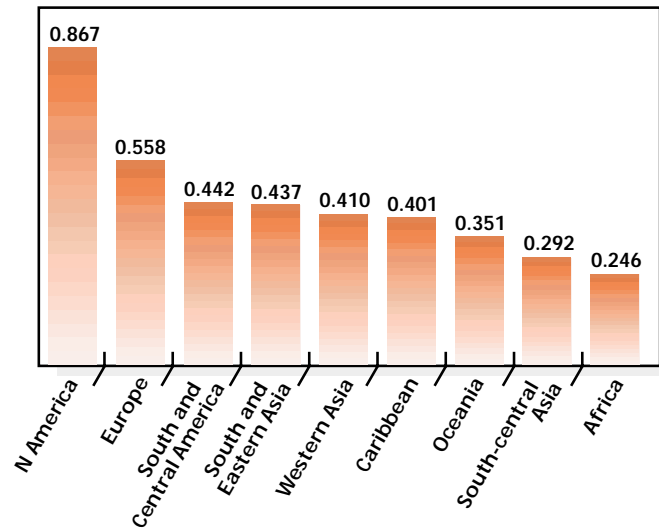
**Graph 3.1.**

**E-government Readiness Rankings  
2003,  
top 25 countries**



**Graph 3.2.**

**E-government Readiness  
Index by region**



Graph 3.2 above presents the e-government readiness of the various regions of the world. As can be seen, North America and

Europe lead, followed by South and Central America, South and Eastern Asia; Western Asia, the Caribbean and Oceania. South-central Asia and Africa have the lowest average e-government readiness. The results reflect the picture of the top 25 countries. Underpinning this aggregate snapshot in time is the level of economic, social and political development of these countries.

Low e-government readiness in South-central Asia and Africa is a reflection of the lowest telecommunication index across the board; a relatively low human capital index; and the second lowest web measure index among all regions of the world.

The regional averages in the table do not only point out the low levels of infrastructure and human capital resources in several regions of the world; they also highlight the fact that the indicators for North America and Europe for these are around 5-10 times higher in the case of the human resource base and around 4-20 times higher in the case of infrastructure development. For example, if the U.S. is taken as the comparator, even though 40 per cent<sup>29</sup> of its population is still not on line, the telecommunication readiness of Africa and South-central Asia is 1/20th that of the U.S. South-central Asia, which has about one third of the world population, has about 20 per cent of the average human

capital capacity of the U.S. These disparities are presented in a tabular and graphic form below.

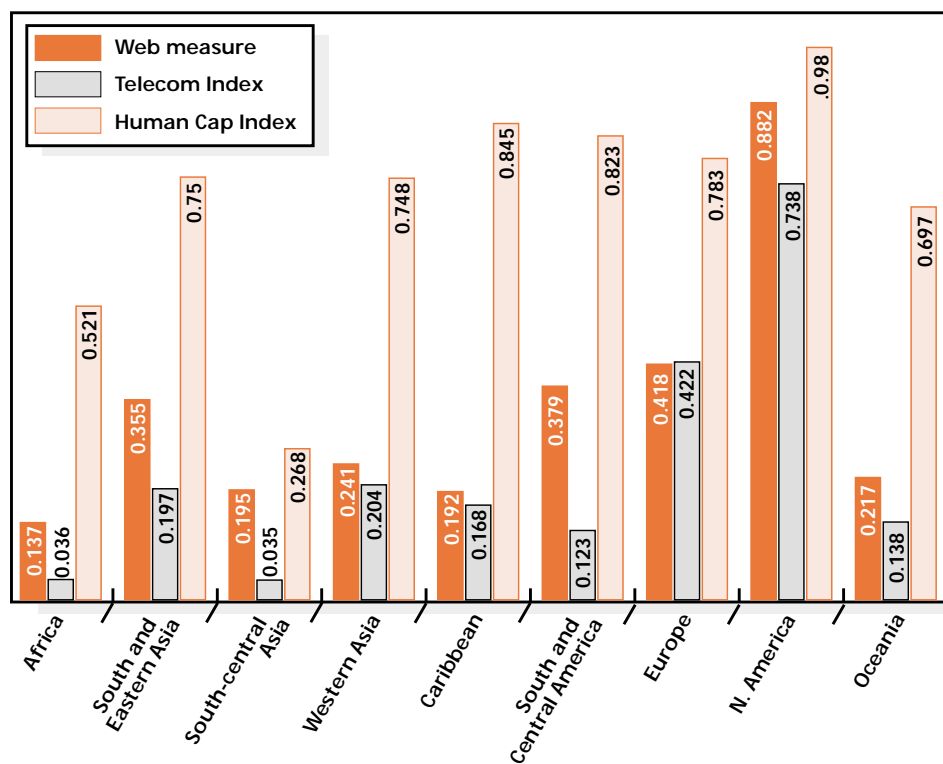
**Table 3.2**

**Regional Indices, 2003<sup>i</sup>**

	Web Measure	Telecommunication Index	Human Index Cap.	E-Government Readiness Index
North America	0.882	0.738	0.980	0.867
Europe	0.418	0.422	0.783	0.558
South and Central America	0.379	0.123	0.823	0.442
South and Eastern Asia	0.355	0.197	0.750	0.437
Western Asia	0.241	0.204	0.748	0.410
Caribbean	0.192	0.168	0.845	0.401
Oceania	0.217	0.138	0.697	0.351
South-central Asia	0.195	0.035	0.268	0.292
Africa	0.137	0.036	0.521	0.246

**Graph 3.3.**

**Regional disparities in telecommunication and human capital**



<sup>i</sup> In regional presentations, the Report will follow "Composition of macro geographical (continental) regions, geographical sub-regions, and selected economic and other groupings" of the UNDESA Statistics Division (<http://unstats.un.org/unsd/methods/m49/49regin.htm>)



## C. E-government readiness by country

### North America and Europe

Tables 3.3 and 3.4 present the country indices. Among the world regions, Europe is only second to North America and has emerged as an innovator in e-government initiatives and programmes. Of the total 42 countries grouped under Europe, around 75 per cent had e-government readiness indices above the global mean.

**Table 3.3**

#### E-government Readiness Index, North America

	Web Measure	Telecommunication Index	Human Index Cap.	E-Gov. Readiness Index
Canada	0.764	0.675	0.980	0.806
United States	1.000	0.801	0.980	0.927
Average	0.882	0.738	0.980	0.867

Among others, the **U.S. (0.927)**, **Sweden (0.84)**, **Denmark (0.82)**, the **U.K. (0.814)** and **Canada (0.806)** have a long history of e-government initiatives. The US has been a leader in digital services the longest. Between 1993 and 2001 the U.S. government launched over 1,300 independent initiatives, which were eventually synthesized into a national e-government strategy.<sup>30</sup>

The success of the global leaders is due to several factors. E-government programmes in leading regions have sought to increase efficient service delivery to the public as well as to include greater participation in public policy on line. This enabling environment is well able to sustain expansion of sophisticated e-government programmes in the future.

Successful e-government programmes also reflect a country's *willingness* to share information and knowledge with its people. The long history of political development, democracy and the independence of the private sector and various organizations in these countries dictates that governments be open and participatory to "include all".

However, despite the success stories, there are wide variations in the state of e-government readiness. In general, countries such as **Switzerland (0.764)**, **Germany (0.762)**, **Netherlands (0.746)**, and **Austria (0.676)** are more e-government ready than those in Eastern and Southern Europe. Whereas **Poland (0.576)** and **Bulgaria (0.548)** are leaders in Eastern Europe they remain considerably

**Table 3.4**

#### E-government Readiness Index, Europe

Country	E-government Readiness Index		
Sweden	0.840	Bulgaria	0.548
Denmark	0.820	Czech Republic	0.542
United Kingdom	0.814	Greece	0.540
Norway	0.778	Croatia	0.531
Switzerland	0.764	Slovakia	0.528
Germany	0.762	Hungary	0.516
Finland	0.761	Latvia	0.506
Netherlands	0.746	Romania	0.483
Iceland	0.702	Ukraine	0.462
Estonia	0.697	Russian Federation	0.443
Ireland	0.697	Belarus	0.397
France	0.690	Serbia and Montenegro	0.371
Italy	0.685	Republic of Moldova	0.363
Austria	0.676	The former Yugoslav Republic of Macedonia	0.362
Belgium	0.670	Albania	0.311
Luxembourg	0.656	Bosnia and Herzegovina	0.309
Portugal	0.646	San Marino	0.280
Malta	0.636	Monaco	0.189
Slovenia	0.631	Liechtenstein	0.178
Spain	0.602	Andorra	0.174
Poland	0.576		
Lithuania	0.557		
Average			0.558

below other European countries, including those of Southern Europe, such as Italy (0.685), Portugal (0.646) and Malta (0.636).

Many countries of Eastern Europe, especially the countries with economies in transition, remain constrained by the lack of both finance and infrastructure as they attempt to reform their economies. E-government programmes in Albania (0.311), Bosnia & Herzegovina (0.309) and Serbia & Montenegro (0.371) are in the early stages of development with mostly limited provision of information and services. Table 3.5 and Graph 3.4 below present the enabling environment for a selected group of these countries and demonstrate intra-European disparities in this regard.

**Table 3.5**

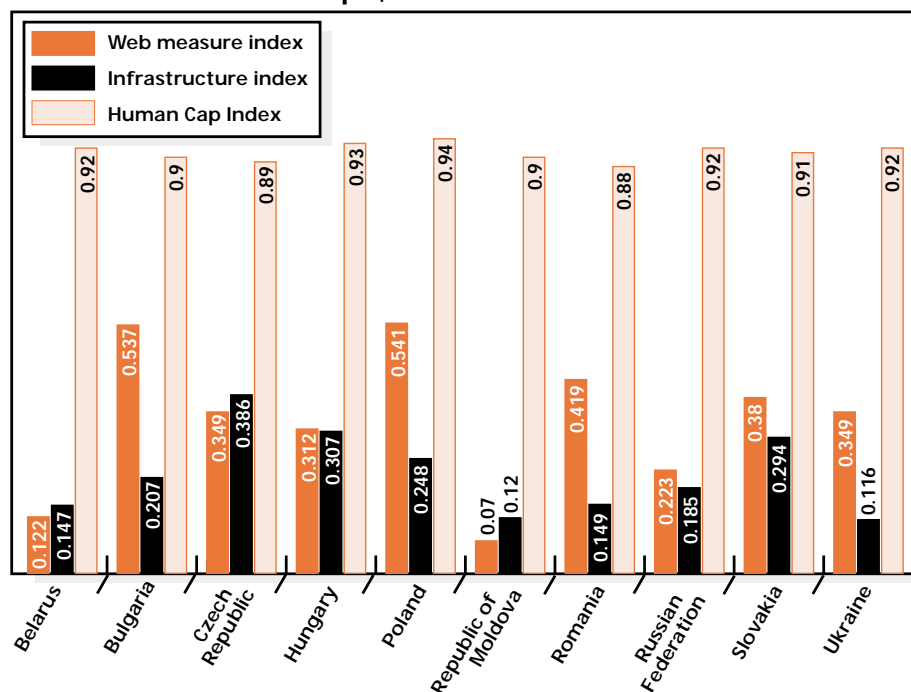
**Enabling Environment for E-government,  
Selected European Countries**

	Web measure Index	Infrastructure Index	Human Capital Index
Italy	0.616	0.499	0.94
Portugal	0.507	0.490	0.94
Malta	0.568	0.460	0.88
Slovenia	0.441	0.513	0.94
Spain	0.428	0.409	0.97
Greece	0.328	0.372	0.92
Croatia	0.424	0.291	0.88
Serbia and Montenegro	0.284	0.134	0.694
The former Yugoslav Republic of Macedonia	0.114	0.111	0.860
Albania	0.083	0.049	0.80
Bosnia and Herzegovina	0.131	0.059	0.737

**Sweden (0.840)** ranks the highest in Europe and higher than even the average for Northern European countries (0.717). Swedish Innovative Portals present excellent examples of the potential of e-government. One innovative portal (<http://www.lagrummet.gov.se/>) brings together all legal text produced by the Swedish state agencies, the Government Cabinet, and the Parliament even though no material is available in English.<sup>31</sup> Another innovative portal is a joint Danish-Swedish initiative (<http://www.oresunddirekt.com/dk/engelsk.asp>) providing user-centric information for the public and for enterprises at both sides of Oresund, the straight separating Denmark and the southern tip of Sweden. It provides information on the Swedish side in Danish, and information on the Danish side in Swedish. There is also a telephone hotline, a dictionary and a news subscription. In parallel to the portal “front office”, the public authorities on both sides have been organized into a “back office” network.<sup>32</sup>

Graph 3.4.

### Enabling Environment for E-government, Europe, Selected Countries



The **United Kingdom (0.814)** is decidedly among the innovative leaders in the provision of one-stop e-government initiatives. Most notable are its consultation features, found in the top-level “Citizen Space” section of the national site. An index of ongoing consultations, direct access to consultation documents, and directly related policy discussion forums make this citizen participation section a model to emulate. This is only the beginning of a gigantic wealth of resources that offer everything from a one-stop-shop for goods and services, including e-procurement, <http://www.ogc.gov.uk>. Further, the “Your Life” and “Do it Online” sections provide the user with quick access to anything one could need in a people-centric, easy-to-use manner.

Though not a focus in this Survey, website assessments revealed that innovative e-government programmes in developed countries followed e-initiatives in their private sectors, where the search for cost effectiveness had led the way to achieving greater efficiency and service provision. The governments followed in an attempt to reform the way the state interacts with society. Moreover, as this Survey states earlier, financial means are an important determinant of successful e-government initiatives. Most developed countries have had the necessary financial means to invest in developing and expanding e-government service delivery.

A major contributing factor in successful e-government programmes in most of the North American and European countries is a comprehensive, well-thought-out e-strategy. In an attempt towards improving cost effectiveness and efficiency, global leaders have been quick to seek the regulatory and administrative reform necessary for the integration of e-networking into G2G and G2C interactions. Over time this has evolved into a focus on employing a one-stop-shop portal for the integrated delivery of information and services for convenience, effectiveness and empowerment.

FirstGov, (<http://www.firstgov.org>) the **United States** national government portal, has been recently redesigned, with new information and features added on what seems a daily basis. It links all departments and agencies. Previous criticisms of the U.S. site as lacking in citizen participation have been quelled with the launch of the new “regulations.gov” portal for commenting on federal regulations. The site now channels users into primary sections for Citizens, Businesses and Non-profits, Federal Employees, and Government to Government. The comprehensive U.S. FirstGov network, containing some 180 million pages, is so detailed it even provides seniors with their own portal, “seniors.gov”, as well as one-stops for employment, government benefits and even teacher recruitment. FirstGov is also pioneering what is likely to become an e-government trend, “government without borders”, i.e. all-of-government access to national, state, regional and local government information and services through a single gateway. For example, the Citizens Homepage link to “Renew Your Driver’s License”, a state function in the U.S., nevertheless guides the user directly to the correct state agency.

The **Canadian** national portal (<http://www.canada.gc.ca>) is clear evidence that nations, governments, and even communities can and must work to find the look, feel and approach to e-government that will work best for their specific situation - no one size fits all. (See also the “In their own words” section of Chapter II, Part I.) Recently redesigned, based on extensive user input, the site is now streamlined and simplified in both its graphic design and navigation. It revolves around three basic information gateways: Canadians, Non-Canadians and Canadian Business. Notable among its many features is the new “Consulting Canadian” feature, which provides citizens with the opportunity to comment on proposed federal regulations. This was initiated during the Survey period as a pilot project, inviting user testing and comments, and then formally launched as an integral part of the site. By registering, one can customize not only news releases but also the home page itself. Added to this are a host of other on-line information services and seamless connections to other websites in both of Canada’s national languages, French and English.

The most notable feature of the government of **Norway’s** websites is an integrated government services portal (<http://www.norge.no>), a two-year collaborative project currently testing the viability of a central all-of-government site (with integrated national, regional and local government information). Though the site offers an e-dialogue service where one can chat live with a representative, and useful links to a range of national, regional and local information and services, the connections between the national site and the services site are weak.

**Finland** (<http://www.valtioneuvosto.fi/vn/liston/base.lsp?k=sv>) scores fifth among the countries of the northern European region. In addition to a special focus on news and basic information, the Finnish e-government site provides a host of services offered on line - everything from web forums to on-line forms.

The **Ireland** e-government initiative provides an example of the political commitment and the quality of on-line programmes. Easy-to-find and easy-to-use information and tools are the hallmarks of the Irish sites. Several useful one-stops are available, such as the e-government site, (<http://www.reach.ie>); “Oasis”, the On-line Access to Services, Information and Support; and BASIS (Business Access to Services Information and Support). Some of the more innovative ventures include a comprehensive and feature-rich e-Tenders one-stop, and a wireless access (WAP) site.

Political leadership and commitment are important factors in employing e-government as a tool for development. **Estonia’s** (<http://www.riik.ee/et/>) national site and system of portals and one-stops, including an e-government portal and a citizen participation site, illustrate the potential of strategic e-government planning. There is a strong emphasis initially on providing all the basic information and features for the people, and on laying

the foundation for building more sophisticated services and transactions. The challenge for Estonia is to further improve digital services by expanding its on-line transactions. In Estonia, plans to make all forms and applications submittable on line have been held up while the government works out security, electronic signature and other necessary legal and technical requirements.

### **South and Eastern Asia**

As the table below shows, clearly **Singapore (0.746)**, **the Republic of Korea (0.744)** and **Japan (0.693)** are the regional leaders, and at about the same level as many European countries in their state of e-government readiness.

Many governments have begun to employ innovative e-strategies along the lines of those in the developed countries to provide information and services to the public. E-government programmes in both Singapore and the Republic of Korea provide a lot of information and services. The **Singapore** (<http://www.gov.sg/>) national government site is one of the best-organized sites in existence, providing an effective starting point for the user to find just about anything related to the government. There is everything from an on-line Government Mall to an on-line donations portal. Most notable on the homepage, however, is the E-Citizen portal where government services are literally “A Click Away.” The heavy emphasis on services is complemented by quality news and information, often provided by a top-rated commercial provider.

Though still a way off from an integrated portal, the **Republic of Korea** national gateway site is a new and evolving e-government site. Though there are numerous links and various services, only a few can be initiated on line at present. The Republic of Korea’s sites provide a fairly comprehensive range of information, from subway information and financial reports to real-time news and on-line language courses in Korean. The gateway portal also includes an open bulletin board system for general feedback and commentary, a basic but effective approach to disseminating information. The country takes a two-way approach to implementation: the government information portal on one hand and the government service portal ([www.korea.go.kr](http://www.korea.go.kr), [open.korea.go.kr](http://open.korea.go.kr), [minwon.korea.go.kr](http://minwon.korea.go.kr)) on the other. The former is focused mainly on providing government information and the latter on providing government services, i.e. on-line transactions between the government and the public, including businesses. In the future, the two government portals - the information portal and the service portal - will be linked together and integrated into a single government portal. The integration and linkages among the various sites, information and services are still being worked out.

**Table 3.6**

### **E-government Readiness Rankings in South and Eastern Asia**

	<b>E-government Readiness Index</b>
Singapore	0.746
Republic of Korea	0.744
Japan	0.693
Philippines	0.574
Malaysia	0.524
Brunei Darussalam	0.459
Thailand	0.446
Indonesia	0.422
China	0.416
Viet Nam	0.357
Mongolia	0.343
Myanmar	0.280
Cambodia	0.264
Lao People's Democratic Republic	0.192
Timor-Leste	0.087
<b>Average</b>	<b>0.437</b>

**Table 3.7**

### Enabling Environment Indicators in South and Eastern Asia, Selected Countries

	Web measure	Telecom Index	Human Cap Index
Brunei Darussalam	0.266	0.250	0.86
Cambodia	0.127	0.004	0.66
China	0.332	0.116	0.8
Indonesia	0.432	0.045	0.79
Japan	0.524	0.626	0.93
Malaysia	0.480	0.292	0.8
Mongolia	0.140	0.040	0.85
Myanmar	0.087	0.003	0.75
Philippines	0.747	0.064	0.91
Republic of Korea	0.607	0.675	0.95
Thailand	0.380	0.117	0.84

A graphic representation of the on-line population and availability of PCs/persons in selected South and Eastern Asian countries is presented in Table 3.7. As can be seen, deficient infrastructure is a very serious constraint on the potential of e-government programmes to reach all. Whereas **Japan (0.626)** and the **Republic of Korea (0.675)** have a high level of telecommunication infrastructure, the **Philippines (0.064)**, **Indonesia (0.045)**, **Cambodia (0.004)** and **Myanmar (0.003)** are only at a fraction of their level.

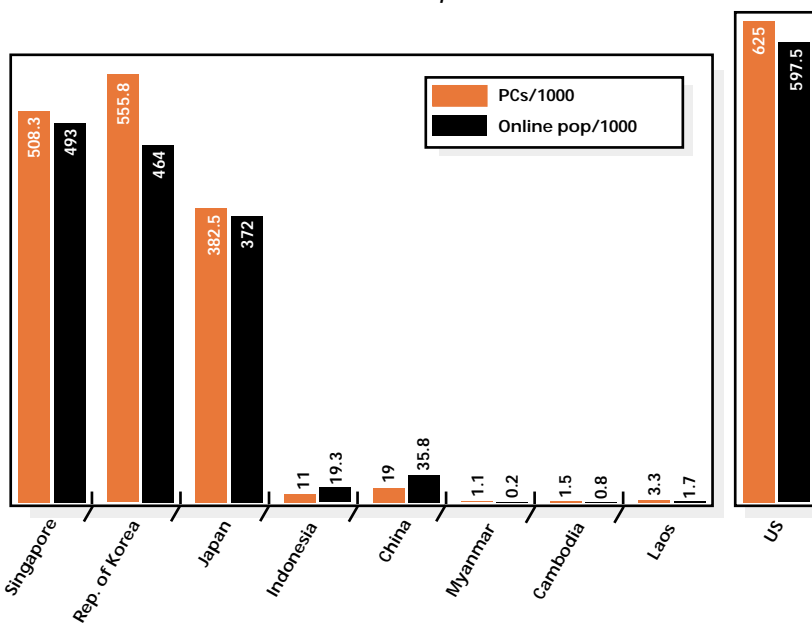
Despite limitations, some countries have taken the leap in initiating innovative e-government programmes. One such example is **Cambodia** (<http://www.cambodia.gov.kh>), where the government's resource focus appears to be on engaging citizen input. Focusing on providing opportunities for citizens to interact with the government, the Cambodian national site includes a small survey section, an open topic discussion forum titled "Opinions", and an interactive question and answer section. Although not meeting the threshold for a formal on-line consultation system, including policy documents and decision guidance,

the on-line participation features at the Cambodian site represent a big step in that direction, especially for a developing country.

Despite the fact that at present, the reach of e-initiatives is limited to a small proportion of the population, the **Philippines** government has initiated efforts to improve the efficiency of government services to the public. The Transparent Accountable Governance (TAG) (<http://www.tag.org.ph>) project in an attempt to summarize how, why and

**Graph 3.5.**

### A comparative picture of telecommunication indicators in East Asia, selected countries



to what degree corruption exists in Philippine society. The approach relies on public opinion survey research, investigative reports, case studies and discussions to engage the public in a discussion on corruption. TAG takes a pro-active role in encouraging public debate on the issue of corruption and ways to counter it. The TAG website also presents the initiatives of both government and the private-sector in addressing corruption.<sup>33</sup> The research findings illustrate that, despite financial and other limitations, the political will to empower citizens is an important contributor towards an effort at e-government for all.

### ***South-central Asia***

The countries in South-central Asia score low in their state of e-government readiness. **Maldives (0.410)**, which scores the highest in human capital, is also the regional leader, though its e-government readiness index is about at the level of the global mean. **Kazakhstan (0.387)** and **Sri Lanka (0.385)** follow but their e-government readiness remains much below the world average.

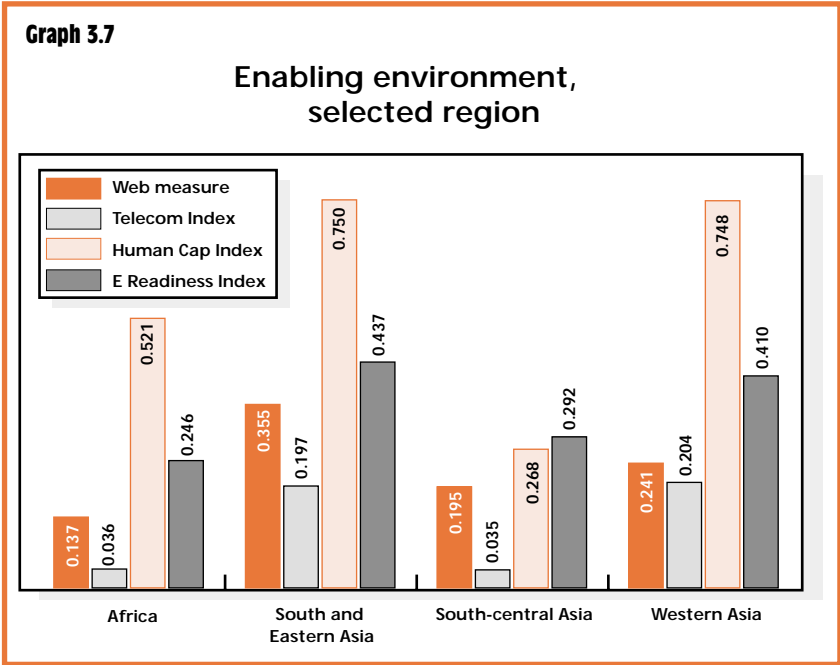
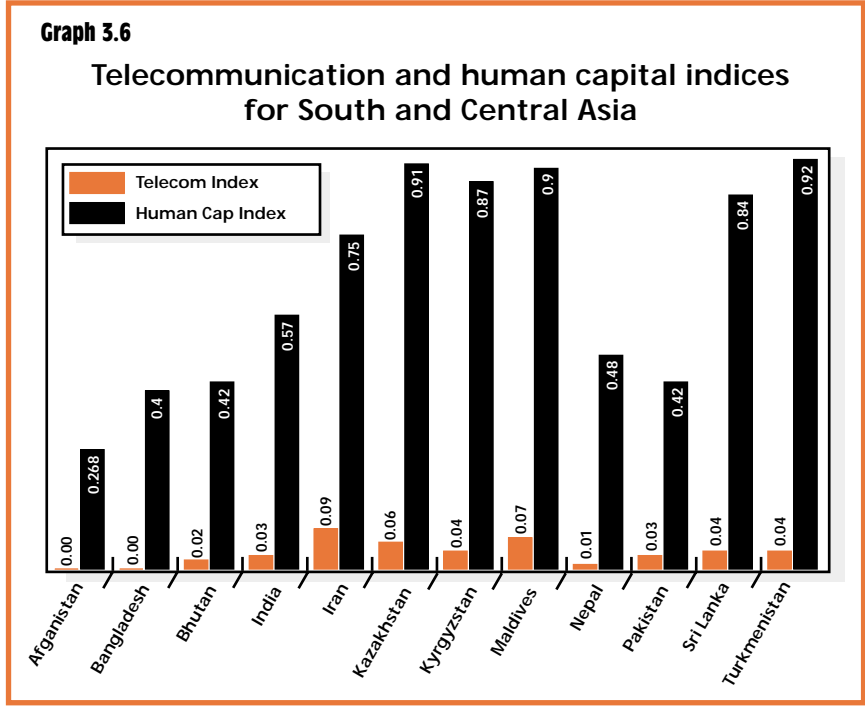
Despite much progress in ICT, the lack of infrastructure and education has limited the enabling environment in **India** and the reach of e-government to include all. The same is the case in **Pakistan**. More than in other parts of the world, telecommunication infrastructure is severely lacking in South Asia. Irregular or non-existent electricity supplies are a common feature and a major barrier to the use of ICTs, especially outside the major towns. Major power outages are experienced, especially in the rural areas in India and Pakistan. Computers and cell phones remain luxury items, not available to all. The cost of telephones and the Internet are high relative to the per capita GDP of many of the South Asian countries.

Additionally, the relatively lower level of human development impedes access to all. With 20 per cent of the global population living in the Indian sub-continent alone, the potential of e-government to development could be enormous, not only for the region

but for the world as a whole. However, the serious limitations on literacy and education confine the benefit of e-government to the very few. Graphs 3.6 and 3.7 illustrate the deficiencies in infrastructure and human resources within the countries of South-central Asia and in comparison with other regions of the world.

**Table 3.8**  
**E-government  
Readiness Rankings  
in South-central Asia**

	<b>E-government Readiness Index</b>
Maldives	0.410
Kazakhstan	0.387
Sri Lanka	0.385
India	0.373
Turkmenistan	0.335
Iran (Islamic Republic of)	0.330
Kyrgyzstan	0.327
Nepal	0.268
Pakistan	0.247
Bangladesh	0.165
Bhutan	0.157
Afghanistan	0.118
<b>Average</b>	<b>0.292</b>



Furthermore, the low level of purchasing power of the vast majority of the populations, the lack of development of an adequate regulatory framework and an inadequate integration of operations among various government agencies and departments imposes a serious constraint on e- government reach and expansion.

Notwithstanding, some Asian developing countries are reaching out to their populations through highly innovative e-government initiatives in a remarkable effort to “include all”.



### **Box 3.1**

#### **G2C e-partnerships: inventive indigenous e-government in Sri Lanka**

Though e-government programmes have the potential to offer a new set of tools for rural development, it requires special efforts to create appropriate access models for those who can neither afford Internet access nor have the language capacity to understand the content. The Kothmale Community Radio Internet project is an access model that reduces these barriers and empowers marginalized communities in rural areas.

The Kothmale Community Radio Internet Project, implemented by UNESCO, was the first pilot experiment in Sri Lanka to develop a suitable access model to address most of the concerns above. The Kothmale project uses community radio as an interface between the community and the Internet through a pioneering “Radio-browse” model, thereby introducing indirect mass access to cyberspace through a daily one-hour interactive radio programme. The model is based on the following interdependent components:

Facilities such as computers, dedicated Internet connectivity and trained volunteers, who are available at the radio station to help community members surf the Internet.

The community radio station, which broadcasts a daily “Radio Browsing the Internet” programme. The broadcasters, supported by resource personnel, browse the Internet on-air together with their listeners, and discuss and contextualize information in the local language. Thus, the radio programme raises awareness about the Internet in a participatory manner. The listeners request the broadcasters to surf the Web on their behalf and the programme transmits information in response to their requests. This information is explained and contextualized with the help of studio guests. For example, a local doctor may explain data on a health website.

The radio station also develops its own information database from requests received from listeners. In addition, the station provides skills training to help community members develop their own websites and encourages them to produce content for the Internet. Nearly 20 individual websites were prepared by community members and hosted on the station’s server. The radio station, with its server, provides Internet access at two nearby public libraries. The access points turn the community radio station into a local Internet service provider.

*Source:* The World Bank. E-Government: Sri Lanka case study.  
<http://www1.worldbank.org/publicsector/egov/srilanka.htm>

In some developing countries e-government initiatives are model illustrations of the promise of e-government. Countries such as Sri Lanka and India lead the way in adopting indigenous approaches to providing information and services to populations in far-flung areas - populations that are neither literate nor connected to a computer.

### **Box 3.2**

#### **Innovative community-owned rural Internet kiosks in Gyandoot, India**

*Characteristics of the area:* Dhar district in central India; population 1.7 million, 60 per cent below the poverty line.

Objective: to establish community-owned, technologically innovative and sustainable information kiosks in a poverty-stricken, tribal dominated rural area of Madhya Pradesh.

Issues: During the design phase of the project, meetings were held with villagers to gather their input. Among the concerns highlighted by villagers was the absence of information about the prevailing agricultural produce auction centre rates, as a result of which farmers were unable to get the best prices for their agricultural produce. Copies of land records also were difficult to obtain. A villager had to go out in search of the patwari (village functionary who maintains all land records), who often was difficult to get hold of as his duties include extensive travel. To file complaints or submit applications, people had to go to district headquarters (which could be 100 miles away), resulting in a loss of wages/earnings.

The Project: The Gyandoot project was launched on 1 January 2000 with the installation of a low cost rural Intranet covering 20 village information kiosks in five Blocks of the district. The entire network of 31 kiosks covers 311 Panchayats (village committees), over 600 villages and a population of around half a million (nearly 50 per cent of the entire district).

Kiosks have been established in the village Panchayat buildings. Information kiosks have dial-up connectivity through local exchanges on optical fibre or UHF links. The server hub is a Remote Access Server housed in the computer room in the District Panchayat.

User fees are charged at the kiosks for the services provided. Local rural youth act as entrepreneurs, running these information kiosks along commercial lines. A local person with 10 years of schooling (matriculate) can be selected as an operator. He/she needs only maintenance, limited typing (software is menu driven) and numeric data entry skills.

The following services are now offered at the kiosks:

**Agricultural Produce Auction Centres Rates:** Prevailing rates of prominent crops at the local and other recognized auction centres around the country are available on-line.

**Copies of Land Records:** Documents relating to land records including khasra (record of rights) are provided on the spot; approximately two million farmers require these extracts at every cropping season to obtain loans from banks for purchasing seeds and fertilizers.

**On-line Registration of Applications:** Villagers had to make several visits to the local revenue court to file applications for obtaining income/caste/domicile certificates.

Now, they may send the application from a kiosk and within 10 days, notification about the readiness of the certificate is sent via e-mail to the relevant kiosk. Only one trip is needed - to collect the certificate.

On-line Public Grievance Redress: A complaint can be filed and a reply received within seven days, including for drinking water, quality of seed/fertilizer, scholarship sanction/disbursement, employee establishment matters, functioning of schools or village committees etc.

Village auction site: This facility makes auction facilities available to farmers and villagers for land, agricultural machinery, equipment and other durable commodities.

Other services offered at the kiosks include on-line matrimonial advertisements, information regarding government programmes, a forum that enables school children to ask questions (“Ask an Expert”), e-mail (free for information on child labour, child marriage, illegal possession of land belonging to Scheduled Tribes etc.) Some kiosks also have added photocopy machines, STD PCO, and horoscope services. In January 2000, the first month of operation, the kiosk network was accessed 1,200 times for a variety of services. That number reached nearly 9,000 in July. During the first 11 months, the 31 Gyandoot kiosks were used nearly 55,000 times.

Source: The World Bank. <http://www1.worldbank.org/publicsector/egov/gyandootcs.htm>

### Western Asia

A supportive enabling environment is reflected in the highest e-government readiness index of Israel (0.663) in Western Asia. However, Arab and non-Arab countries in the region follow, having e-government readiness indices above the global mean of 0.402. The United Arab Emirates (UAE) (0.535), Bahrain (0.510), Turkey (0.506), Cyprus (0.474), Jordan (0.429), Lebanon (0.424) and Qatar (0.411) have put tremendous effort into developing their e-government programmes in recent years. Supported by financial investment and efforts at regulatory and administrative reforms, these countries are at a higher state of e-government readiness than many in the Africa or South-central Asia regions. On the other hand, Syria (0.264) and Yemen (0.188) currently indicate a deficient level of e-government readiness, a large part of which is due to their lower level of human/capital and technology infrastructure.

Table 3.9 presents the e-government readiness of the countries of Western Asia.

	<b>E-government Readiness Index</b>
Israel	0.663
United Arab Emirates	0.535
Bahrain	0.510
Turkey	0.506
Cyprus	0.474
Jordan	0.429
Lebanon	0.424
Qatar	0.411
Armenia	0.377
Kuwait	0.370
Azerbaijan	0.364
Oman	0.355
Georgia	0.351
Saudi Arabia	0.338
Syrian Arab Republic	0.264
Yemen	0.188
<b>Average</b>	<b>0.410</b>

The **Israeli** e-government initiative provides all the basic government information and services combined with links, for example, to e-Tender and e-Payment one-stop-shop portals.

The Government of **Saudi Arabia** has digitized its ministries and is planning to provide information and services to the public over the next five years.

The Government of **Jordan** is in the process of planning for a full-scale electronic government over the next five years.<sup>34</sup>

On-line banking has already taken off in a few countries like **Lebanon** and the **UAE**.

In 2001, the Government of the UAE, which leads the e-government effort among the Arab States, launched the e-Dirham system and site. It became the first in the Arab World to focus on providing e-services through an excellent integrated e-payment system setting a new standard in the realm of on-line transactions. The orientation of the UAE site leans toward commerce and business, but the e-Dirham programme is broadly available to the public, and as it develops, promises to encompass a wider range of people-centred services and transactions in health, education and other areas.

Even though low on the e-government readiness ranking in this Survey, **Oman** provides an impressive amount of useful information, services and links on its official e-government site. It features virtually everything from exchange rates, bus times, links to important sites, live TV, weekly news releases, even prayer times - and this is just on the front page. Two features are especially notable, albeit for different reasons. First, there is a link to an excellent e-tender site, <http://www.tenderboard.gov.om>. Second, the home site guest book provides interesting reading and, as opposed to most other such guest books, states that someone will actually respond to comments made - one message at a time.

### *Africa*

With an average index of 0.246, Africa's state of e-government readiness is around half that of the world average. The disparities between Africa and the rest of the world are much wider in telecommunication infrastructure than in the more traditional measures of development:

**Table 3.10**

### **E-government Readiness Rankings in Africa**

E-government Readiness Index	
South Africa	0.515
Mauritius	0.471
Seychelles	0.420
Algeria	0.370
Botswana	0.347
Lesotho	0.346
Namibia	0.340
Tunisia	0.329
Cape Verde	0.322
Zimbabwe	0.304
Kenya	0.299
Uganda	0.296
Swaziland	0.295
Gabon	0.283
Zambia	0.276
Sao Tome and Principe	0.272
Cameroon	0.270
Morocco	0.265
Congo	0.265
United Republic of Tanzania	0.253
Rwanda	0.244
Ghana	0.241
Egypt	0.238
Benin	0.235
Malawi	0.233
Togo	0.231
Madagascar	0.229
Nigeria	0.225
Sudan	0.206
Senegal	0.201
Angola	0.192
Burundi	0.181
Djibouti	0.179
Comoros	0.176
Mozambique	0.173
Gambia	0.172
Mauritania	0.161
Mali	0.140
Burkina Faso	0.135
Guinea	0.132
Ethiopia	0.128
Sierra Leone	0.126
Niger	0.060
Somalia	0.049
<b>Average</b>	<b>0.246</b>

Table 3.11 and Graph 3.8 present the telecommunication indicators in selected African countries. Though the use of the Internet has spread in the last few years, in general the lack of telecommunication infrastructure in Africa is a serious constraint to the rapid adoption of e-government for all. Most of the existing telecom infrastructure does not reach the bulk of the population - 50 per cent of the available lines are concentrated in the capital cities, where only about 10 per cent of the population lives. In over 15 countries in Africa, including Côte d'Ivoire, Ghana and Uganda, over 70 per cent of the lines are still located in the largest cities.<sup>35</sup>

**Table 3.11**

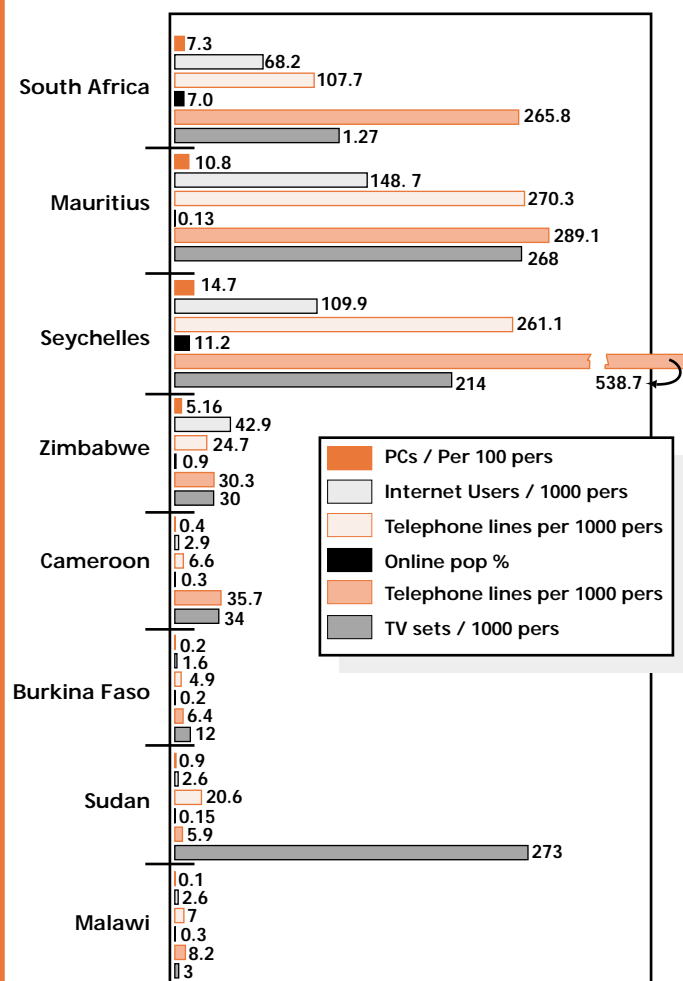
**Telecommunication Measures in Africa, Selected Countries**

Country	PCs / Per 100 pers	Internet Users / 1000 pers	Telephone lines / 1000 pers	Online population %	Mobile subs / 1000 pers	TV sets / 1000 pers
South Africa	7.26	68.20	107.7	7.03	265.8	127
Mauritius	10.83	148.7	270.3	0.13	289.1	268
Seychelles <sup>a) b)</sup>	14.65	109.8	261.1	11.24	538.7	214
Zimbabwe	5.16	42.97	24.7	0.88	30.3	30
Gabon <sup>a)</sup>	1.19	19.24	29.5	1.24	204.5	326
Cameroon <sup>a)</sup>	0.39	2.91	6.6	0.28	35.7	34
Ghana <sup>a)</sup>	0.33	1.93	11.6	0.2	9.3	118
Burkina Faso <sup>a)</sup>	0.15	1.62	4.9	0.2	6.4	12
Uganda	0.29	2.51	2.2	0.24	15.9	27
Sudan	0.92	2.58	20.6	0.15	5.9	273
Malawi	0.13	2.58	7.0	0.33	8.2	3.0

Note: a) data is for 2000; b) data is for 2001.

**Graph 3.8**

**Enabling environment in Africa, selected countries**



In most countries, rates of growth among Internet users have slowed in recent years since most of the public and private users who can afford a computer and telephone have already obtained connections. Moreover, the majority of such users are concentrated in a handful of countries, such as South Africa, Nigeria and Mauritius. Of the approximately 816 million people in Africa in 2001, it is estimated that only: 1 in 4 had a radio (205 million [m]); 1 in 13 had a TV (62m); 1 in 35 had a mobile phone (24m); 1 in 40 had a fixed line (20m); 1 in 130 had a PC (5.9m); 1 in 160 used the Internet (5m); and 1 in 400 had pay-TV (2m).<sup>36</sup>

As in many other developing countries, among other limiting factors is an irregular supply of electricity, especially in the rural areas - a basic prerequisite for e-government to succeed. In addition, the level of economic development and the associated trade and tax regimes lag behind those in more developed regions of the world. Much of the promise of e-government rests on the ability of people to interact and transact with the government, necessitating an effective, secure financial and regulatory environment. Such an environment is not yet fully available in African countries, many of which remain mostly cash economies.

Despite the current focus, the provision of information and services to the public via an e-network reaches only the privileged few. Lack of financial investment in e-government programmes and website services, limited telecommunication infrastructure and low human development in Africa limit the reach of such programmes to the vast majority of African countries' populations.

**Table 3.12**

**E-government Readiness Rankings in South and Central America**

	<b>E-government Readiness Index</b>
Chile	0.671
Mexico	0.593
Argentina	0.577
Brazil	0.527
Uruguay	0.507
Peru	0.463
Colombia	0.443
Panama	0.432
Costa Rica	0.427
Belize	0.422
Guyana	0.422
Paraguay	0.413
Bolivia	0.411
El Salvador	0.409
Ecuador	0.378
Venezuela	0.364
Guatemala	0.329
Nicaragua	0.324
Honduras	0.280
<b>Average</b>	<b>0.442</b>

***South and Central America***

South and Central America enjoys a higher level of per capita income, human development and the basic infrastructure required for e-government development than some other developing regions of the world. This is reflected in a higher than world average for many of its countries such as **Chile (0.671)**, **Mexico (0.593)**, **Argentina (0.577)**, **Brazil (0.527)**, **Uruguay (0.507)**, **Peru (0.463)** and **Colombia (0.443)**, among others.

Chile, Mexico and Argentina are success stories in e-government programmes worldwide. These countries have made tremendous progress in expanding, updating and improving the design and coverage of the information and services they provide to the public in the last one or two years.

**Chile's** (<http://www.gobiernodechile.cl>) strength lies in strong integration among all of its national, ministry and one-stop sites. Combined, these sites show that Chile has developed professional government sites that are providing more information and services than most users could ever desire. The national portal and the ministry sites all fit together in a well-integrated system of on-line information and services, with the ministry sites supporting the information, services and overall approach of the national portal. Excellent one-stop-shops exist for, among other things, people's engagement and participation; contracts, bids and solicitations; and payment of fees; as well as other transactions.

**Mexico** (<http://www.gob.mx>) provides a wide-ranging network of well-integrated sites - national site, ministry sites, and specialty one-stops - that offer just about everything to the prospective user. In addition to basic information, the national site offers services such as an excellent e-payment and electronic signature description and numerous transactions, including taxes. A standout feature is a prominently placed section for citizens to initiate formal complaints against public servants and/or the government - one of the

best examples of how e-government can facilitate transparency and accountability in government.

**Argentina** has made substantial progress in its e-government initiatives in the last year. Behind its high ranking in the Survey is the provision of information and services on all of its public service ministry sites. For example, the education ministry, <http://www.educ.ar>, proved to be especially noteworthy. Not only does it provide plenty of informational resources, but it also engages the public directly through on-line forms, chat rooms and discussion.

Other South and Central American countries are also making great strides in promoting E-government usage. However, at present **Ecuador (0.378)**, **Venezuela (0.364)**, **Guatemala (0.329)**, **Nicaragua (0.324)** and **Honduras (0.280)** will need to take some more time and effort to develop their e-government potentials fully.

### Caribbean

Clearly **Saint Lucia (0.438)** with its endowments is the leader in the Caribbean, followed by **Dominican Republic (0.438)** and **Jamaica (0.432)**. Seven Caribbean countries have a higher than world average. Four countries though, have a lower than world mean: Cuba, Antigua and Barbuda, Grenada and St. Vincent and the Grenadines.

**Table 3.14**

**E-government Readiness Rankings in Oceania**

E-government Readiness Rankings	
Australia	0.831
New Zealand	0.718
Micronesia (Federated States of)	0.526
Fiji	0.425
Tonga	0.391
Samoa	0.299
Nauru	0.293
Solomon Islands	0.284
Papua New Guinea	0.250
Vanuatu	0.142
Marshall Islands	0.038
Palau	0.009
<b>Average</b>	<b>0.351</b>

**Table 3.13**

**E-government Readiness Rankings in the Caribbean**

E-government Readiness Index	
Saint Lucia	0.438
Dominican Republic	0.438
Jamaica	0.432
Bahamas	0.429
Trinidad and Tobago	0.427
Saint Kitts and Nevis	0.426
Barbados	0.413
Cuba	0.372
Antigua and Barbuda	0.364
Grenada	0.348
Saint Vincent and the Grenadines	0.326
<b>Average</b>	<b>0.401</b>

### Oceania

Australia is the regional leader among the group comprising Oceania. **Australia (0.831)** and **New Zealand (0.178)** have e-government readiness rankings that are twice the world average and are among the global leaders in e-government.

**Australia** <http://www.fed.gov.au>, <http://jobsearch.gov.au> has an extensive and extremely user-friendly federal portal that uses the tab menu system to provide its users with quick access to a wealth of information. The site provides personalization features such as keyword press release subscriptions and access to the comprehensive Commonwealth Government On-Line Directory. Australia is also home to perhaps the world's greatest job database, which is updated every 20 minutes. And the site features a 60-second web comment form on how to improve it.

In conclusion, there is no one model of e-government development. At present e-government websites are mushrooming around the globe in a haphazard manner. State and sectoral websites reflect wide variations among - and between - countries in the provision of on-line information and basic public services. The state of e-government and e-government readiness in a country is a function of the combined level of economic, technological development and human resource development. The determinants of differences in e-government services range from political and economic models to inequities in terms of financial, human and technical capital.

In the developing world, there is a real possibility of the digital divide widening between e-haves and e-have-nots. Inequities between, and among, nations in telecommunication and human capital development pose serious constraints on the use of e-government for knowledge and the empowerment of people. At present, information and services to the public via an e-network reach only the privileged few in the developing countries.

Despite difficulties, some developing countries have taken a great leap forward. These examples provide model illustrations of the *promise of e-government*. The imperative for effective e-government as a tool for development remains a multi-pronged approach to e-government based on ICT and human and telecommunications infrastructure development. If effectively utilized, e-government can push the frontiers of development around the globe.

**Table 4.1**

**Web Measure Index 2003,  
Top 25 Countries**

		Web measure Index
1	United States	1.000
2	Chile	0.838
3	Australia	0.812
4	Mexico	0.808
5	United Kingdom	0.777
6	Canada	0.764
7	Philippines	0.747
8	Singapore	0.703
9	Denmark	0.694
10	Sweden	0.683
11	Germany	0.683
12	Switzerland	0.668
13	Estonia	0.642
14	Israel	0.633
15	Argentina	0.624
16	Italy	0.616
17	Ireland	0.616
18	Republic of Korea	0.607
19	Finland	0.603
20	Norway	0.581
21	Brazil	0.576
22	France	0.570
23	Malta	0.568
24	Turkey	0.555
25	New Zealand	0.552
Average		0.351

**IV. Web Measure Assessments**

Several countries worldwide have made tremendous progress in adopting e-government to provide information, knowledge and services to the public through their official government websites, as reflected in the e-government readiness rankings presented above. However, it should always be kept in mind that the E-government Readiness Index is a composite of the Web Measure Index, the Telecommunication Index and the Human Capital Index. With limited human and technological infrastructure support, many countries that have recently invested in e-government have tended to lose out in the set of world comparative rankings.

To highlight innovative efforts by these countries in e-government development, Table 4.1 provides the top 25 countries when ranked by the Web Measure Index alone, with the U.S. as the comparator.

As can be seen from the table, the rankings are considerably changed. For example, Chile, which was 22 in the overall E-government Readiness Index jumps to position two when ranked by the Web Measure Index. Similarly, Mexico, which was 30 in the E-government Readiness Index surpasses 26 other countries and jumps to number four in the Web Measure Index.

The web measure rankings points to the interesting fact that in the last couple of years, Chile, Mexico, Australia, the Philippines, Singapore, Estonia,



Argentina, Brazil, Republic of Korea, Malta and Turkey have made much *faster and more effective progress* in their e-government programmes than some of the developed countries. The information and services provided by them are as, or more, sophisticated and mature.

In several instances, some of these countries scored higher on interactive, transactional or networked stages. For example, Chile outranks all but the U.S. in providing networked services to the public. On their Ministry of Education sites, Chile and the Philippines outscore the U.S. in providing networked services to the public. The Philippines and Mexico score higher than all countries except the U.S. and the U.K. in providing two-way transactions to the public. Estonia equals Canada in interactive services while the Philippines scores higher on interactive services than Germany, Denmark, Sweden and the U.K. on its social welfare and labour sites.

Even though several developing countries have made vast progress towards e-government, the state of e-government readiness rests on the level of the telecommunication infrastructure and human capital in a country. Consequently, notwithstanding the commendable strides in developing e-government networks in Chile, Mexico and Argentina, e-government services do not reach the majority of the population in these countries. Table 4.2 and Graph 4.1 give the telecommunication indicators for these countries. As can be seen, despite a very high Human Capital Index, e-connectivity in these countries ranges from 3.3 per cent in Mexico to 20 per cent in Chile.

**Table 4.2**

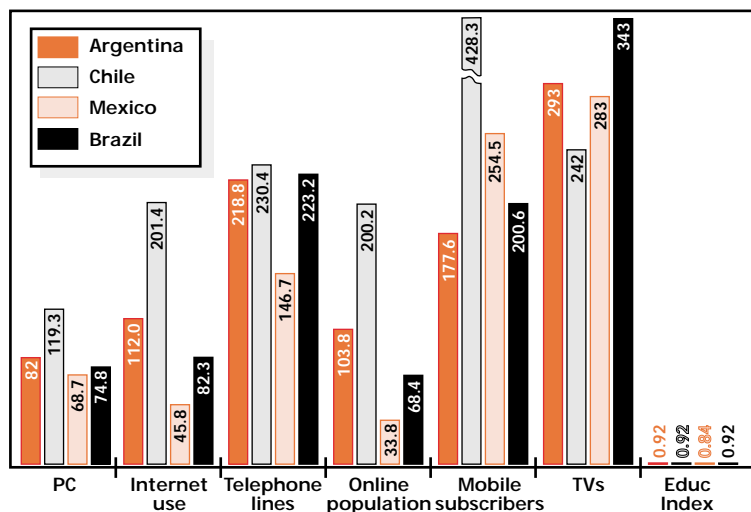
**Telecommunication Indicators  
in Latin America, Selected Countries**

	PC	Internet use	Tel lines	On-line population	Mobile subscribers	TVs	Educ Index
Argentina	82	112.022	218.8	10.3	177.6	293	0.92
Chile	119.3	201.415	230.4	20.0	428.3	242	0.9
Mexico	68.7	45.774	146.7	3.3	254.5	283	0.84
Brazil	74.8	82.241	223.2	6.8	200.6	343	0.83

*Data for PCs, Internet usage, telephone lines and mobile subscribers is for 2002; on-line population data is for 2001, and for TVs, for 2000. On-line population data is the percentage of the population; all other data is per 1000 persons.*

**Graph 4.1**

**Telecommunication indicators  
in selected South Central American countries**



There is a strong correlation between the existence of a formal e-government policy/statement and/or e-government portal and the overall quality and ranking of a nation's sites on the various web measure indices. Twenty-four of the top 25 countries and 39 of the top 50 countries have either or both a clear e-government policy/statement and a specific e-government portal.

There appears to be a gradual, but steady trend toward national portal/gateway sites, specialty portals, and one-stop service sites. However the ability of the various governments to develop and present them in an integrated, unified fashion is uneven. The Survey found numerous specialty sites and one-stops that were either not well integrated into a main government site or not linked at all.

#### **IV.1 Stages of service delivery analysis**

One positive finding in this year's UN Global E-government Survey is that the vast majority of countries have developed some level of on-line presence. Eighteen UN member states do not have an on-line presence.

##### *No on-line presence*

Central African Republic, Chad, Côte d'Ivoire, Democratic People's Republic of Korea, Democratic Republic of the Congo, Dominica, Equatorial Guinea, Eritrea, Guinea-Bissau, Haiti, Iraq, Kiribati, Liberia, Libyan Arab Jamahiriya, Suriname, Tajikistan, Tuvalu and Uzbekistan. <sup>37</sup>

For the 173 countries with a web presence, the Survey finds that there are no evolutionary development stages in e-government. Whereas the majority of countries could be considered well within stage II (enhanced presence) the stages of e-government were not additive beyond a certain threshold. Whereas countries at the initial stages of an emerging presence or enhanced presence could be said to be at stage I or II, they could - and do - quickly proceed to a level where they incorporate features of stage IV (transactional presence) or even stage V (networked presence).

##### *Stages of service delivery*

*Stage I: Emerging Presence*

*Stage II: Enhanced Presence*

*Stage III: Interactive Presence*

*Stage IV: Transactional Presence*

*Stage V: Networked Presence*

A somewhat surprising finding of this Survey is that, contrary to popular belief, not many countries are at present utilizing the full potential of e-government to provide information and services to the people.

The overall profile of UN member states indicates that whereas 173 countries had a web presence only 45, or a quarter of them, maintained an integrated single entry portal, only one third provided on-line public services, and not even 20 per cent provided on-line transactions.

Moreover, only a quarter of the countries on line clearly provide an e-government policy/statement or separate e-government portal at their sites explaining how and why new technology is being used for government purposes. Developing and providing a clear, forward looking e-government strategy will be a key element in successfully expanding on-line government services and providing information to people.

Most of the top 50 countries ranked by the Web Measure Index provide an e-government policy/statement or an e-government portal; so, too, do a few lower ranking countries, evidencing their commitment to e-government. **Ghana**, (<http://www.ghana.gov.gh/index.php>, <http://www.ghana.gov.gh/governing/egovernance/index.php>) for example, exemplifies how a developing country can provide its people with a clear, easily accessible and well-explained “E-governance” section on its national site. The section begins with the important words, “In line with government’s efforts to facilitate the free flow of information and transparency in governance...” and explains the substance and goals of the Ghana Dot Gov project. Basically, the e-government programme will enhance the national site to create a single point of access portal “to deliver online services to the people.”<sup>38</sup>

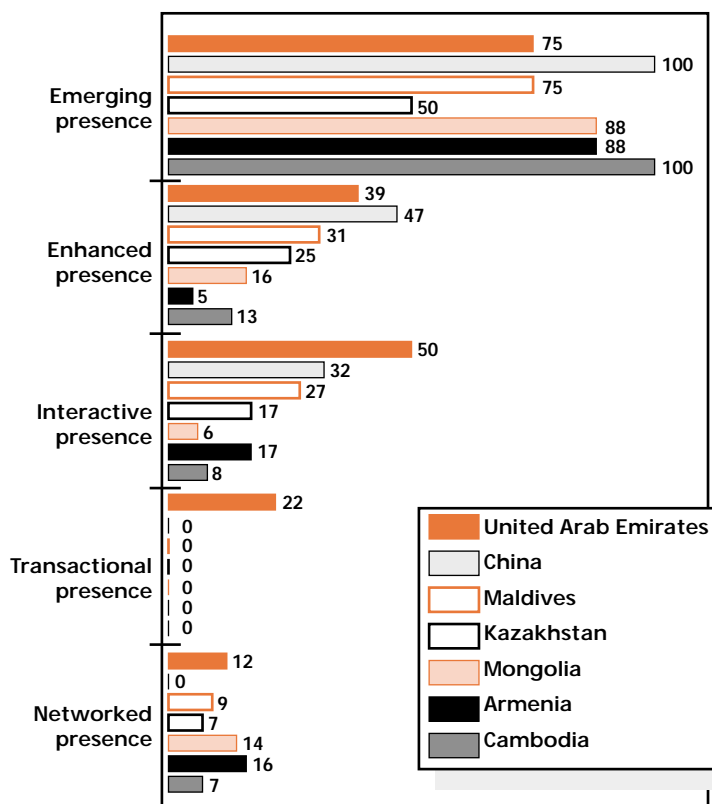
**Table 4.3**

**On-line Profile of UN Member States**

UN member states	191
With a government website presence	173
With a single entry portal	45
With public service provision	63
With on-line transactions provision	33

**Graph 4.2**

**Stages in e government, selected developing countries**



In the last couple of years most countries have added substantial information to their government websites. As the Survey found, currently a high 90 per cent of the countries have now started to provide texts of laws and policy or other documents for the information of the people. Of the total, 79 per cent provided databases of documents or statistics on the public sector. On the other hand, the number of countries providing substantive service information is far less, dropping considerably to only 63 out of 173 or a little more than one third of the total number of countries on line.

**Table 4.4**

**Selected Common Characteristics of Country Websites**

	No of countries	Percent of countries
One-stop-shops/ "single-windows"	45	26
Sources of archived information (laws, policy documents, etc.)	155	90
Databases (e.g., web access to/downloadable statistics)	137	79
Public services (true services and/or substantive service information)	63	36

There is a correlation among countries' income categories and the sophistication of government websites. As income per capita decreases, so does the maturity and sophistication of the services offered on the web.

The high-income countries, with Gross National Income (GNI) per capita of more than US\$ 9,206, provide 88 per cent of the information and services in stage I (emerging presence) and 61 per cent of those in stage II (enhanced presence). Though most in this group are at stage III and beyond, they collectively provide an average of approximately one half of the interactive services needed by the public and a meagre 18 per cent of the potential networked services.

There is wide dispersion among countries in other income categories too in their provision of information and services. Whereas the upper and lower middle-income countries score relatively

well in the first three stages, like the high-income countries, their average scores drop considerably when it comes to the transactional services they offer. Upper and lower middle-income countries offer only about four per cent and one per cent of the transactional services, respectively. (See table 4.5).

**Table 4.5****E-government Stages by Income Classification**

Average country Points	I	II	III.	IV.	V.	Total
High Income (n = 38)	7.0	52.8	39.1	4.5	7.8	111.1
Upper Middle Income (n = 35)	5.1	32.1	27.6	1.5	44.	71.2
Lower Middle Income (n = 52)	4.9	24.5	20.4	0.4	2.6	52.7
Low Income (n = 66)	3.7	10.7	10.0	0.1	1.5	26.0
Max Points	8.0	87.0	84.0	41.0	43.0	263.0
Average Points	4.9	26.7	21.8	1.3	3.6	58.5

*Note: Income group: economies are divided according to 2001 GNI per capita, calculated using the World Bank Atlas method. The groups are: low income, \$745 or less; lower middle income, \$746 - \$2,975; upper middle income, \$2,976 - \$9,205; and high income, \$9,206 or more. Income group categorization from The World Bank. See <http://www.worldbank.org/data/countryclass/countryclass.html>*

The low-income countries are primarily in the first three stages, though some have made an effort to provide some form of participatory service to the public, which is reflected in their aggregate percentage utilization of three per cent in stage V (networked presence). On average, the low-income countries score almost nothing on utilization of the full potential of transactional services.

The stages are not strictly additive because countries do not follow a linear path to a model of e- government. More-over, they make a conscious choice to put out some and not other information. They prioritize in providing some services and not others. They also appear to choose not to provide some information and services on their national portal, but elsewhere instead. As expected, the determinants are the “willingness” of the country; its political ideology and commitment; economic and social systems; level of development; financial and other resources; human and technological infrastructure; and finally, the regulatory and administrative framework.

An interesting example was found in The former Yugoslav Republic of **Macedonia**. The national home page for Macedonia, <http://www.gov.mk>, did not open up on numerous attempts during the survey period, resulting in a low overall score for the country. However, the Macedonian Ministry of Finance <http://www.finance.gov.mk> on an individual basis rivalled many of its counterparts in the top 25. It offers good design and a wealth of information and services, and could easily serve as a model for others to follow. The site includes almost everything one has come to expect from a good national government site: a poll, audio-visual streaming, forms, current information and even a discussion forum. There is also an attempt to put tenders on line. However at this point they are just there for informational purposes; one still has to bid in the old-fashioned way since there is no e-procurement capability - at least not yet. Considering how far the Macedonian Ministry of Finance has come, however, that might only be a question of time. In the meantime, construction and operation of the site serves as a model practice for other ministries within Macedonia, and certainly for other developing countries looking to emulate successful e-government implementation.

**Table 4.6.****Information and Service Delivery by Stage, Selected Countries:  
Percentage of Category Utilization**

Country	I	II	III.	IV.	V.	Total 1-V
<b>● Top 15 countries by e-government readiness rankings</b>						
United States	100	99	100	46	74	87
Sweden	100	89	64	20	23	60
Australia	100	92	82	32	37	71
Denmark	100	80	73	17	30	60
United Kingdom	100	93	71	39	30	68
Canada	100	87	75	32	35	67
Norway	100	80	48	17	19	51
Switzerland	88	83	65	15	30	58
Germany	100	84	63	17	37	60
Finland	100	61	71	15	26	52
Netherlands	100	78	40	0	33	47
Singapore	100	90	57	29	35	61
Republic of Korea	100	87	51	12	16	53
New Zealand	88	67	59	12	16	48
Iceland	75	43	38	0	5	29
<b>● Other selected countries</b>						
Chile	100	89	81	32	60	73
Mexico	100	90	83	34	35	70
Philippines	100	80	73	37	40	65
Estonia	100	78	75	2	16	56
Malta	88	75	51	22	14	49
Poland	88	64	55	0	35	47
South Africa	100	70	57	0	16	47
Netherlands	100	78	40	0	33	47
Bulgaria	100	70	52	0	23	47
Japan	100	83	38	0	19	46
India	100	63	64	2	5	45
Malaysia	88	52	48	27	16	42
Mauritius	88	54	55	0	5	39
Spain	100	71	33	0	0	37
Croatia	100	48	50	0	12	37
United Arab Emirates	75	39	50	22	12	37
China	100	47	32	0	0	29
Maldives	75	31	27	0	9	23
Kazakhstan	50	25	17	0	7	16
Mongolia	88	16	6	0	14	12
Armenia	88	5	17	0	16	12
Cambodia	100	13	8	0	7	11

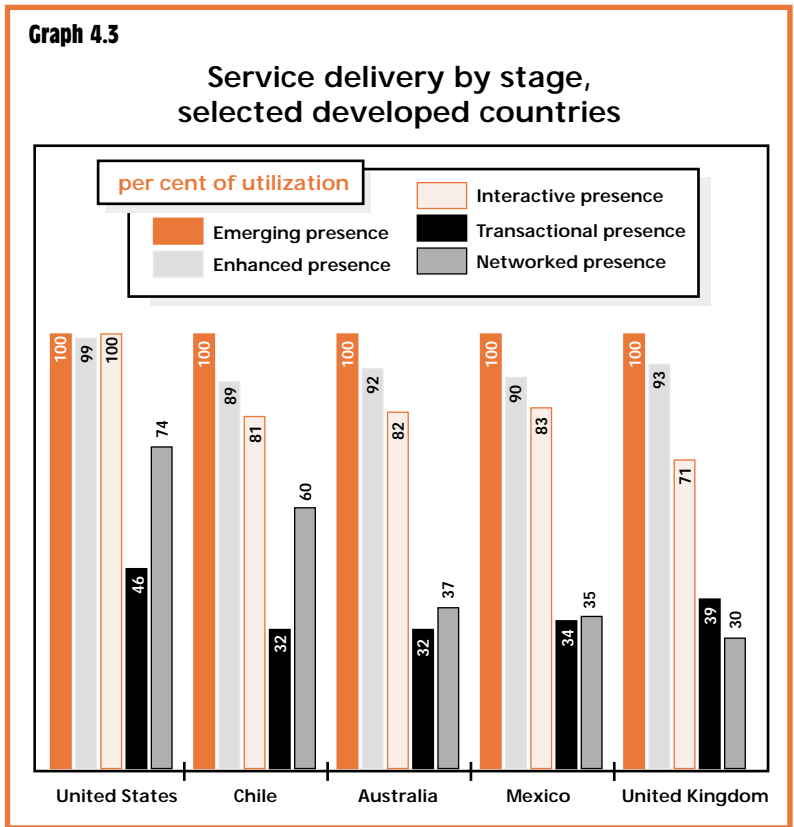
**IV.2 Stages of services  
delivery by country**

Table 4.6 presents a stages of delivery analysis for selected countries.

Most countries score high on stages I to III, implying their e-government programmes have advanced from providing basic information to substantial relevant information in an interactive mode. Among the developed countries, the U.S. provides 100 per cent of the interactive services listed in this Survey. Interestingly, Sweden, which ranked No.2 on the E-Government Readiness Index, presented in an earlier section, provides only about 64 per cent of the interactive services, lagging behind Australia (82 per cent), Denmark (73 per cent), Canada (75 per cent), and both the U.K. and Finland at 71 per cent.

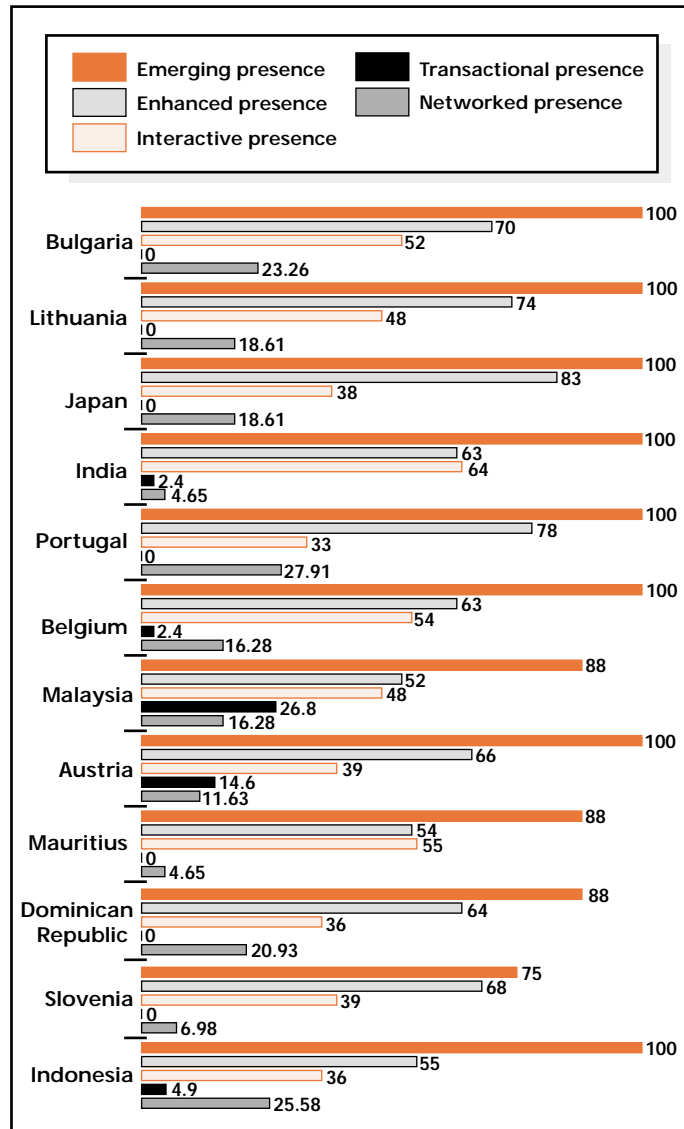
The “weakest link” for the majority of the top 20 countries was in Stage IV (transactional presence). This included the ability to make payments on line for various services; the number of different types of transactions that were accessible from the national site; whether or not any transactions/on-line payments could be made from ministry/department sites; and the existence of e-procurement systems/sites/sections at the national site. Graphs 4.3 and 4.5 present these differences graphically for selected developed and developing countries.

Among the 20 top rated countries, scores on the Transactional Presence measure appeared to be the weakest. Out of a possible score of 41 for the national site and the five ministry sites, the average score for the top 20 was only 9.5. Even among the highest scoring countries, not one received even half the available points: the U.S. scored 19, the U.K., 16, the Philippines, 15, Mexico, 14, and Chile, Australia and Canada each scored 13.



**Graph 4.4**

**Service delivery by stage,  
selected developing countries**



The provision of interactive services on line (Stage III) varies by category as well. Most countries have begun with services requiring a standardized response, such as being able to download tax forms, apply for a driver's license or passport etc. The priority of others is to make available health and education information and services to all. The U.K. is among the top five in provision of on-line interactive services. Moreover, the U.K. has made commendable progress in developing and expanding social services and related benefits made available to the public through e-government. The U.K. government is working toward an interactive health website that will provide up-to-date, cross-referenced patient health and medical information by integrating systems within health and social care. The initiative is focused on ensuring that sources of medical knowledge are available to local clinics for decision making in support of local knowledge networks and providers. (See Box 4.1.)



### **Box 4.1**

#### **U.K. interactive health website**

During 2003 the U.K. government started to support the delivery of high quality information to patients, health professionals and the public through the National Knowledge Service for Health & Social Care (NKS) initiative, which will provide up-to-date, cross-referenced information by fully integrating the development of knowledge systems within health and social care. The National Knowledge Service is a partnership of organizations that provide knowledge in the health and social care sectors. The objectives of the NKS include: assuring the quality of patient information on a variety of diseases, conditions and treatments; greater access to information for everyone involved in the healthcare process; and wider access to information through a range of NHS public access technologies (the Internet, digital television, and call centres). The UK interactive health site can be found at <http://www.nhsdirect.nhs.uk/disclaimer.asp>

The knowledge gathered has been organized not only to be easily accessible to those searching for answers, but also for incorporation into the electronic patient record, to prompt and remind the decision maker, and to be available through a variety of dissemination channels, such as e-mail, in urgent cases.

The cornerstones of the National Knowledge Service are: the infrastructure that will support the delivery of knowledge to all users within the health and social care community through the Internet; digital television; call centres; and libraries. This community includes clinicians and other professionals, researchers, academics and students, patients and the general public.

Source: <http://www.nks.nhs.uk/>

An innovative and useful interactive feature is provided by Australia as part of its e-government initiative. (See Box 4.2.)

### **Box 4.2**

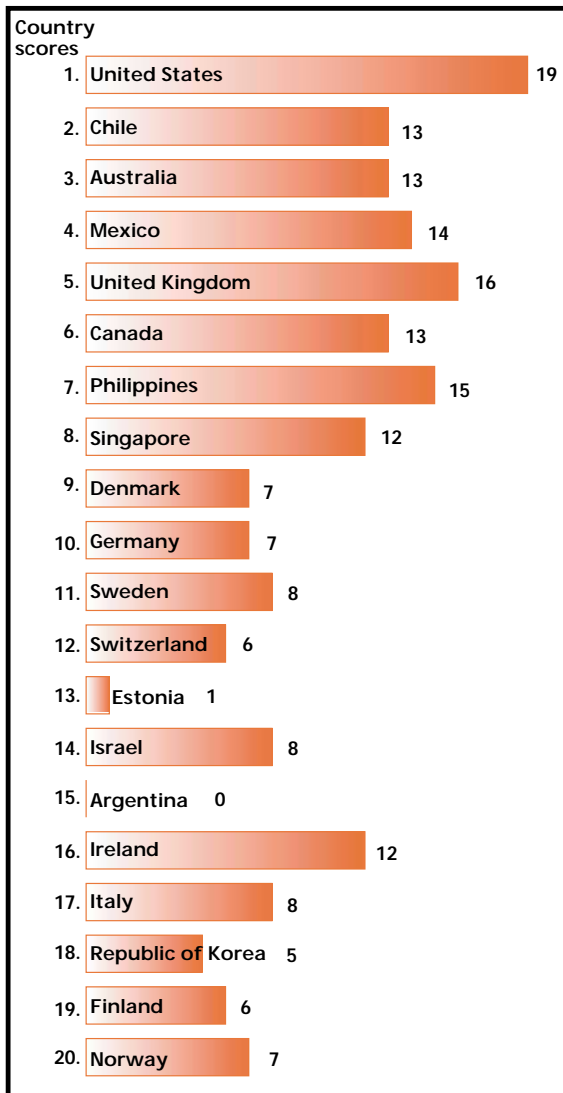
#### **Australian interactive job listing**

Though it is fairly common for a country to provide some sort of job listing system, the level of sophistication and interactivity obviously differs from site to site and some sites are better than others. However, Australia arguably has the best of them all. Not only is the information and structure excellent, but it is also a very current site. In fact, if one is in a hurry to find a job, Australia might be the best place to be because new jobs are added every 20 minutes. The Australian site (<http://job-search.gov.au>) offers anything and everything a job seeker requires. It includes career advice, wage information, labour-related documents, quizzes and the most advanced employment search system around. In fact, the search-engine is extremely powerful with all sorts of advanced search techniques. The most impressive thing is the range of jobs available. With more than 30,000 jobs to search from one can find employment in every sector, from information technology to government.

However, even many developed countries are not fully utilizing the potential of using e-government for transactional services. For example, the U.S., which is the global leader, currently utilizes about 46 per cent of the possible transactional services on line. Sweden, which is second in the overall global e- readiness ranking, and Norway, which ranks seventh, are low on the transactional side, utilizing only about 20 per cent and 17 per cent, respectively, of the potential as surveyed here. The same is the case with Germany (17 per cent), Finland (15 per cent) Republic of Korea (12 per cent) and New Zealand (12 per cent). Netherlands, Japan, Poland and many other countries offer no transactional services.

**Graph 4.5**

**Transactional Presence,  
Top 20 E-government Ready Countries**



This weakness in the transactional presence is somewhat surprising, especially for the larger, more industrialized countries in the top 20. However, the transactional presence appeared to be the weakest section overall for just about every country.

One of the primary focuses of successful e-government initiatives should be the country's willingness to share information and knowledge with the public. The Survey tries to capture this characteristic in stage V (networked presence). It acknowledges that in several instances political ideologies may determine what is to be public knowledge. At the same time, one would expect most democracies with developed economies and participatory forms of development to score high on the interactive (stage IV) and networked (stage V) indices.

E-networking, however, remains patchy and uneven in developed countries with its full potential under utilized. In developing countries it is low or non-existent. Whereas the U.S. is far ahead of all countries in providing a networked and integrated G2C service system it still can manage only about 75 per cent of the possible networked services as measured by this Survey. Chile (60 per cent) and the Philippines (40 per cent) score the next highest and higher than all other developed countries. As in the case of stage III (interactive services), Australia (37 per cent); Germany (37 per cent); Canada (35 per cent); Singapore (35 per cent); and Mexico (35 per cent) follow. Again, Sweden (23 per cent) scores lower on stage V (networked presence) than all of the above.

A few innovative examples of countries that are actively promoting their transactional and networked stages are given in the boxes below. (See Boxes 4.3 - 4.6.)

Some governments spend their e-government/web resources attempting to develop all-around sites; others apparently choose to spend their limited time and resources in accordance with their political and socio-economic priorities. In the case of Cambodia, the resource focus appears to be in engaging citizen input. While Cambodia did not have high scores across the board for its overall web presence, when it comes to networked presence, it outscores many countries, including a number in the top 50. (See Annex tables.)

**Box 4.3**

**Cambodia: It is all about the focus**

<http://www.cambodia.gov.kh>

With a focus on providing opportunities for citizens to interact with the government, the Cambodian national site includes a small survey section, an open topic discussion forum titled “Opinions” and an interactive question and answer section. Although not meeting the threshold for a formal on-line consultation system including policy documents and decision guidance, the on-line participation at the Cambodian site is a big step in that direction, especially for a developing country.

Of even greater interest is the fact that the most read submission to the Opinions Forum advises fellow citizens that currently “...many visitors are coming to Cambodia for sightseeing. Let’s smile at them to give a good impression.”

**Graph 4.6**

**Networked Presence, Top 20 E-government Ready Countries**



#### **Box 4.4**

##### **Armenia's on-line forum promotes democratic participation-**

<http://www.undp.org/dpa/frontpagearchive/2002/january/8jan02/index.html>

Armenia's National Academy of Sciences has launched "Forum", a new web site to harness information and communications technology to promote democracy. Forum, which is in Armenian, helps increase public participation in governance, create new opportunities to broaden public awareness about democratic issues and establish new opportunities for interaction.

It hosts on-line community discussions on human rights, environmental protection, politics, human development, gender and development and volunteering. Forum uses a variety of tools to keep participants informed and encourage interaction. These include bulletin boards, mailboxes, photo galleries and newsletters. Groups and individuals can join discussions in established communities or create new ones to discuss issues of common interest and concern with colleagues and friends, post results of discussions in newsletters and publish documents on line.

Members of the community discussion on politics organized sessions with representatives of political parties on major issues and posted summaries on line. These on-line discussions are continuing.

#### **Box 4.5**

##### **Mongolia: listening to citizens**

<http://open-government.mn>

"To our successful dialogue," the Prime Minister of Mongolia ends the opening statement at his site. And a success it is in every sort of way. Mongolia has created a model on-line consultation facility - a model not only for developing countries but also for every country. The slogan of the site says it all, "The Prime Minister is Listening." Is he? One section indeed informs the user that despite his busy schedule the Prime Minister regularly visits the site, and further, that comments posted are sent to him every two weeks.

Not only is the government listening, but the entire site and system devised by Mongolia is excellent for engaging citizen participation. The site includes a clear statement of government policies within the major fields, a host of draft legislation on virtually any issue, the parliament's agenda, and a sign-up list for the Open Government electronic newsletter. Additionally, the site prominently includes a legislative forum designed for citizen comment on the specific laws posted on the site, and a policy forum for discussion about existing or proposed policies of the government and their implementation. The Mongolian government is clearly making every attempt to listen.

How is it that a developing country such as Mongolia can create such a sophisticated and useful web portal? It implemented, evaluated and refined, as should every government considering e-government implementation. As the site indicates,

the government initially launched the site in response to a demand from investors and businesses for input on new legislation. The government states that it learned from this initial project and, seeing its broader potential, recently re-launched the site as a full government portal aimed at servicing the general citizenry in addition to the business sector. The site is proof positive that you don't have to be big, or rich, or a fully industrialized country to effectively implement e-government for the benefit of citizens.

#### **Box 4.6**

##### **Open Sweden**

<http://www.oppnasverige.nu/html/www.oppnasverige.gov.se/page1/42.html>

The Swedish government's initiative, "Open Sweden", is part of the government's programme "A Government in the Service of Democracy", which is intended to help ensure that the basic principles of democracy, the rule of law and efficiency are clearly in force in the national government, and among the 150 Swedish public administrative bodies. The Open Sweden initiative is intended to provide increased access to public information to people by increasing openness within the public sector; cultivate public knowledge and awareness; and encourage involvement and debate. The programme is targeted towards civil servants throughout the entire public sector. Open Sweden is a joint effort involving representatives from the national, county council and municipal levels.

Several reasons may account for countries' lack of the full utilization of stage IV and stage V.

First, for many countries, completing transactions on line with e-payments requires substantial policy, legal and regulatory changes to allow for electronic payments by credit card, debit card or some other e-payment system. These systems are in the process of being revised in some countries but lag behind in others.

Second, effectively implementing e-transactions often requires substantial changes in government business processes. Some governments are simply not ready to make these changes, or are still in the process of assessing what business process changes may need to be made in order to optimize on-line transactional and payment systems.

Third, e-transactions/e-payments require a high degree of security. They also generally require fairly sophisticated levels of technology that for many countries may be costly and difficult to implement and operate.

Fourth, as countries continue to develop their e-government offerings, some may be making choices based on policy priorities. Transactions and e-payments for the public may not be at the top of a given country's list of priorities.

Fifth, depending on how services are delivered within a given country, implementation for on-line transactions/payments may be initially focused at the local level rather than at the national level.

Finally, in some cases the national sites may simply be doing an ineffective job of presenting, promoting, and integrating on-line transactions/e-payment programmes that actually exist at the national level.

In conclusion, E-government programmes are still at early stages. They are evolving and maturing and their vast potentials still remained untapped. Successful programmes require, among others factors, political willingness, financial investment and a change in the administrative and regulatory framework in the country to support the enabling environment for e-government. For the developing countries, financial investment in e-government could well mean diverting funds from other priority areas. On the other hand, a handful of developing countries, constrained as they are, are leading the way in the innovative provision of services. As the analysis shows, several developing countries are at advanced stages of provision of networked services, surpassing most of the global leaders in the sophistication of their state-sponsored digitised services to include all.

## V. The Extent of E-participation

Qualitative analysis by definition is subjective. In the absence of impact assessment analysis, which is not the focus of this year's Survey, qualitative assessment is a useful tool in assessing the quality and relevancy of information and services provided through e-government initiatives.

Whereas the Survey, in its Web Measure Index, measures the generic on-line availability of information and services, the e-participation scoring assesses "how relevant and useful these features were; and how well were they deployed by the government."

As stated in Chapter II, the E-participation Index assesses the quality, relevance, usefulness and willingness of government websites for providing on-line information and participatory tools and services to people. The qualitative assessment is helpful in illustrating differences in on-line strategies and approaches, illuminating nuances in seemingly objective or quantitative results, and providing details on the degree to which government services and information are provided on line. This includes access to current and archived government documents and databases, web-forums and formal on-line consultation systems, information/guidance on e-participation and a range of other features.

Table 5.1 and Graph 5.1 (below) present the E-participation Index for the top 20 countries. The U.K. leads with the U.S. following close behind. It is notable that the U.K. supersedes the U.S. when ranked by e-participation, indicating a higher quality and relevancy of its information and services on the state-sponsored website.

More interestingly, Chile comes in third, Estonia, fourth, and the Philippines in sixth position. The rankings reflect the web measure indices, which ranked Chile, the Philippines and Estonia higher than many developed countries. However Mexico, which ranked fourth in the quantitative web measure assessment, slid down to the ninth position because of qualitative differences. (Gains/losses in the cases of Chile, the Philippines and Estonia are -1, +1 and +9, respectively.) Changes in rankings of the industrialized countries are equally noteworthy: United States (-1); Australia (-5); United Kingdom (+4); Canada (+3); Denmark (-6); Sweden (0); Germany (0); Switzerland (-2); Italy (+3); Ireland (+7); Finland (+3) and Norway (0). (See Annex I for all countries.)

However, the most revealing is the pace of decrease in the relative country index. The index drops from 100 per cent to 50 per cent of its value over the span of 15 top countries, and it drops to 25 per cent of its value some further 20 countries down the ranking table. This means

**Table 5.1**

### E-participation Index 2003, Top 20 Countries

	Country	E-participation Index
1	United Kingdom	1.000
2	United States	0.966
3 (tie)	Canada	0.828
3 (tie)	Chile	0.828
4	Estonia	0.759
5	New Zealand	0.690
6	Philippines	0.672
7 (tie)	France	0.638
7 (tie)	Netherlands	0.638
8	Australia	0.621
9	Mexico	0.603
10 (tie)	Argentina	0.586
10 (tie)	Ireland	0.586
10 (tie)	Sweden	0.586
11	Germany	0.534
12	Republic of Korea	0.483
13 (tie)	Italy	0.466
13 (tie)	Singapore	0.466
14 (tie)	Switzerland	0.466
15	Denmark	0.448

*Note: Finland and Portugal also have indices of 0.448.*

that roughly 75 per cent of the countries in the world demonstrate willingness to use ICT for e-participation at the level that is a quarter, or less, that of the United Kingdom, the lead country in this ranking.

The E-participation Index is segmented into three functional classifications: e-information, e-consultation, and e-decision making. These three are the qualitative equivalent of the quantitative web measure survey. Table 5.2 presents the average score of the top 20 countries.

**Table 5.2 E-participation by Functional Classification**

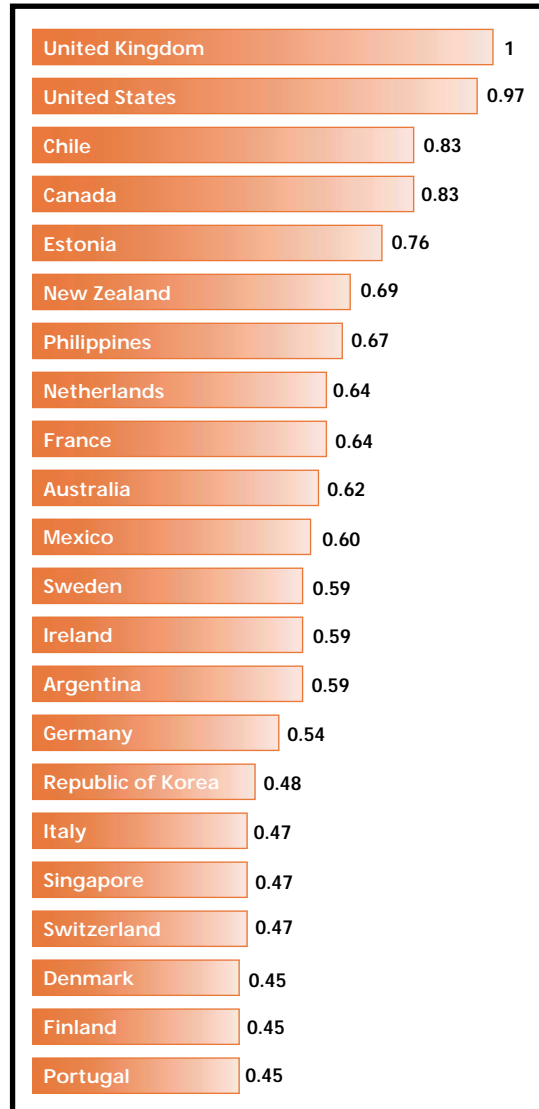
<b>Table 5.2</b>				
<b>E-participation by Functional Classification</b>				
<b>Top 20 countries</b>	<b>e-information</b>	<b>e-consultation</b>	<b>e-decision making</b>	<b>total</b>
Average score	12.45	16.55	8.3	37.3
Max score	20	40	24	84
Per cent of utilization	62.3	41.4	34.6	44.4

The table indicates that with the U.K. as the comparator, on an aggregate level, the top 20 countries are utilizing about 62 per cent of the potential in terms of relevancy and usefulness of their government websites for providing information, and a much lower 41 per cent in terms of consultation with users.

As analysed in previous chapters, the countries are not doing a particularly good job of involving the public in participatory and deliberative thought processes that would feed into the government's decision making. The top 20 countries, on average, are currently providing on-line opportunities for citizen participation that are seriously lacking in relevancy and usefulness, and are at only about a third of the potential of what they could offer.

**Graph 5.1**

**E-Participation Index,  
Top 22 Countries**



As analysed earlier in other sections of this Survey, people-centred services, which allow for participatory deliberative input into decision making and/or empower the citizen on knowledge about basic services are few and far between, even among the developed countries.



Table 5.3 analyses the presence of some specific on-line characteristics common to e-government programmes. It indicates that whereas more than half of all 173 countries made a web comment form available (a relatively easy and popular tool in use), only a quarter were soliciting views through an on-line poll or allowing people to have the freedom of an open-ended discussion forum.

Contrary to the current popular perception, a very small proportion of countries (14 per cent) offered on-line consultation facilities and an even smaller (9 per cent) allowed any user feedback to the government on official policies and activities put out on the government websites.

There appears to be a gap between rhetoric and reality, especially in the area of engaging the citizen in public decision making. Only 13 out of 173 countries, or eight per cent of the total, had a clear policy statement on their website encouraging people to participate in this process.

Participatory initiatives also appear to have a correlation with income per capita. Collectively, among the high-income countries (with GNI more than \$9,206) only 66 per cent were providing above average qualitative and useful services for e-participation. The upper middle-income group is doing a worse job with 57 per cent having their e-deliberative participatory services below average quality. As the analysis in the previous sections has indicated, lower and low-income countries provide very few citizen-centric participatory services. The relevancy and usefulness of their efforts was low as well, with 88 per cent of the countries providing below average quality deliberative and participatory information and services to the people.

Notwithstanding, some countries still are doing a better job than others are. The box below gives one successful approach for each of two countries that are global leaders in e-government and e-participation.

Box 5.1

**Table 5.3**  
**E-participation Aspects in National Programmes**

	No. of countries	Percent of countries
Is there a web comment form?	99	57
Is a response timeframe indicated for submitted forms/e-mails?	12	7
Is there a calendar/directory of upcoming government events?	96	55
Is there an on-line poll/survey?	43	25
Is there a formal on-line consultation facility?	24	14
Is there an open-ended discussion forum?	45	26
Does the on-line consultation allow feedback on policies and activities?	15	9
Is there a direct/clear statement or policy encouraging citizen participation?	13	8

**Table 5.4**  
**E-participation by Income Category**

	No. of Countries	No. of Countries	Above Mean	Below Mean
Income Class	Above Mean	Below Mean	By Income Class	By Income Class
High Income (n = 38)	25	13	66%	34%
Upper Middle Income (n = 35)	15	20	43%	57%
Lower Middle Income (n = 52)	12	40	23%	77%
Low Income (n = 66)	8	58	12%	88%
Total Countries	60	131	31%	69%

## **Box 5.1**

### **The U.K. and the U.S.: Two approaches to e-participation**

When it comes to e-participation and on-line consultation mechanisms, two countries, the U.K. and the U.S., are clearly ahead of the field. They both stand out as leaders when it comes not only to providing basic e-government tools and services but also to involving their citizens in the democratic process. However, even though both countries score well on all levels of the e-participation survey, they employ very different approaches to engaging their citizens.

The U.K. approach to on-line participation is very encouraging and welcoming. Citizen participation and a wide range of e-participation features are highlighted and promoted immediately on the home page of the government portal through a top-level navigation section appropriately entitled “Citizen Space”. The section is seamlessly integrated into the government portal - it is, in a sense, an essential element of the U.K.’s on-line presence. This integration is really a defining element of the U.K.’s overall e-government strategy, and what places the country alone at the top of the e-participation index.

The U.K.’s “Citizen Space” opens up with the invitation to “Help shape government policy by taking part in consultations and find out how U.K. is governed.” It functions as a one-stop centre for citizen participation and contains much of what an engaged citizen could wish for: discussion forums; formal on-line consultations, with policy papers and documents; petition possibilities; contact lists; as well as clearly defined information and guidance on how citizens can participate and influence government policy. Most strikingly, the U.K. “Citizen Space” offers an e-mail keyword subscription service whereby users can choose to be notified of upcoming consultations on topics they specify. Participating users will never again miss the opportunity to influence what is important - at least to them. Taken as a whole, the U.K. approach represents the perfect blend of function, form and outreach for e-participation.

The U.S. takes a very different approach both to its overall on-line presence and its e-participation features - an approach that may be described as more businesslike than that of the U.K. and others. The U.S. site gets right to business, efficiently providing users with an extraordinary variety of on-line tools, services and information. The site has little room or place for promoting various programmes and features, other than their placement on a page or within a directory. The U.S. has an on-line regulations comment portal (the equivalent to consultation in the U.S. system) that functionally is second to none; but it is not promoted in the way that the U.K. promotes its system. Instead, the superb regulations.gov site is a separate portal linked to, but not well integrated with, FirstGov. It is a minimum of two links removed from the national government home page, accessible only from the Contact Government section, or in the Laws and Legislation directory, neither of which intuitively guides the user to “participate”. Citizens have to really want to comment on line - and know the formal “comment” parlance - to find the feature on their initial visit to FirstGov. To be fair, the regulations.gov site is relatively new, and the FirstGov web managers are continually refining and enhancing the U.S. site. Users may soon be surprised to see how easily they can participate in policy debates and decision making.

Comparing the two, therefore, one can note a clear difference in philosophy. Without expressing any preference for one approach over the other, it is interesting to note that the U.K. spends much effort on engaging the citizen while the U.S., which overall probably provides more services per se, takes a more relaxed, laissez faire approach. Even with the difference in approach, however, both governments are clearly leading the way when it comes to e-participation.

## **VI. Conclusions**

The data and analysis in this Survey affirm that e-government development is a function of the combined level of economic, technological and human resource development. Important factors in successful e-government initiatives range from political and economic models to inequities of financial, human and technical capital. Since the websites reflect countries' willingness to share information and knowledge with the people, in several instances, political ideologies appear to determine what is to be public knowledge.

There is no one model for e-government development. At present, e-government websites are mushrooming around the globe in a haphazard manner. State and sectoral websites reflect wide variations among countries in the provision of on-line information and basic public services.

Few countries worldwide are utilizing the full potential of e-government as a tool. Citizen participation also remains patchy and uneven in all countries, with its full potential under utilized.

Despite the current focus on e-government, information and services tend to reach only the privileged few, outside of a handful of industrialized countries.

The primary factor impeding the reach of e-government to "include all" is the lack of infrastructure and human capital in the developing countries. This Survey concludes that the possibility of the digital divide widening between the e-haves and the e-have-nots is very real.

Since there is no standard formula for effective e-government, each country needs to devise its own e-government strategy and programme, based on its political, economic and social priorities and its financial, human and technological endowments. The imperative for effective e-government remains a multi-pronged approach based on ICT as well as human and telecommunications infrastructure development. If effectively utilized, e-government can push the frontiers of development around the globe.

## **VII. The Promise of the Future**

The United Nations looks upon the opportunity presented by the potential of e-government for socio-economic development as an historic opportunity. Proper use of information technology offers an immense potential to bridge inter- and intra-state socio-economic disparities, reduce poverty and further the goals of development worldwide.

The Digital Task Force (DOT) created by the G8 Heads of State at their Kyushu-Okinawa Summit in July 2000 "...concluded that, when wisely applied, ICT offers enormous opportunities to narrow social and economic inequalities and support sustainable local wealth creation, and thus help to achieve the broader development goals that the international community has set."<sup>39</sup>

E-government is about opportunity. Opportunity for the public sector to reform to achieve greater efficiency and efficacy. Opportunity to reduce costs and increase services to the society. Opportunity to include all in public service delivery. And opportunity to empower the citizens for participatory democracy.

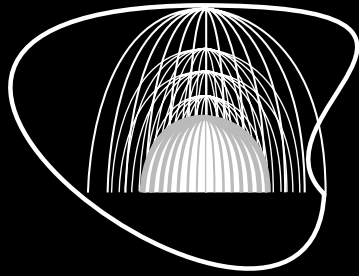
But the greatest promise of e-government is the historic opportunity for the developing countries to "leap frog" the traditionally longer development stages and catch up in providing a higher standard of living for their populations.

The UN Survey finds that there is an urgent need to divert intellectual and financial capital to improving the e-infrastructure and human capital base in the developing countries and recommends that this be done.

It also recommends that immediate steps be taken in global government, private sector and civil society partnerships to provide the resources needed to reduce the global

disparities in e-infrastructure so that national e-government initiatives can support an environment which is conducive to fulfilling the promise of “including all” in development.

The UN Survey urges the member states to undertake this “world-making” effort.



**ANNEX I:**  
**Data Tables**

**Table 1****E-government Readiness Index 2003**

1	United States of America	0.927	38	United Arab Emirates	0.535
2	Sweden	0.840	39	Croatia	0.531
3	Australia	0.831	40	Slovakia	0.528
4	Denmark	0.820	41	Brazil	0.527
5	United Kingdom	0.814	42	Micronesia (Federated States of)	0.526
6	Canada	0.806	43	Malaysia	0.524
7	Norway	0.778	44	Hungary	0.516
8	Switzerland	0.764	45	South Africa	0.515
9	Germany	0.762	46	Bahrain	0.510
10	Finland	0.761	47	Uruguay	0.507
11	Netherlands	0.746	48	Latvia	0.506
12	Singapore	0.746	49	Turkey	0.506
13	Republic of Korea	0.744	50	Romania	0.483
14	New Zealand	0.718	51	Cyprus	0.474
15	Iceland	0.702	52	Mauritius	0.471
16	Estonia	0.697	53	Peru	0.463
17	Ireland	0.697	54	Ukraine	0.462
18	Japan	0.693	55	Brunei Darussalam	0.459
19	France	0.690	56	Thailand	0.446
20	Italy	0.685	57	Colombia	0.443
21	Austria	0.676	58	Russian Federation	0.443
22	Chile	0.671	59	Saint Lucia	0.438
23	Belgium	0.670	60	Dominican Republic	0.438
24	Israel	0.663	61	Jamaica	0.432
25	Luxembourg	0.656	62	Panama	0.432
26	Portugal	0.646	63	Jordan	0.429
27	Malta	0.636	64	Bahamas	0.429
28	Slovenia	0.631	65	Trinidad and Tobago	0.427
29	Spain	0.602	66	Costa Rica	0.427
30	Mexico	0.593	67	Saint Kitts and Nevis	0.426
31	Argentina	0.577	68	Fiji	0.425
32	Poland	0.576	69	Lebanon	0.424
33	Philippines	0.574	70	Indonesia	0.422
34	Lithuania	0.557	71	Belize	0.422
35	Bulgaria	0.548	72	Guyana	0.422
36	Czech Republic	0.542	73	Seychelles	0.420
37	Greece	0.540	74	China	0.416

75	Paraguay	0.413	115	Bosnia and Herzegovina	0.309
76	Barbados	0.413	116	Zimbabwe	0.304
77	Qatar	0.411	117	Samoa	0.299
78	Bolivia	0.411	118	Kenya	0.299
79	Maldives	0.410	119	Uganda	0.296
80	El Salvador	0.409	120	Swaziland	0.295
81	Belarus	0.397	121	Nauru	0.293
82	Tonga	0.391	122	Solomon Islands	0.284
83	Kazakhstan	0.387	123	Gabon	0.283
84	Sri Lanka	0.385	124	Honduras	0.280
85	Ecuador	0.378	125	San Marino	0.280
86	Armenia	0.377	126	Myanmar	0.280
87	India	0.373	127	Zambia	0.276
88	Cuba	0.372	128	Sao Tome and Principe	0.272
89	Serbia and Montenegro	0.371	129	Cameroon	0.270
90	Kuwait	0.370	130	Nepal	0.268
91	Algeria	0.370	131	Morocco	0.265
92	Antigua and Barbuda	0.364	132	Congo	0.265
93	Venezuela	0.364	133	Syrian Arab Republic	0.264
94	Azerbaijan	0.364	134	Cambodia	0.264
95	Republic of Moldova	0.363	135	United Republic of Tanzania	0.253
96	The former Yugoslav Republic of Macedonia	0.362	136	Papua New Guinea	0.250
97	Viet Nam	0.357	137	Pakistan	0.247
98	Oman	0.355	138	Rwanda	0.244
99	Georgia	0.351	139	Ghana	0.241
100	Grenada	0.348	140	Egypt	0.238
101	Botswana	0.347	141	Benin	0.235
102	Lesotho	0.346	142	Malawi	0.233
103	Mongolia	0.343	143	Togo	0.231
104	Namibia	0.340	144	Madagascar	0.229
105	Saudi Arabia	0.338	145	Nigeria	0.225
106	Turkmenistan	0.335	146	Sudan	0.206
107	Iran (Islamic Republic of)	0.330	147	Senegal	0.201
108	Tunisia	0.329	148	Angola	0.192
109	Guatemala	0.329	149	Lao People's Democratic Republic	0.192
110	Kyrgyzstan	0.327	150	Monaco	0.189
111	Saint Vincent and the Grenadines	0.326	151	Yemen	0.188
112	Nicaragua	0.324	152	Burundi	0.181
113	Cape Verde	0.322	153	Djibouti	0.179
114	Albania	0.311	154	Liechtenstein	0.178
			155	Comoros	0.176



156	Andorra	0.174	165	Guinea	0.132
157	Mozambique	0.173	166	Ethiopia	0.128
158	Gambia	0.172	167	Sierra Leone	0.126
159	Bangladesh	0.165	168	Afghanistan	0.118
160	Mauritania	0.161	169	Timor-Leste	0.087
161	Bhutan	0.157	170	Niger	0.060
162	Vanuatu	0.142	171	Somalia	0.049
163	Mali	0.140	172	Marshall Islands	0.038
164	Burkina Faso	0.135	173	Palau	0.009

**Table 2****Components of E-government Readiness Index**

		Web Measure	Telecom Index	Human Cap Index
Column		1	2	3
Weight		1/3	1/3	1/3
1	United States of America	1.000	0.801	0.98
2	Chile	0.838	0.275	0.90
3	Australia	0.812	0.691	0.99
4	Mexico	0.808	0.132	0.84
5	United Kingdom	0.777	0.675	0.99
6	Canada	0.764	0.675	0.98
7	Philippines	0.747	0.064	0.91
8	Singapore	0.703	0.666	0.87
9	Denmark	0.694	0.787	0.98
10	Sweden	0.683	0.846	0.99
11	Germany	0.683	0.632	0.97
12	Switzerland	0.668	0.682	0.94
13	Estonia	0.642	0.498	0.95
14	Israel	0.633	0.447	0.91
15	Argentina	0.624	0.187	0.92
16	Italy	0.616	0.499	0.94
17	Ireland	0.616	0.514	0.96
18	Republic of Korea	0.607	0.675	0.95
19	Finland	0.603	0.691	0.99
20	Norway	0.581	0.774	0.98
21	Brazil	0.576	0.174	0.83
22	France	0.570	0.529	0.97
23	Malta	0.568	0.460	0.88
24	Turkey	0.555	0.192	0.77
25	New Zealand	0.552	0.613	0.99
26	Poland	0.541	0.248	0.94
27	South Africa	0.539	0.126	0.88
28	Netherlands	0.539	0.710	0.99
29	Bulgaria	0.537	0.207	0.90
30	Lithuania	0.524	0.218	0.93
31	Japan	0.524	0.626	0.93
32	India	0.522	0.027	0.57
33	Portugal	0.507	0.490	0.94
34	Belgium	0.507	0.514	0.99

		Web Measure	Telecom Index	Human Cap Index
Column		1	2	3
Weight		1/3	1/3	1/3
35	Malaysia	0.480	0.292	0.80
36	Austria	0.476	0.591	0.96
37	Mauritius	0.448	0.196	0.77
38	Dominican Republic	0.445	0.067	0.80
39	Slovenia	0.441	0.513	0.94
40	Indonesia	0.432	0.045	0.79
41	Spain	0.428	0.409	0.97
42	Croatia	0.424	0.291	0.88
43	United Arab Emirates	0.419	0.444	0.74
44	Romania	0.419	0.149	0.88
45	Jordan	0.419	0.089	0.78
46	Peru	0.408	0.111	0.87
47	Luxembourg	0.408	0.660	0.90
48	El Salvador	0.406	0.082	0.74
49	Algeria	0.384	0.036	0.69
50	Thailand	0.380	0.117	0.84
51	Slovakia	0.380	0.294	0.91
52	Jamaica	0.380	0.127	0.79
53	Bolivia	0.378	0.055	0.80
54	Colombia	0.362	0.118	0.85
55	Uruguay	0.358	0.244	0.92
56	Ukraine	0.349	0.116	0.92
57	Czech Republic	0.349	0.386	0.89
58	Panama	0.341	0.095	0.86
59	Paraguay	0.336	0.074	0.83
60	Iceland	0.336	0.809	0.96
61	China	0.332	0.116	0.80
62	Bahrain	0.332	0.347	0.85
63	Greece	0.328	0.372	0.92
64	Guatemala	0.323	0.044	0.62
65	Nepal	0.319	0.006	0.48
66	Hungary	0.312	0.307	0.93
67	Saint Lucia	0.308	0.176	0.83
68	Fiji	0.301	0.074	0.90
69	Pakistan	0.297	0.026	0.42
70	Benin	0.293	0.012	0.40
71	Nicaragua	0.288	0.033	0.65

		Web Measure	Telecom Index	Human Cap Index
	Column	1	2	3
	Weight	1/3	1/3	1/3
72	Serbia and Montenegro	0.284	0.134	0.694
73	Uganda	0.279	0.007	0.60
74	Sri Lanka	0.279	0.036	0.84
75	Lesotho	0.269	0.011	0.76
76	Latvia	0.266	0.321	0.93
77	Guyana	0.266	0.119	0.88
78	Brunei Darussalam	0.266	0.250	0.86
79	Timor-Leste	0.262	0.000	0.000
80	Oman	0.262	0.132	0.67
81	Maldives	0.262	0.069	0.90
82	Lebanon	0.253	0.188	0.83
83	Belize	0.253	0.153	0.86
84	Trinidad and Tobago	0.236	0.206	0.84
85	Morocco	0.236	0.061	0.50
86	Russian Federation	0.223	0.185	0.92
87	Costa Rica	0.223	0.198	0.86
88	Botswana	0.223	0.067	0.75
89	Liechtenstein	0.214	0.319	0
90	Bahamas	0.214	0.193	0.88
91	Andorra	0.214	0.309	0.000
92	Angola	0.210	0.007	0.36
93	Senegal	0.205	0.027	0.37
94	Tonga	0.201	0.051	0.920
95	San Marino	0.201	0.640	0.000
96	Seychelles	0.188	0.241	0.83
97	Kazakhstan	0.188	0.062	0.91
98	Viet Nam	0.183	0.048	0.84
99	Saudi Arabia	0.183	0.119	0.71
100	Tunisia	0.179	0.089	0.72
101	Ecuador	0.175	0.089	0.87
102	Papua New Guinea	0.170	0.031	0.55
103	Burkina Faso	0.170	0.005	0.23
104	Cuba	0.166	0.051	0.90
105	Kenya	0.157	0.021	0.72
106	Burundi	0.157	0.005	0.38
107	Namibia	0.153	0.056	0.81
108	Solomon Islands	0.148	0.022	0.68

		Web Measure	Telecom Index	Human Cap Index
	Column	1	2	3
	Weight	1/3	1/3	1/3
109	Rwanda	0.148	0.003	0.58
110	Iran (Islamic Republic of)	0.148	0.090	0.75
111	Cameroon	0.148	0.012	0.65
112	Venezuela	0.144	0.117	0.83
113	Mozambique	0.144	0.004	0.37
114	Kuwait	0.144	0.226	0.74
115	United Republic of Tanzania	0.140	0.009	0.61
116	Saint Kitts and Nevis	0.140	0.248	0.89
117	Mongolia	0.140	0.040	0.85
118	Armenia	0.140	0.070	0.92
119	Qatar	0.135	0.308	0.79
120	Cape Verde	0.131	0.086	0.75
121	Bosnia and Herzegovina	0.131	0.059	0.737
122	Azerbaijan	0.131	0.080	0.88
123	Zambia	0.127	0.023	0.68
124	Monaco	0.127	0.440	0.000
125	Cambodia	0.127	0.004	0.66
126	Belarus	0.122	0.147	0.92
127	Barbados	0.122	0.206	0.91
128	Micronesia (Federated States of)	0.118	0.040	1.422
129	The former Yugoslav Republic of Macedonia	0.114	0.111	0.860
130	Samoa	0.114	0.034	0.75
131	Cyprus	0.114	0.429	0.88
132	Gambia	0.105	0.021	0.39
133	Honduras	0.100	0.041	0.70
134	Madagascar	0.092	0.007	0.59
135	Bangladesh	0.092	0.004	0.40
136	Myanmar	0.087	0.003	0.75
137	Nigeria	0.083	0.013	0.58
138	Ghana	0.083	0.019	0.62
139	Albania	0.083	0.049	0.80
140	Afghanistan	0.083	0.002	0.268
141	Swaziland	0.079	0.037	0.77
142	Sudan	0.079	0.040	0.50
143	Marshall Islands	0.074	0.040	0.000
144	Kyrgyzstan	0.074	0.037	0.87

		Web Measure	Telecom Index	Human Cap Index
Column		1	2	3
Weight		1/3	1/3	1/3
145	Togo	0.070	0.034	0.59
146	Republic of Moldova	0.070	0.120	0.900
147	Zimbabwe	0.061	0.042	0.81
148	Mauritania	0.057	0.027	0.40
149	Vanuatu	0.052	0.023	0.35
150	Saint Vincent and the Grenadines	0.052	0.136	0.79
151	Somalia	0.048	0.002	0.096
152	Lao People's Democratic Republic	0.048	0.007	0.52
153	Georgia	0.048	0.115	0.89
154	Yemen	0.044	0.039	0.48
155	Turkmenistan	0.044	0.042	0.92
156	Syrian Arab Republic	0.044	0.038	0.71
157	Sierra Leone	0.044	0.005	0.33
158	Mali	0.044	0.005	0.37
159	Malawi	0.044	0.005	0.65
160	Antigua and Barbuda	0.039	0.244	0.81
161	Nauru	0.035	0.035	0.810
162	Egypt	0.035	0.060	0.62
163	Congo	0.035	0.011	0.75
164	Bhutan	0.035	0.015	0.42
165	Ethiopia	0.031	0.003	0.35
166	Comoros	0.031	0.007	0.49
167	Palau	0.026	0.000	0.000
168	Guinea	0.017	0.009	0.37
169	Djibouti	0.017	0.019	0.50
170	Sao Tome and Principe	0.013	0.054	0.75
171	Niger	0.013	0.005	0.16
172	Gabon	0.013	0.077	0.76
173	Grenada	0.004	0.190	0.85
<b>● COUNTRIES WITH NO WEB PRESENCE</b>				
174	Central African Republic	0.000	0.002	0.39
175	Chad	0.000	0.002	0.39
176	Côte d'Ivoire	0.000	0.021	0.44
177	D.P.R. Korea	0.000	0.011	0.000
178	Democratic Republic of the Congo	0.000	0.001	0.51
179	Dominica	0.000	0.190	0.86

		Web Measure	Telecom Index	Human Cap Index
Column		1	2	3
Weight		1/3	1/3	1/3
180	Equatorial Guinea	0.000	0.013	0.77
181	Eritrea	0.000	0.007	0.46
182	Guinea-Bissau	0.000	0.004	0.38
183	Haiti	0.000	0.012	0.50
184	Iraq	0.000	0.016	0.930
185	Kiribati	0.000	0.026	0.000
186	Liberia	0.000	0.003	0.000
187	Libyan Arab Jamahiriya	0.000	0.043	0.84
188	Suriname	0.000	0.118	0.90
189	Tajikistan	0.000	0.046	0.88
190	Tuvalu	0.000	0.015	1.030
191	Uzbekistan	0.000	0.053	0.91

**Table 3****Web Measure Index****Alphabetical**

1	Afghanistan	0.083	38	Comoros	0.031
2	Albania	0.083	39	Congo	0.035
3	Algeria	0.384	40	Costa Rica	0.223
4	Andorra	0.214	41	Côte d'Ivoire	0.000
5	Angola	0.210	42	Croatia	0.424
6	Antigua and Barbuda	0.039	43	Cuba	0.166
7	Argentina	0.624	44	Cyprus	0.114
8	Armenia	0.140	45	Czech Republic	0.349
9	Australia	0.812	46	D.P.R. Korea	0.000
10	Austria	0.476	47	D.R. Congo	0.000
11	Azerbaijan	0.131	48	Denmark	0.694
12	Bahamas	0.214	49	Djibouti	0.017
13	Bahrain	0.332	50	Dominica	0.000
14	Bangladesh	0.092	51	Dominican Republic	0.445
15	Barbados	0.122	52	Ecuador	0.175
16	Belarus	0.122	53	Egypt	0.035
17	Belgium	0.507	54	El Salvador	0.406
18	Belize	0.253	55	Equatorial Guinea	0.000
19	Benin	0.293	56	Eritrea	0.000
20	Bhutan	0.035	57	Estonia	0.642
21	Bolivia	0.378	58	Ethiopia	0.031
22	Bosnia and Herzegovina	0.131	59	Fiji	0.301
23	Botswana	0.223	60	Finland	0.603
24	Brazil	0.576	61	France	0.570
25	Brunei Darussalam	0.266	62	Gabon	0.013
26	Bulgaria	0.537	63	Gambia	0.105
27	Burkina Faso	0.170	64	Georgia	0.048
28	Burundi	0.157	65	Germany	0.683
29	Cambodia	0.127	66	Ghana	0.083
30	Cameroon	0.148	67	Greece	0.328
31	Canada	0.764	68	Grenada	0.004
32	Cape Verde	0.131	69	Guatemala	0.323
33	Central African Republic	0.000	70	Guinea	0.017
34	Chad	0.000	71	Guinea-Bissau	0.000
35	Chile	0.838	72	Guyana	0.266
36	China	0.332	73	Haiti	0.000
37	Colombia	0.362	74	Honduras	0.100
			75	Hungary	0.312



76	Iceland	0.336	117	Namibia	0.153
77	India	0.522	118	Nauru	0.035
78	Indonesia	0.432	119	Nepal	0.319
79	Iran (Islamic Republic of)	0.148	120	Netherlands	0.539
80	Iraq	0.000	121	New Zealand	0.552
81	Ireland	0.616	122	Nicaragua	0.288
82	Israel	0.633	123	Niger	0.013
83	Italy	0.616	124	Nigeria	0.083
84	Jamaica	0.380	125	Norway	0.581
85	Japan	0.524	126	Oman	0.262
86	Jordan	0.419	127	Pakistan	0.297
87	Kazakhstan	0.188	128	Palau	0.026
88	Kenya	0.157	129	Panama	0.341
89	Kiribati	0.000	130	Papua New Guinea	0.170
90	Kuwait	0.144	131	Paraguay	0.336
91	Kyrgyzstan	0.074	132	Peru	0.408
92	Lao People's Democratic Republic	0.048	133	Philippines	0.747
93	Latvia	0.266	134	Poland	0.541
94	Lebanon	0.253	135	Portugal	0.507
95	Lesotho	0.269	136	Qatar	0.135
96	Liberia	0.000	137	Republic of Korea	0.607
97	Libyan Arab Jamahiriya	0.000	138	Republic of Moldova	0.070
98	Liechtenstein	0.214	139	Romania	0.419
99	Lithuania	0.524	140	Russian Federation	0.223
100	Luxembourg	0.408	141	Rwanda	0.148
101	Madagascar	0.092	142	Saint Kitts and Nevis	0.140
102	Malawi	0.044	143	Saint Lucia	0.308
103	Malaysia	0.480	144	Saint Vincent and the Grenadines	0.052
104	Maldives	0.262	145	Samoa	0.114
105	Mali	0.044	146	San Marino	0.201
106	Malta	0.568	147	Sao Tome and Principe	0.013
107	Marshall Islands	0.074	148	Saudi Arabia	0.183
108	Mauritania	0.057	149	Senegal	0.205
109	Mauritius	0.448	150	Serbia and Montenegro	0.284
110	Mexico	0.808	151	Seychelles	0.188
111	Micronesia (Federated States of)	0.118	152	Sierra Leone	0.044
112	Monaco	0.127	153	Singapore	0.703
113	Mongolia	0.140	154	Slovakia	0.380
114	Morocco	0.236	155	Slovenia	0.441
115	Mozambique	0.144	156	Solomon Islands	0.148
116	Myanmar	0.087	157	Somalia	0.048

158	South Africa	0.539	175	Turkey	0.555
159	Spain	0.428	176	Turkmenistan	0.044
160	Sri Lanka	0.279	177	Tuvalu	0.000
161	Sudan	0.079	178	Uganda	0.279
162	Suriname	0.000	179	Ukraine	0.349
163	Swaziland	0.079	180	United Arab Emirates	0.419
164	Sweden	0.683	181	United Kingdom	0.777
165	Switzerland	0.668	182	United Republic of Tanzania	0.140
166	Syrian Arab Republic	0.044	183	United States of America	1.000
167	Tajikistan	0.000	184	Uruguay	0.358
168	Thailand	0.380	185	Uzbekistan	0.000
169	The former Yugoslav Republic of Macedonia	0.114	186	Vanuatu	0.052
170	Timor-Leste	0.262	187	Venezuela	0.144
171	Togo	0.070	188	Viet Nam	0.183
172	Tonga	0.201	189	Yemen	0.044
173	Trinidad and Tobago	0.236	190	Zambia	0.127
174	Tunisia	0.179	191	Zimbabwe	0.061

Table 4

## Telecommunication indicators 2003 — I

Country	PCs per 1000 pers	PC Index	Internet per 1000 pers	Internet Index
1 Afghanistan	0	0	0.000	0.000
2 Albania	8	0.011	2.519	0.004
3 Algeria <sup>a)</sup>	7.1	0.009	15.978	0.026
4 Andorra <sup>a) b)</sup>	0	0.000	89.744	0.148
5 Angola <sup>b)</sup>	2	0.003	2.942	0.005
6 Antigua & Barbuda <sup>a) b)</sup>	0	0.000	90.409	0.149
7 Argentina	82	0.108	112.022	0.184
8 Armenia <sup>a)</sup>	9.2	0.012	18.412	0.030
9 Australia	515.8	0.679	427.203	0.703
10 Austria <sup>a)</sup>	335.4	0.441	409.364	0.674
11 Azerbaijan	0	0.000	36.823	0.061
12 Bahamas <sup>b)</sup>	0	0.000	67.974	0.112
13 Bahrain	160.4	0.211	247.466	0.407
14 Bangladesh	3.4	0.004	1.532	0.003
15 Barbados <sup>a) b)</sup>	93.2	0.123	55.908	0.092
16 Belarus	0	0.000	81.584	0.134
17 Belgium	241.6	0.318	328.629	0.541
18 Belize <sup>b)</sup>	138.3	0.182	86.957	0.143
19 Benin <sup>a)</sup>	1.7	0.002	3.878	0.006
20 Bhutan <sup>b)</sup>	14.5	0.019	14.475	0.024
21 Bolivia	22.8	0.030	21.754	0.036
22 Bosnia & Herzegovina	0	0.000	24.390	0.040
23 Botswana <sup>a)</sup>	38.7	0.051	29.747	0.049
24 Brazil	74.8	0.098	82.241	0.135
25 Brunei Darussalam <sup>a) b)</sup>	73.1	0.096	102.339	0.168
26 Bulgaria	34.6	0.046	74.627	0.123
27 Burkina Faso <sup>a)</sup>	1.5	0.002	1.628	0.003
28 Burundi <sup>a)</sup>	0	0.000	0.875	0.001
29 Cambodia <sup>a)</sup>	1.5	0.002	2.176	0.004
30 Cameroon <sup>a)</sup>	3.9	0.005	2.919	0.005
31 Canada	487	0.641	483.861	0.796
32 Cape Verde	79.7	0.105	36.446	0.060
33 Central African Rep. <sup>a)</sup>	1.9	0.003	0.793	0.001
34 Chad	1.6	0.002	0.522	0.001
35 Chile	119.3	0.157	201.415	0.331

Country	PCs per 1000 pers	PC Index	Internet per 1000 pers	Internet Index
36	China	19	46.009	0.076
37	Colombia	49.3	45.784	0.075
38	Comoros	5.5	4.199	0.007
39	Congo	3.9	0.321	0.001
40	Costa Rica	170.2	93.363	0.154
41	Côte d'Ivoire	7.2	5.458	0.009
42	Croatia	156.9	162.882	0.268
43	Cuba	19.6	10.679	0.018
44	Cyprus <sup>b)</sup>	246.5	300.000	0.494
45	Czech Republic <sup>a)</sup>	146.7	146.714	0.241
46	D.P.R. Korea	0	0.000	0.000
47	D.R. Congo <sup>a)</sup>	0	0.114	0.000
48	Denmark	576.8	465.181	0.766
49	Djibouti <sup>b)</sup>	15.2	6.860	0.011
50	Dominica <sup>b)</sup>	77.1	160.256	0.264
51	Dominican Rep. <sup>a)</sup>	17.5	21.453	0.035
52	Ecuador	31.1	38.892	0.064
53	Egypt <sup>a)</sup>	15.5	9.295	0.015
54	El Salvador	21.9	46.458	0.076
55	Equatorial Guinea	7.2	3.484	0.006
56	Eritrea	2.5	2.261	0.004
57	Estonia	210.3	413.284	0.680
58	Ethiopia	1.5	0.742	0.001
59	Fiji <sup>a) b)</sup>	48	26.379	0.043
60	Finland	441.7	508.930	0.838
61	France	347.1	313.832	0.516
62	Gabon <sup>a)</sup>	11.9	19.246	0.032
63	Gambia <sup>a)</sup>	12.7	13.463	0.022
64	Georgia	31.6	14.897	0.025
65	Germany	434.9	423.729	0.697
66	Ghana <sup>a)</sup>	3.3	1.936	0.003
67	Greece <sup>a)</sup>	81.2	181.521	0.299
68	Grenada <sup>a)</sup>	130	61.321	0.101
69	Guatemala <sup>a)</sup>	12.8	17.113	0.028
70	Guinea <sup>a)</sup>	4.2	1.979	0.003
71	Guinea-Bissau <sup>a)</sup>	0	3.260	0.005
72	Guyana <sup>b)</sup>	26.4	109.195	0.180
73	Haiti	8.8	9.641	0.016

Country	PCs per 1000 pers	PC Index	Internet per 1000 pers	Internet Index
74 Honduras	12.2	0.016	29.797	0.049
75 Hungary	108.4	0.143	157.604	0.259
76 Iceland <sup>a) b)</sup>	451.4	0.594	607.639	1.000
77 India	5.8	0.008	15.914	0.026
78 Indonesia	11	0.014	19.123	0.031
79 Iran (I.R.)	69.7	0.092	15.557	0.026
80 Iraq	0	0.000	0.000	0.000
81 Ireland <sup>a)</sup>	390.7	0.514	270.923	0.446
82 Israel	245.9	0.324	301.405	0.496
83 Italy	194.8	0.256	301.077	0.495
84 Jamaica <sup>a)</sup>	50	0.066	38.471	0.063
85 Japan <sup>a)</sup>	382.5	0.503	449.262	0.739
86 Jordan	32.8	0.043	45.156	0.074
87 Kazakhstan <sup>a)</sup>	0	0.000	9.320	0.015
88 Kenya	5.6	0.007	15.978	0.026
89 Kiribati <sup>a) b)</sup>	10.5	0.014	23.224	0.038
90 Kuwait <sup>a)</sup>	119.6	0.157	87.913	0.145
91 Kyrgyzstan	12.7	0.017	29.833	0.049
92 Lao P.D.R.	3.3	0.004	2.711	0.004
93 Latvia	171.7	0.226	133.104	0.219
94 Lebanon	80.5	0.106	117.130	0.193
95 Lesotho	0	0.000	2.315	0.004
96 Liberia	0	0.000	0.000	0.000
97 Libya <sup>a)</sup>	3.5	0.005	3.584	0.006
98 Liechtenstein	0	0.000	585.000	0.963
99 Lithuania	70.6	0.093	67.916	0.112
100 Luxembourg <sup>a) b)</sup>	517.3	0.681	367.483	0.605
101 Madagascar <sup>a)</sup>	2.6	0.003	2.259	0.004
102 Malawi	1.3	0.002	2.587	0.004
103 Malaysia <sup>a)</sup>	126.1	0.166	273.109	0.449
104 Maldives <sup>b)</sup>	35.8	0.047	53.763	0.088
105 Mali <sup>a)</sup>	1.3	0.002	2.885	0.005
106 Malta <sup>b)</sup>	229.6	0.302	252.551	0.416
107 Marshall Islands <sup>a)</sup>	53	0.070	16.488	0.027
108 Mauritania	10.3	0.014	3.728	0.006
109 Mauritius	108.3	0.143	148.700	0.245
110 Mexico	68.7	0.090	45.774	0.075
111 Micronesia <sup>a) b)</sup>	0	0.000	42.997	0.071

Country	PCs per 1000 pers	PC Index	Internet per 1000 pers	Internet Index
112 Monaco <sup>b)</sup>	0	0.000	466.000	0.767
113 Mongolia <sup>a)</sup>	14.6	0.019	16.660	0.027
114 Morocco	13.7	0.018	16.867	0.028
115 Mozambique <sup>a)</sup>	4	0.005	1.699	0.003
116 Myanmar <sup>a)</sup>	1.1	0.001	0.207	0.000
117 Namibia <sup>a)</sup>	54.7	0.072	24.633	0.041
118 Nauru	0	0.000	0.000	0.000
119 Nepal	3.5	0.005	2.639	0.004
120 Netherlands <sup>a)</sup>	428.4	0.564	530.411	0.873
121 New Zealand	392.6	0.517	484.375	0.797
122 Nicaragua	27.9	0.037	16.760	0.028
123 Niger <sup>a)</sup>	0.5	0.001	1.069	0.002
124 Nigeria	6.8	0.009	1.666	0.003
125 Norway	508	0.668	504.829	0.831
126 Oman <sup>a)</sup>	32.4	0.043	45.749	0.075
127 Pakistan	4.1	0.005	3.449	0.006
128 Palau	0	0.000	0.000	0.000
129 Panama <sup>a)</sup>	37.9	0.050	41.394	0.068
130 Papua New Guinea	56.7	0.075	9.444	0.016
131 Paraguay	14.2	0.019	17.295	0.028
132 Peru <sup>a)</sup>	47.9	0.063	76.649	0.126
133 Philippines	21.7	0.029	25.569	0.042
134 Poland <sup>a)</sup>	85.4	0.112	98.372	0.162
135 Portugal	117.4	0.154	355.462	0.585
136 Qatar <sup>b)</sup>	180.3	0.237	82.787	0.136
137 Republic of Korea	555.8	0.731	551.891	0.908
138 Republic of Moldova	16	0.021	140.000	0.230
139 Romania <sup>a)</sup>	35.7	0.047	80.609	0.133
140 Russia	88.7	0.117	40.932	0.067
141 Rwanda <sup>a) c)</sup>	0	0.000	2.516	0.004
142 St. Kitts and Nevis <sup>b)</sup>	191.5	0.252	106.383	0.175
143 St. Lucia <sup>b)</sup>	146	0.192	82.000	0.135
144 St. Vincent & the Grenadines <sup>a) b)</sup>	113	0.149	47.826	0.079
145 Samoa <sup>b)</sup>	6.2	0.008	22.222	0.037
146 San Marino <sup>b)</sup>	760	1.000	531.000	0.874
147 S. Tomé & Príncipe <sup>a) b)</sup>	0	0.000	60.000	0.099
148 Saudi Arabia <sup>a)</sup>	62.7	0.083	69.384	0.114
149 Senegal	20.4	0.027	10.712	0.018

Country	PCs per 1000 pers	PC Index	Internet per 1000 pers	Internet Index
150 Serbia and Montenegro <sup>b)</sup>	27.1	0.036	59.701	0.098
151 Seychelles <sup>a) b)</sup>	146.5	0.193	109.890	0.181
152 Sierra Leone <sup>a)</sup>	2.1	0.003	1.419	0.002
153 Singapore	508.3	0.669	539.664	0.888
154 Slovakia	180.4	0.237	160.438	0.264
155 Slovenia	300.6	0.396	400.802	0.660
156 Solomon Islands <sup>b)</sup>	40.5	0.053	4.951	0.008
157 Somalia	0	0.000	0.000	0.000
158 South Africa	72.6	0.096	68.201	0.112
159 Spain	168.2	0.221	193.103	0.318
160 Sri Lanka	13.2	0.017	10.556	0.017
161 Sudan	9.2	0.012	2.582	0.004
162 Suriname <sup>a) b)</sup>	45.5	0.060	33.000	0.054
163 Swaziland	0	0.000	19.380	0.032
164 Sweden	561.2	0.738	573.074	0.943
165 Switzerland	538.3	0.708	326.179	0.537
166 Syria <sup>a)</sup>	16.3	0.021	3.612	0.006
167 Tajikistan	0	0.000	0.549	0.001
168 Thailand <sup>a) b)</sup>	27.8	0.037	77.561	0.128
169 The former Yugoslav Republic of Macedonia <sup>a)</sup>	0	0.000	34.247	0.056
170 Timor-Leste	0	0.000	0.000	0.000
171 Togo	32	0.042	42.689	0.070
172 Tonga <sup>b)</sup>	14.2	0.019	29.293	0.048
173 Trinidad & Tobago	79.5	0.105	106.032	0.174
174 Tunisia	26.3	0.035	51.503	0.085
175 Turkey	40.7	0.054	72.839	0.120
176 Turkmenistan <sup>a)</sup>	4.6	0.006	1.655	0.003
177 Tuvalu <sup>b)</sup>	0	0.000	0.000	0.000
178 Uganda	2.9	0.004	2.518	0.004
179 Ukraine <sup>a)</sup>	18.3	0.024	11.929	0.020
180 United Arab Emirates	135.5	0.178	367.380	0.605
181 United Kingdom <sup>a) b)</sup>	366.2	0.482	406.174	0.668
182 United Rep. Of Tanzania	3.6	0.005	2.977	0.005
183 United States	625	0.822	537.506	0.885
184 Uruguay	110.1	0.145	119.012	0.196
185 Uzbekistan <sup>a)</sup>	2.9	0.004	10.874	0.018
186 Vanuatu <sup>a) b)</sup>	0.9	0.001	27.363	0.045

Country	PCs per 1000 pers	PC Index	Internet per 1000 pers	Internet Index
187 Venezuela	52.8	0.069	50.373	0.083
188 Viet Nam	9.8	0.013	18.462	0.030
189 Yemen <sup>a)</sup>	2	0.003	0.901	0.001
190 Zambia	7.5	0.010	4.901	0.008
191 Zimbabwe	51.6	0.068	42.975	0.071

Sources: Internet and Estimated PCs data from International Telecommunication Union,  
 Web address: [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/Internet01.pdf](http://www.itu.int/ITU-D/ict/statistics/at_glance/Internet01.pdf)

Note: a) All data is for the 2001 unless otherwise noted.

b) TV sets per 1000 persons data is for 1999

c) Data for Rwanda for 1994 from [http://portal.unesco.org/uis/TEMPLATE/html/CultAndCom/TableIV\\_14\\_Africa.html](http://portal.unesco.org/uis/TEMPLATE/html/CultAndCom/TableIV_14_Africa.html)



Table 5

## Telecommunication indicators 2003 — II

Country Alphabetically	Persons on line per 1000 pers	Index	Tel lines per 1000 persons	Index	
1	Afghanistan	0	0.000	0	0.000
2	Albania	3.4	0.005	54.6	0.059
3	Algeria <sup>a)</sup>	5.7	0.008	61	0.066
4	Andorra <sup>a) b)</sup>	362.6	0.519	438.3	0.476
5	Angola <sup>b)</sup>	5.7	0.008	6.1	0.007
6	Antigua & Barbuda <sup>a) b)</sup>	75.2	0.108	481.3	0.523
7	Argentina	103.8	0.148	218.8	0.238
8	Armenia <sup>a)</sup>	9	0.013	139.8	0.152
9	Australia	524.9	0.751	538.6	0.585
10	Austria <sup>a)</sup>	434.5	0.622	468.1	0.508
11	Azerbaijan	3.2	0.005	121.4	0.132
12	Bahamas <sup>b)</sup>	56.2	0.080	405.6	0.440
13	Bahrain	213.6	0.306	263.1	0.286
14	Bangladesh	1.1	0.002	5.1	0.006
15	Barbados <sup>a) b)</sup>	21.9	0.031	480.6	0.522
16	Belarus	40.8	0.058	299.4	0.325
17	Belgium	331.4	0.474	496.1	0.539
18	Belize <sup>b)</sup>	68.4	0.098	125.1	0.136
19	Benin <sup>a)</sup>	3.7	0.005	9.2	0.010
20	Bhutan <sup>b)</sup>	0.2	0.000	28.4	0.031
21	Bolivia	9.8	0.014	67.6	0.073
22	Bosnia & Herzegovina	11.4	0.016	119.6	0.130
23	Botswana <sup>a)</sup>	7.6	0.011	84.8	0.092
24	Brazil	68.4	0.098	223.2	0.242
25	Brunei Darussalam <sup>a) b)</sup>	99.7	0.143	258.6	0.281
26	Bulgaria	75.9	0.109	374.6	0.407
27	Burkina Faso <sup>a)</sup>	2	0.003	4.9	0.005
28	Burundi <sup>a)</sup>	0.9	0.001	2.9	0.003
29	Cambodia <sup>a)</sup>	0.8	0.001	2.5	0.003
30	Cameroon <sup>a)</sup>	2.8	0.004	6.6	0.007
31	Canada	457.1	0.654	635.5	0.690
32	Cape Verde	29.4	0.042	159.9	0.174
33	Central African Rep. <sup>a)</sup>	0.5	0.001	2.4	0.003
34	Chad	0.4	0.001	1.4	0.002
35	Chile	200.2	0.286	230.4	0.250

Country Alphabetically		Persons on line per 1000 pers	Index	Tel lines per 1000 persons	Index
36	China	35.8	0.051	166.9	0.181
37	Colombia	28.1	0.040	179.4	0.195
38	Comoros	4.1	0.006	13.5	0.015
39	Congo	0.1	0.000	6.7	0.007
40	Costa Rica	100.1	0.143	250.5	0.272
41	Côte d'Ivoire	1.3	0.002	20.4	0.022
42	Croatia	110.7	0.158	387.9	0.421
43	Cuba	10.7	0.015	51.1	0.055
44	Cyprus <sup>b)</sup>	195.5	0.280	610.6	0.663
45	Czech Republic <sup>a)</sup>	262.1	0.375	377.6	0.410
46	D.P.R. Korea	0	0.000	21	0.023
47	D.R. Congo <sup>a)</sup>	0	0.000	0.4	0.000
48	Denmark	547.4	0.783	695.8	0.755
49	Djibouti <sup>b)</sup>	7	0.010	15.4	0.017
50	Dominica <sup>b)</sup>	28	0.040	325.8	0.354
51	Dominican Rep. <sup>a)</sup>	21.3	0.030	110.2	0.120
52	Ecuador	24.4	0.035	110.2	0.120
53	Egypt <sup>a)</sup>	8.5	0.012	103.6	0.112
54	El Salvador	6.5	0.009	103.4	0.112
55	Equatorial Guinea	2.2	0.003	18	0.020
56	Eritrea	2.2	0.003	9	0.010
57	Estonia	347	0.496	350.6	0.381
58	Ethiopia	0.2	0.000	5.5	0.006
59	Fiji <sup>a) b)</sup>	17.5	0.025	112.3	0.122
60	Finland	439.3	0.628	547.3	0.594
61	France	262.8	0.376	568.9	0.618
62	Gabon <sup>a)</sup>	12.4	0.018	29.5	0.032
63	Gambia <sup>a)</sup>	12.4	0.018	26.2	0.028
64	Georgia	32.3	0.046	131.4	0.143
65	Germany	344.9	0.493	650.4	0.706
66	Ghana <sup>a)</sup>	2	0.003	11.6	0.013
67	Greece <sup>a)</sup>	131.5	0.188	529.2	0.575
68	Grenada <sup>b)</sup>	58.3	0.083	316.5	0.344
69	Guatemala <sup>a)</sup>	15	0.021	64.7	0.070
70	Guinea <sup>a)</sup>	1.9	0.003	3.4	0.004
71	Guinea-Bissau <sup>a)</sup>	3	0.004	9.8	0.011
72	Guyana <sup>b)</sup>	136.1	0.195	91.5	0.099
73	Haiti	4.2	0.006	15.7	0.017

Country	Persons on line	Index	Tel lines per	Index	
Alphabetically	per 1000 pers		1000 persons		
74	Honduras	6.4	0.009	48	0.052
75	Hungary	118.7	0.170	361.2	0.392
76	Iceland <sup>a) b)</sup>	698	0.999	663.9	0.721
77	India	6.7	0.010	39.8	0.043
78	Indonesia	19.3	0.028	36	0.039
79	Iran (I.R.)	6.3	0.009	199.5	0.217
80	Iraq	0	0.000	29	0.031
81	Ireland <sup>a)</sup>	337.2	0.482	484.5	0.526
82	Israel	171.2	0.245	467.2	0.507
83	Italy	333.7	0.477	486.2	0.528
84	Jamaica <sup>a)</sup>	37.3	0.053	204.7	0.222
85	Japan <sup>a)</sup>	372	0.532	585.8	0.636
86	Jordan	39.9	0.057	127.6	0.139
87	Kazakhstan <sup>a)</sup>	6	0.009	120.5	0.131
88	Kenya	16.1	0.023	10.3	0.011
89	Kiribati <sup>a) b)</sup>	10.9	0.016	42.1	0.046
90	Kuwait <sup>a)</sup>	94.7	0.135	207.7	0.226
91	Kyrgyzstan	2.1	0.003	77.5	0.084
92	Lao P.D.R.	1.7	0.002	11.2	0.012
93	Latvia	130.8	0.187	301.1	0.327
94	Lebanon	83.8	0.120	198.8	0.216
95	Lesotho	2.3	0.003	15.7	0.017
96	Liberia	0	0.000	2	0.002
97	Libya <sup>a)</sup>	2.4	0.003	109.3	0.119
98	Liechtenstein	0	0.000	583	0.633
99	Lithuania	82.3	0.118	270.5	0.294
100	Luxembourg <sup>a) b)</sup>	228.6	0.327	779.9	0.847
101	Madagascar <sup>a)</sup>	2.1	0.003	3.8	0.004
102	Malawi	3.3	0.005	7	0.008
103	Malaysia <sup>a)</sup>	251.5	0.360	197.9	0.215
104	Maldives <sup>b)</sup>	0.6	0.001	102.7	0.112
105	Mali <sup>a)</sup>	2.6	0.004	4.8	0.005
106	Malta <sup>b)</sup>	249.1	0.356	523.4	0.568
107	Marshall Islands <sup>a)</sup>	12.2	0.017	76.7	0.083
108	Mauritania	2.5	0.004	11.9	0.013
109	Mauritius	1.3	0.002	270.3	0.293
110	Mexico	33.8	0.048	146.7	0.159
111	Micronesia <sup>a) b)</sup>	15	0.021	86.7	0.094

Country	Persons on line	Index	Tel lines per	Index
Alphabetically	per 1000 pers		1000 persons	
112 Monaco <sup>b)</sup>	0	0.000	921	1.000
113 Mongolia <sup>a)</sup>	14.8	0.021	51.8	0.056
114 Morocco	12.8	0.018	38	0.041
115 Mozambique <sup>a)</sup>	0.8	0.001	5.1	0.006
116 Myanmar <sup>a)</sup>	0.2	0.000	6.1	0.007
117 Namibia <sup>a)</sup>	24.7	0.035	64.3	0.070
118 Nauru	0	0.000	160	0.174
119 Nepal	2.3	0.003	14.1	0.015
120 Netherlands <sup>a)</sup>	542.5	0.776	621.1	0.674
121 New Zealand	460.6	0.659	448.1	0.487
122 Nicaragua	4.2	0.006	32	0.035
123 Niger <sup>a)</sup>	1.1	0.002	1.9	0.002
124 Nigeria	0.8	0.001	5.8	0.006
125 Norway	544	0.778	729.8	0.792
126 Oman <sup>a)</sup>	44.2	0.063	89.7	0.097
127 Pakistan	8.5	0.012	24.8	0.027
128 Palau	0	0.000	0	0.000
129 Panama <sup>a)</sup>	16	0.023	129.9	0.141
130 Papua New Guinea	27.4	0.039	11.7	0.013
131 Paraguay	3.6	0.005	47.3	0.051
132 Peru <sup>a)</sup>	107.3	0.154	77.5	0.084
133 Philippines	24.6	0.035	41.7	0.045
134 Poland <sup>a)</sup>	165.7	0.237	295.1	0.320
135 Portugal	343.7	0.492	419	0.455
136 Qatar <sup>b)</sup>	97.5	0.139	289.4	0.314
137 Republic of Korea	464	0.664	488.6	0.531
138 Republic of Moldova	3.4	0.005	146	0.159
139 Romania <sup>a)</sup>	44.8	0.064	183.8	0.200
140 Russia	124.2	0.178	242.2	0.263
141 Rwanda <sup>a) c)</sup>	2.7	0.004	2.7	0.003
142 St. Kitts and Nevis <sup>b)</sup>	51.5	0.074	500	0.543
143 St. Lucia <sup>b)</sup>	0	0.000	317	0.344
144 St. Vincent & the Grenadines <sup>a) b)</sup>	30.3	0.043	226.8	0.246
145 Samoa <sup>b)</sup>	16.8	0.024	57	0.062
146 San Marino <sup>b)</sup>	0	0.000	763	0.828
147 S. Tomé & Príncipe <sup>a) b)</sup>	0	0.000	36.3	0.039
148 Saudi Arabia <sup>a)</sup>	25	0.036	144.8	0.157
149 Senegal	9.4	0.013	22.9	0.025

Country	Persons on line		Tel lines per	
Alphabetically	per 1000 pers	Index	1000 persons	Index
150 Serbia and Montenegro <sup>b)</sup>	0	0.000	232.6	0.253
151 Seychelles <sup>a) b)</sup>	112.4	0.161	261.1	0.283
152 Sierra Leone <sup>a)</sup>	3.8	0.005	4.6	0.005
153 Singapore	493	0.705	463.6	0.503
154 Slovakia	129.4	0.185	260.8	0.283
155 Slovenia	311.3	0.445	406.5	0.441
156 Solomon Islands <sup>b)</sup>	17	0.024	14.9	0.016
157 Somalia	0	0.000	3	0.003
158 South Africa	70.3	0.101	107.7	0.117
159 Spain	184.3	0.264	459.8	0.499
160 Sri Lanka	6.3	0.009	46.6	0.051
161 Sudan	1.5	0.002	20.6	0.022
162 Suriname <sup>a) b)</sup>	33.2	0.047	175.8	0.191
163 Swaziland	12.5	0.018	34	0.037
164 Sweden	699	1.000	720.2	0.782
165 Switzerland	468.2	0.670	732.7	0.796
166 Syria <sup>a)</sup>	3.5	0.005	103	0.112
167 Tajikistan	0.3	0.000	36.5	0.040
168 Thailand <sup>a) b)</sup>	19.6	0.028	98.7	0.107
169 The former Yugoslav Republic of Macedonia <sup>a)</sup>	0	0.000	263.5	0.286
170 Timor-Leste	0	0.000	0	0.000
171 Togo	9.5	0.014	10.9	0.012
172 Tonga <sup>b)</sup>	9.8	0.014	113.1	0.123
173 Trinidad & Tobago	103.1	0.147	249.8	0.271
174 Tunisia	40.8	0.058	122.3	0.133
175 Turkey	37.1	0.053	281.2	0.305
176 Turkmenistan <sup>a)</sup>	0.4	0.001	80.2	0.087
177 Tuvalu <sup>b)</sup>	0	0.000	65	0.071
178 Uganda	2.4	0.003	2.2	0.002
179 Ukraine <sup>a)</sup>	15.4	0.022	212.1	0.230
180 United Arab Emirates	367.9	0.526	341.8	0.371
181 United Kingdom <sup>a) b)</sup>	553.2	0.791	587.4	0.638
182 United Rep. Of Tanzania	8.1	0.012	4.4	0.005
183 United States	597.5	0.855	658.9	0.715
184 Uruguay	136.1	0.195	279.6	0.304
185 Uzbekistan <sup>a)</sup>	5.9	0.008	66.6	0.072
186 Vanuatu <sup>a) b)</sup>	15.8	0.023	33.6	0.036

Country Alphabetically	Persons online per 1000 pers	Index	Tel lines per 1000 persons	Index
187 Venezuela	53.5	0.077	112.3	0.122
188 Viet Nam	4.9	0.007	68.5	0.074
189 Yemen <sup>a)</sup>	0.9	0.001	22.4	0.024
190 Zambia	2.5	0.004	8.3	0.009
191 Zimbabwe	8.8	0.013	24.7	0.027

Sources: Percentage of Pop. On line Web address:

[http://www.nua.com/surveys/how\\_many\\_online/africa.html](http://www.nua.com/surveys/how_many_online/africa.html)

Telephone data from International Telecommunication Union,

Web address: [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/main01.pdf](http://www.itu.int/ITU-D/ict/statistics/at_glance/main01.pdf)

Note: a) All data is for the 2001 unless otherwise noted.

Note: b) TV sets per 1000 persons data is for 1999

c) Data for Rwanda for 1994 from

[http://portal.unesco.org/uis/TEMPLATE/html/CultAndCom/TableIV\\_14\\_Africa.html](http://portal.unesco.org/uis/TEMPLATE/html/CultAndCom/TableIV_14_Africa.html)

Table 6

## Telecommunication indicators 2003 — III

Country	Mobile subscribers		TV sets	
	per 1000 persons	Index	per 1000 persons	Index
1 Afghanistan	0	0	14	0.016
2 Albania	198.5	0.196	123	0.141
3 Algeria <sup>a)</sup>	9.6	0.009	110	0.126
4 Andorra <sup>a) b)</sup>	301.8	0.298	440	0.503
5 Angola <sup>b)</sup>	9.3	0.009	15	0.017
6 Antigua & Barbuda <sup>a) b)</sup>	322.9	0.319	493	0.563
7 Argentina	177.6	0.175	293	0.335
8 Armenia <sup>a)</sup>	11.7	0.012	244	0.279
9 Australia	639.7	0.631	738	0.843
10 Austria <sup>a)</sup>	828.5	0.818	526	0.601
11 Azerbaijan	106.8	0.105	259	0.296
12 Bahamas <sup>b)</sup>	390.3	0.385	243	0.278
13 Bahrain	583.3	0.576	419	0.479
14 Bangladesh	8.1	0.008	7	0.008
15 Barbados <sup>a) b)</sup>	198	0.195	290	0.331
16 Belarus	46.9	0.046	342	0.391
17 Belgium	786.3	0.776	541	0.618
18 Belize <sup>b)</sup>	207.5	0.205	183	0.209
19 Benin <sup>a)</sup>	19.4	0.019	45	0.051
20 Bhutan <sup>b)</sup>	0	0.000	6	0.007
21 Bolivia	104.6	0.103	119	0.136
22 Bosnia & Herzegovina	91.7	0.090	111	0.127
23 Botswana <sup>a)</sup>	241.3	0.238	25	0.029
24 Brazil	200.6	0.198	343	0.392
25 Brunei Darussalam <sup>a) b)</sup>	400.6	0.395	637	0.728
26 Bulgaria	191.2	0.189	449	0.513
27 Burkina Faso <sup>a)</sup>	6.4	0.006	12	0.014
28 Burundi <sup>a)</sup>	4.5	0.004	30	0.034
29 Cambodia <sup>a)</sup>	16.6	0.016	8	0.009
30 Cameroon <sup>a)</sup>	35.7	0.035	34	0.039
31 Canada	377.2	0.372	715	0.817
32 Cape Verde	97.8	0.097	0	0.000
33 Central African Rep. <sup>a)</sup>	2.9	0.003	6	0.007
34 Chad	4.3	0.004	1	0.001
35 Chile	428.3	0.423	242	0.277

Country		Mobile subscribers per 1000 persons		TV sets per 1000 persons	
			Index		Index
36	China	160.9	0.159	293	0.335
37	Colombia	106.2	0.105	282	0.322
38	Comoros	0	0.000	0	0.000
39	Congo	67.4	0.067	13	0.015
40	Costa Rica	127.5	0.126	231	0.264
41	Côte d'Ivoire	62.3	0.061	60	0.069
42	Croatia	470.3	0.464	293	0.335
43	Cuba*	0.8	0.001	250	0.286
44	Cyprus <sup>b)</sup>	597	0.589	154	0.176
45	Czech Republic <sup>a)</sup>	848.8	0.838	508	0.581
46	D.P.R. Korea	0	0.000	54	0.062
47	D.R. Congo <sup>a)</sup>	2.9	0.003	2	0.002
48	Denmark	833.3	0.822	807	0.922
49	Djibouti <sup>b)</sup>	22.9	0.023	48	0.055
50	Dominica <sup>b)</sup>	119.9	0.118	232	0.265
51	Dominican Rep. <sup>a)</sup>	146.5	0.145	97	0.111
52	Ecuador	120.6	0.119	218	0.249
53	Egypt <sup>a)</sup>	67.2	0.066	189	0.216
54	El Salvador	137.6	0.136	201	0.230
55	Equatorial Guinea	55.3	0.055	0	0.000
56	Eritrea	0	0.000	26	0.030
57	Estonia	650.2	0.642	591	0.675
58	Ethiopia	0.7	0.001	6	0.007
59	Fiji <sup>a) b)</sup>	107.8	0.106	110	0.126
60	Finland	845	0.834	692	0.791
61	France	647	0.638	628	0.718
62	Gabon <sup>a)</sup>	204.5	0.202	326	0.373
63	Gambia <sup>a)</sup>	41.2	0.041	3	0.003
64	Georgia	102.1	0.101	474	0.542
65	Germany	716.7	0.707	586	0.670
66	Ghana <sup>a)</sup>	9.3	0.009	118	0.135
67	Greece <sup>a)</sup>	838.6	0.828	488	0.558
68	Grenada <sup>b)</sup>	71.3	0.070	376	0.430
69	Guatemala <sup>a)</sup>	97	0.096	61	0.070
70	Guinea <sup>a)</sup>	7.3	0.007	44	0.050
71	Guinea-Bissau <sup>a)</sup>	0	0.000	0	0.000
72	Guyana <sup>b)</sup>	99.3	0.098	70	0.080
73	Haiti	16.9	0.017	5	0.006



Country	Mobile subscribers		TV sets	
	per 1000 persons	Index	per 1000 persons	Index
74 Honduras	48.6	0.048	96	0.110
75 Hungary	646.4	0.638	437	0.499
76 Iceland <sup>a) b)</sup>	902.8	0.891	505	0.577
77 India	12.2	0.012	78	0.089
78 Indonesia	55.2	0.054	149	0.170
79 Iran (I.R.)	32.3	0.032	163	0.186
80 Iraq	0	0.000	83	0.095
81 Ireland <sup>a)</sup>	755.3	0.745	399	0.456
82 Israel	954.5	0.942	335	0.383
83 Italy	926.5	0.914	494	0.565
84 Jamaica <sup>a)</sup>	244.3	0.241	194	0.222
85 Japan <sup>a)</sup>	621.1	0.613	725	0.829
86 Jordan	167.1	0.165	84	0.096
87 Kazakhstan <sup>a)</sup>	36.2	0.036	241	0.275
88 Kenya	41.5	0.041	25	0.029
89 Kiribati <sup>a) b)</sup>	5.8	0.006	23	0.026
90 Kuwait <sup>a)</sup>	385.9	0.381	486	0.555
91 Kyrgyzstan	10.4	0.010	49	0.056
92 Lao P.D.R.	10	0.010	10	0.011
93 Latvia	393.8	0.389	789	0.902
94 Lebanon	227	0.224	335	0.383
95 Lesotho	42.5	0.042	16	0.018
96 Liberia	0	0.000	25	0.029
97 Libya <sup>a)</sup>	9	0.009	137	0.157
98 Liechtenstein	0	0.000	0	0.000
99 Lithuania	471.6	0.465	422	0.482
100 Luxembourg <sup>a) b)</sup>	1013.4	1.000	599	0.685
101 Madagascar <sup>a)</sup>	9.5	0.009	24	0.027
102 Malawi	8.2	0.008	3	0.003
103 Malaysia <sup>a)</sup>	348.8	0.344	168	0.192
104 Maldives <sup>b)</sup>	150.2	0.148	38	0.043
105 Mali <sup>a)</sup>	4.4	0.004	14	0.016
106 Malta <sup>b)</sup>	699.1	0.690	549	0.627
107 Marshall Islands <sup>a)</sup>	9	0.009	0	0.000
108 Mauritania	91.6	0.090	96	0.110
109 Mauritius	289.1	0.285	268	0.306
110 Mexico	254.5	0.251	283	0.323
111 Micronesia <sup>a) b)</sup>	0	0.000	20	0.023

Country	Mobile subscribers		TV sets	
	per 1000 persons	Index	per 1000 persons	Index
112 Monaco <sup>b)</sup>	0	0.000	758	0.866
113 Mongolia <sup>a)</sup>	81.2	0.080	65	0.074
114 Morocco	209.1	0.206	166	0.190
115 Mozambique <sup>a)</sup>	8.6	0.008	5	0.006
116 Myanmar <sup>a)</sup>	0.3	0.000	7	0.008
117 Namibia <sup>a)</sup>	80	0.079	38	0.043
118 Nauru	0	0.000	0	0.000
119 Nepal	0.9	0.001	7	0.008
120 Netherlands <sup>a)</sup>	722.4	0.713	538	0.615
121 New Zealand	618.4	0.610	522	0.597
122 Nicaragua	44.7	0.044	69	0.079
123 Niger <sup>a)</sup>	0.2	0.000	37	0.042
124 Nigeria	13.6	0.013	68	0.078
125 Norway	843.3	0.832	669	0.765
126 Oman <sup>a)</sup>	123.7	0.122	563	0.643
127 Pakistan	5.6	0.006	131	0.150
128 Palau	0	0.000	0	0.000
129 Panama <sup>a)</sup>	164	0.162	194	0.222
130 Papua New Guinea	2	0.002	17	0.019
131 Paraguay	288.3	0.284	218	0.249
132 Peru <sup>a)</sup>	86	0.085	148	0.169
133 Philippines	177.7	0.175	144	0.165
134 Poland <sup>a)</sup>	362.6	0.358	400	0.457
135 Portugal	819.4	0.809	630	0.720
136 Qatar <sup>b)</sup>	437.2	0.431	866	0.990
137 Republic of Korea	679.5	0.671	364	0.416
138 Republic of Moldova	30.2	0.030	297	0.339
139 Romania <sup>a)</sup>	171.7	0.169	381	0.435
140 Russia	120.5	0.119	421	0.481
141 Rwanda <sup>a) c)</sup>	11	0.011	0.1	0.000
142 St. Kitts and Nevis <sup>b)</sup>	106.4	0.105	256	0.293
143 St. Lucia <sup>b)</sup>	0	0.000	368	0.421
144 St. Vincent & the Grenadines <sup>a) b)</sup>	65.1	0.064	230	0.263
145 Samoa <sup>b)</sup>	17.8	0.018	56	0.064
146 San Marino <sup>b)</sup>	0	0.000	875	1.000
147 S. Tomé & Príncipe <sup>a) b)</sup>	0	0.000	229	0.262
148 Saudi Arabia <sup>a)</sup>	113.3	0.112	264	0.302
149 Senegal	56.5	0.056	40	0.046

Country	Mobile subscribers		TV sets	
	per 1000 persons	Index	per 1000 persons	Index
150 Serbia and Montenegro <sup>b)</sup>	256.6	0.253	277	0.317
151 Seychelles <sup>a) b)</sup>	538.7	0.532	214	0.245
152 Sierra Leone <sup>a)</sup>	5.5	0.005	13	0.015
153 Singapore	791.4	0.781	304	0.347
154 Slovakia	543.6	0.536	407	0.465
155 Slovenia	835.2	0.824	368	0.421
156 Solomon Islands <sup>b)</sup>	2.2	0.002	16	0.018
157 Somalia	0	0.000	14	0.016
158 South Africa	265.8	0.262	127	0.145
159 Spain	822.8	0.812	591	0.675
160 Sri Lanka	49.2	0.049	111	0.127
161 Sudan	5.9	0.006	273	0.312
162 Suriname <sup>a) b)</sup>	197.7	0.195	241	0.275
163 Swaziland	61	0.060	119	0.136
164 Sweden	885	0.873	574	0.656
165 Switzerland	787.5	0.777	548	0.626
166 Syria <sup>a)</sup>	12	0.012	67	0.077
167 Tajikistan	2.1	0.002	326	0.373
168 Thailand <sup>a) b)</sup>	260.4	0.257	274	0.313
169 The former Yugoslav Republic of Macedonia <sup>a)</sup>	109.2	0.108	282	0.322
170 Timor-Leste	0	0.000	0	0.000
171 Togo	25.8	0.025	32	0.037
172 Tonga <sup>b)</sup>	33.9	0.033	61	0.070
173 Trinidad & Tobago	278.1	0.274	340	0.389
174 Tunisia	40.1	0.040	198	0.226
175 Turkey	347.5	0.343	449	0.513
176 Turkmenistan <sup>a)</sup>	1.7	0.002	196	0.224
177 Tuvalu <sup>b)</sup>	0	0.000	9	0.010
178 Uganda	15.9	0.016	27	0.031
179 Ukraine <sup>a)</sup>	44.2	0.044	456	0.521
180 United Arab Emirates	758.8	0.749	292	0.334
181 United Kingdom <sup>a) b)</sup>	844.9	0.834	661	0.755
182 United Rep. Of Tanzania	12.7	0.013	20	0.023
183 United States	488.1	0.482	854	0.976
184 Uruguay	154.7	0.153	530	0.606
185 Uzbekistan <sup>a)</sup>	7.4	0.007	276	0.315
186 Vanuatu <sup>a) b)</sup>	1.7	0.002	12	0.014

Country	Mobile subscribers		TV sets	
	per 1000 persons	Index	per 1000 persons	Index
187 Venezuela	255.5	0.252	185	0.211
188 Viet Nam	23.4	0.023	185	0.211
189 Yemen <sup>a)</sup>	8.1	0.008	283	0.323
190 Zambia	13	0.013	134	0.153
191 Zimbabwe	30.3	0.030	30	0.034

Sources: Telephone data from International Telecommunication Union,  
Web address: [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/main01.pdf](http://www.itu.int/ITU-D/ict/statistics/at_glance/main01.pdf)

Mobile phones data from International Telecommunication Union,  
Web address: [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/cellular01.pdf](http://www.itu.int/ITU-D/ict/statistics/at_glance/cellular01.pdf)

Note: a) All data is for the 2001 unless otherwise noted.

b) TV sets per 1000 persons data is for 1999

c) Data for Rwanda for 1994 from  
[http://portal.unesco.org/uis/TEMPLATE/html/CultAndCom/TableIV\\_14\\_Africa.html](http://portal.unesco.org/uis/TEMPLATE/html/CultAndCom/TableIV_14_Africa.html)

Table 7

## Technology Infrastructure Index 2003

Country	Technological Infrastructure Index 2003	Country	Technological Infrastructure Index 2003		
Alphabetical order		Sorted in descending order			
1	Afghanistan	0.002	1	Sweden	0.846
2	Albania	0.049	2	Iceland <sup>a) b)</sup>	0.809
3	Algeria <sup>a)</sup>	0.036	3	United States	0.801
4	Andorra <sup>a) b)</sup>	0.309	4	Denmark	0.787
5	Angola <sup>b)</sup>	0.007	5	Norway	0.774
6	Antigua & Barbuda <sup>a) b)</sup>	0.244	6	Netherlands <sup>a)</sup>	0.710
7	Argentina	0.187	7	Australia	0.691
8	Armenia <sup>a)</sup>	0.070	8	Finland	0.691
9	Australia	0.691	9	Switzerland	0.682
10	Austria <sup>a)</sup>	0.591	10	Republic of Korea	0.675
11	Azerbaijan	0.080	11	Canada	0.675
12	Bahamas <sup>b)</sup>	0.193	12	United Kingdom <sup>a) b)</sup>	0.675
13	Bahrain	0.347	13	Singapore	0.666
14	Bangladesh	0.004	14	Luxembourg <sup>a) b)</sup>	0.660
15	Barbados <sup>a) b)</sup>	0.206	15	San Marino <sup>b)</sup>	0.640
16	Belarus	0.147	16	Germany	0.632
17	Belgium	0.514	17	Japan <sup>a)</sup>	0.626
18	Belize <sup>b)</sup>	0.153	18	New Zealand	0.613
19	Benin <sup>a)</sup>	0.012	19	Austria <sup>a)</sup>	0.591
20	Bhutan <sup>b)</sup>	0.015	20	France	0.529
21	Bolivia	0.055	21	Ireland <sup>a)</sup>	0.514
22	Bosnia & Herzegovina	0.059	22	Belgium	0.514
23	Botswana <sup>a)</sup>	0.067	23	Slovenia	0.513
24	Brazil	0.174	24	Italy	0.499
25	Brunei Darussalam <sup>a) b)</sup>	0.250	25	Estonia	0.498
26	Bulgaria	0.207	26	Portugal	0.490
27	Burkina Faso <sup>a)</sup>	0.005	27	Malta <sup>b)</sup>	0.460
28	Burundi <sup>a)</sup>	0.005	28	Israel	0.447
29	Cambodia <sup>a)</sup>	0.004	29	United Arab Emirates	0.444
30	Cameroon <sup>a)</sup>	0.012	30	Monaco <sup>b)</sup>	0.440
31	Canada	0.675	31	Cyprus <sup>b)</sup>	0.429
32	Cape Verde	0.086	32	Spain	0.409
33	Central African Rep. <sup>a)</sup>	0.002	33	Czech Republic <sup>a)</sup>	0.386
34	Chad	0.002	34	Greece <sup>a)</sup>	0.372

Country		Technological Infrastructure Index 2003	Country		Technological Infrastructure Index 2003
Alphabetical order			Sorted in descending order		
35	Chile	0.275	35	Bahrain	0.347
36	China	0.116	36	Latvia	0.321
37	Colombia	0.118	37	Liechtenstein	0.319
38	Comoros	0.007	38	Andorra <sup>a) b)</sup>	0.309
39	Congo	0.011	39	Qatar <sup>b)</sup>	0.308
40	Costa Rica	0.198	40	Hungary	0.307
41	Côte d'Ivoire	0.021	41	Slovakia	0.294
42	Croatia	0.291	42	Malaysia <sup>a)</sup>	0.292
43	Cuba	0.051	43	Croatia	0.291
44	Cyprus <sup>b)</sup>	0.429	44	Chile	0.275
45	Czech Republic <sup>a)</sup>	0.386	45	Brunei Darussalam <sup>a) b)</sup>	0.250
46	D.P.R. Korea	0.011	46	St. Kitts and Nevis <sup>b)</sup>	0.248
47	D.R. Congo <sup>a)</sup>	0.001	47	Poland <sup>a)</sup>	0.248
48	Denmark	0.787	48	Antigua & Barbuda <sup>a) b)</sup>	0.244
49	Djibouti <sup>b)</sup>	0.019	49	Uruguay	0.244
50	Dominica <sup>b)</sup>	0.190	50	Seychelles <sup>a) b)</sup>	0.241
51	Dominican Rep. <sup>a)</sup>	0.067	51	Kuwait <sup>a)</sup>	0.226
52	Ecuador	0.089	52	Lithuania	0.218
53	Egypt <sup>a)</sup>	0.060	53	Bulgaria	0.207
54	El Salvador	0.082	54	Barbados <sup>a) b)</sup>	0.206
55	Equatorial Guinea	0.013	55	Trinidad & Tobago	0.206
56	Eritrea	0.007	56	Costa Rica	0.198
57	Estonia	0.498	57	Mauritius	0.196
58	Ethiopia	0.003	58	Bahamas <sup>b)</sup>	0.193
59	Fiji <sup>a) b)</sup>	0.074	59	Turkey	0.192
60	Finland	0.691	60	Dominica <sup>b)</sup>	0.190
61	France	0.529	61	Grenada <sup>b)</sup>	0.190
62	Gabon <sup>a)</sup>	0.077	62	Lebanon	0.188
63	Gambia <sup>a)</sup>	0.021	63	Argentina	0.187
64	Georgia	0.115	64	Russia	0.185
65	Germany	0.632	65	St. Lucia <sup>b)</sup>	0.176
66	Ghana <sup>a)</sup>	0.019	66	Brazil	0.174
67	Greece <sup>a)</sup>	0.372	67	Belize <sup>b)</sup>	0.153
68	Grenada <sup>b)</sup>	0.190	68	Romania <sup>a)</sup>	0.149
69	Guatemala <sup>a)</sup>	0.044	69	Belarus	0.147
70	Guinea <sup>a)</sup>	0.009	70	St. Vincent & the Grenadines <sup>a) b)</sup>	0.136
71	Guinea-Bissau <sup>a)</sup>	0.004	71	Serbia and Montenegro <sup>b)</sup>	0.134

Country	Technological Infrastructure Index 2003	Country	Technological Infrastructure Index 2003		
Alphabetical order		Sorted in descending order			
72	Guyana <sup>b)</sup>	0.119	72	Oman <sup>a)</sup>	0.132
73	Haiti	0.012	73	Mexico	0.132
74	Honduras	0.041	74	Jamaica <sup>a)</sup>	0.127
75	Hungary	0.307	75	South Africa	0.126
76	Iceland <sup>a) b)</sup>	0.809	76	Republic of Moldova	0.120
77	India	0.027	77	Guyana <sup>b)</sup>	0.119
78	Indonesia	0.045	78	Saudi Arabia <sup>a)</sup>	0.119
79	Iran (I.R.)	0.090	79	Colombia	0.118
80	Iraq	0.016	80	Suriname <sup>a) b)</sup>	0.118
81	Ireland <sup>a)</sup>	0.514	81	Thailand <sup>a) b)</sup>	0.117
82	Israel	0.447	82	Venezuela	0.117
83	Italy	0.499	83	China	0.116
84	Jamaica <sup>a)</sup>	0.127	84	Ukraine <sup>a)</sup>	0.116
85	Japan <sup>a)</sup>	0.626	85	Georgia	0.115
86	Jordan	0.089	86	The former Yugoslav Republic of Macedonia <sup>a)</sup>	0.111
87	Kazakhstan <sup>a)</sup>	0.062	87	Peru	0.111
88	Kenya	0.021	88	Panama <sup>a)</sup>	0.095
89	Kiribati <sup>a) b)</sup>	0.026	89	Iran (I.R.)	0.090
90	Kuwait <sup>a)</sup>	0.226	90	Ecuador	0.089
91	Kyrgyzstan	0.037	91	Jordan	0.089
92	Lao P.D.R.	0.007	92	Tunisia	0.089
93	Latvia	0.321	93	Cape Verde	0.086
94	Lebanon	0.188	94	El Salvador	0.082
95	Lesotho	0.011	95	Azerbaijan	0.080
96	Liberia	0.003	96	Gabon <sup>a)</sup>	0.077
97	Libya <sup>a)</sup>	0.043	97	Paraguay	0.074
98	Liechtenstein	0.319	98	Fiji <sup>a) b)</sup>	0.074
99	Lithuania	0.218	99	Armenia <sup>a)</sup>	0.070
100	Luxembourg <sup>a) b)</sup>	0.660	100	Maldives <sup>b)</sup>	0.069
101	Madagascar <sup>a)</sup>	0.007	101	Dominican Rep. <sup>a)</sup>	0.067
102	Malawi	0.005	102	Botswana <sup>a)</sup>	0.067
103	Malaysia <sup>a)</sup>	0.292	103	Philippines	0.064
104	Maldives <sup>b)</sup>	0.069	104	Kazakhstan <sup>a)</sup>	0.062
105	Mali <sup>a)</sup>	0.005	105	Morocco	0.061
106	Malta <sup>b)</sup>	0.460	106	Egypt <sup>a)</sup>	0.060
107	Marshall Islands <sup>a)</sup>	0.040	107	Bosnia & Herzegovina	0.059

Country Technological Infrastructure Index 2003			Country Technological Infrastructure Index 2003		
Alphabetical order			Sorted in descending order		
108	Mauritania	0.027	108	Namibia <sup>a)</sup>	0.056
109	Mauritius	0.196	109	Bolivia	0.055
110	Mexico	0.132	110	S. Tomé & Príncipe <sup>a) b)</sup>	0.054
111	Micronesia <sup>a) b)</sup>	0.040	111	Uzbekistan <sup>a)</sup>	0.053
112	Monaco <sup>b)</sup>	0.440	112	Cuba	0.051
113	Mongolia <sup>a)</sup>	0.040	113	Tonga <sup>b)</sup>	0.051
114	Morocco	0.061	114	Albania	0.049
115	Mozambique <sup>a)</sup>	0.004	115	Viet Nam	0.048
116	Myanmar <sup>a)</sup>	0.003	116	Tajikistan	0.046
117	Namibia <sup>a)</sup>	0.056	117	Indonesia	0.045
118	Nauru	0.035	118	Guatemala <sup>a)</sup>	0.044
119	Nepal	0.006	119	Libya <sup>a)</sup>	0.043
120	Netherlands <sup>a)</sup>	0.710	120	Zimbabwe	0.042
121	New Zealand	0.613	121	Turkmenistan <sup>a)</sup>	0.042
122	Nicaragua	0.033	122	Honduras	0.041
123	Niger <sup>a)</sup>	0.005	123	Marshall Islands <sup>a)</sup>	0.040
124	Nigeria	0.013	124	Mongolia <sup>a)</sup>	0.040
125	Norway	0.774	125	Sudan	0.040
126	Oman <sup>a)</sup>	0.132	126	Micronesia <sup>a) b)</sup>	0.040
127	Pakistan	0.026	127	Yemen <sup>a)</sup>	0.039
128	Palau	0.000	128	Syria <sup>a)</sup>	0.038
129	Panama <sup>a)</sup>	0.095	129	Kyrgyzstan	0.037
130	Papua New Guinea	0.031	130	Swaziland	0.037
131	Paraguay	0.074	131	Sri Lanka	0.036
132	Peru	0.111	132	Algeria <sup>a)</sup>	0.036
133	Philippines	0.064	133	Nauru	0.035
134	Poland <sup>a)</sup>	0.248	134	Samoa <sup>b)</sup>	0.034
135	Portugal	0.490	135	Togo	0.034
136	Qatar <sup>b)</sup>	0.308	136	Nicaragua	0.033
137	Republic of Korea	0.675	137	Papua New Guinea	0.031
138	Republic of Moldova	0.120	138	India	0.027
139	Romania <sup>a)</sup>	0.149	139	Mauritania	0.027
140	Russia	0.185	140	Senegal	0.027
141	Rwanda <sup>a) c)</sup>	0.003	141	Kiribati <sup>a) b)</sup>	0.026
142	St. Kitts and Nevis <sup>b)</sup>	0.248	142	Pakistan	0.026
143	St. Lucia <sup>b)</sup>	0.176	143	Zambia	0.023
144	St. Vincent & the Grenadines <sup>a) b)</sup>	0.136	144	Vanuatu <sup>a) b)</sup>	0.023



Country	Technological Infrastructure Index 2003	Country	Technological Infrastructure Index 2003		
Alphabetical order		Sorted in descending order			
145	Samoa <sup>b)</sup>	0.034	145	Solomon Islands <sup>b)</sup>	0.022
146	San Marino <sup>b)</sup>	0.640	146	Côte d'Ivoire	0.021
147	S. Tomé & Príncipe <sup>a) b)</sup>	0.054	147	Gambia <sup>a)</sup>	0.021
148	Saudi Arabia <sup>a)</sup>	0.119	148	Kenya	0.021
149	Senegal	0.027	149	Djibouti <sup>b)</sup>	0.019
150	Serbia and Montenegro <sup>b)</sup>	0.134	150	Ghana <sup>a)</sup>	0.019
151	Seychelles <sup>a) b)</sup>	0.241	151	Iraq	0.016
152	Sierra Leone <sup>a)</sup>	0.005	152	Bhutan <sup>b)</sup>	0.015
153	Singapore	0.666	153	Tuvalu <sup>b)</sup>	0.015
154	Slovakia	0.294	154	Equatorial Guinea	0.013
155	Slovenia	0.513	155	Nigeria	0.013
156	Solomon Islands <sup>b)</sup>	0.022	156	Haiti	0.012
157	Somalia	0.002	157	Benin <sup>a)</sup>	0.012
158	South Africa	0.126	158	Cameroon <sup>a)</sup>	0.012
159	Spain	0.409	159	Lesotho	0.011
160	Sri Lanka	0.036	160	Congo	0.011
161	Sudan	0.040	161	D.R.P.R. Korea (north)	0.011
162	Suriname <sup>a) b)</sup>	0.118	162	Guinea <sup>a)</sup>	0.009
163	Swaziland	0.037	163	United Rep. Of Tanzania	0.009
164	Sweden	0.846	164	Uganda	0.007
165	Switzerland	0.682	165	Angola <sup>b)</sup>	0.007
166	Syria <sup>a)</sup>	0.038	166	Eritrea	0.007
167	Tajikistan	0.046	167	Comoros	0.007
168	Thailand <sup>a) b)</sup>	0.117	168	Lao P.D.R.	0.007
169	The former Yugoslav Republic of Macedonia <sup>a)</sup>	0.111	169	Madagascar <sup>a)</sup>	0.007
170	Timor-Leste	0.000	170	Nepal	0.006
171	Togo	0.034	171	Niger <sup>a)</sup>	0.005
172	Tonga <sup>b)</sup>	0.051	172	Sierra Leone <sup>a)</sup>	0.005
173	Trinidad & Tobago	0.206	173	Mali <sup>a)</sup>	0.005
174	Tunisia	0.089	174	Burundi <sup>a)</sup>	0.005
175	Turkey	0.192	175	Malawi	0.005
176	Turkmenistan <sup>a)</sup>	0.042	176	Burkina Faso <sup>a)</sup>	0.005
177	Tuvalu <sup>b)</sup>	0.015	177	Cambodia <sup>a)</sup>	0.004
178	Uganda	0.007	178	Bangladesh	0.004
179	Ukraine <sup>a)</sup>	0.116	179	Mozambique <sup>a)</sup>	0.004
180	United Arab Emirates	0.444	180	Guinea-Bissau <sup>a)</sup>	0.004

Country Technological Infrastructure Index 2003			Country Technological Infrastructure Index 2003		
Alphabetical order			Sorted in descending order		
181	United Kingdom <sup>a) b)</sup>	0.675	181	Liberia	0.003
182	United Rep. Of Tanzania*	0.009	182	Rwanda <sup>a) c)</sup>	0.003
183	United States	0.801	183	Ethiopia	0.003
184	Uruguay	0.244	184	Myanmar <sup>a)</sup>	0.003
185	Uzbekistan <sup>a)</sup>	0.053	185	Central African Rep. <sup>a)</sup>	0.002
186	Vanuatu <sup>a) b)</sup>	0.023	186	Somalia	0.002
187	Venezuela	0.117	187	Afghanistan	0.002
188	Viet Nam	0.048	188	Chad	0.002
189	Yemen <sup>a)</sup>	0.039	189	D.R. Congo <sup>a)</sup>	0.001
190	Zambia	0.023	190	Timor-Leste	0.000
191	Zimbabwe	0.042	191	Palau	0.000

Sources: Percentage of Pop. On line Web address: [http://www.nua.com/surveys/how\\_many\\_online/africa.html](http://www.nua.com/surveys/how_many_online/africa.html)

Telephone data from International Telecommunication Union, Web address: [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/main01.pdf](http://www.itu.int/ITU-D/ict/statistics/at_glance/main01.pdf)

Mobile phones data from International Telecommunication Union, Web address: [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/cellular01.pdf](http://www.itu.int/ITU-D/ict/statistics/at_glance/cellular01.pdf)

Internet and Estimated PCs data from International Telecommunication Union, Web address: [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/Internet01.pdf](http://www.itu.int/ITU-D/ict/statistics/at_glance/Internet01.pdf)

TV sets/1000 persons from World Bank World Development Report 2002; except those marked b) for which data is for 1999 from UN Statistics Division [http://unstats.un.org/unsd/cdb/cdb\\_simple\\_data\\_extract.asp](http://unstats.un.org/unsd/cdb/cdb_simple_data_extract.asp)

Note: a) All data is for the 2001 unless otherwise noted.

b) TV sets per 1000 persons data is for 1999

c) Data for Rwanda for 1994 from [http://portal.unesco.org/uis/TEMPLATE/html/CultAndCom/TableIV\\_14\\_Africa.html](http://portal.unesco.org/uis/TEMPLATE/html/CultAndCom/TableIV_14_Africa.html)

Table 8

## Human Capital Index

Human Cap Index			Human Cap Index		
1	Afghanistan <sup>a)</sup>	0.268	19	Colombia	0.85
	Albania	0.80	18	Comoros	0.49
2	Algeria	0.69	20	Congo	0.75
1	Andorra	0.000	19	Costa Rica	0.86
3	Angola	0.36	21	Côte d'Ivoire	0.44
2	Antigua and Barbuda	0.81	20	Croatia	0.88
4	Argentina	0.92	22	Cuba	0.90
3	Armenia	0.92	21	Cyprus	0.88
5	Australia	0.99	23	Czech Republic	0.89
4	Austria	0.96	22	D.P.R. Korea	0.000
6	Azerbaijan	0.88	24	Congo, Dem. Rep. of the	0.51
5	Bahamas	0.88	23	Denmark	0.98
7	Bahrain	0.85	25	Djibouti	0.50
6	Bangladesh	0.40	24	Dominica	0.86
8	Barbados	0.91	26	Dominican Republic	0.80
7	Belarus	0.92	25	Ecuador	0.87
9	Belgium	0.99	27	Egypt	0.62
8	Belize	0.86	26	El Salvador	0.74
10	Benin	0.40	28	Equatorial Guinea	0.77
9	Bhutan	0.42	27	Eritrea	0.46
11	Bolivia	0.80	29	Estonia	0.95
10	Bosnia & Herzegovina	0.737	28	Ethiopia	0.35
12	Botswana	0.75	30	Fiji	0.90
11	Brazil	0.83	29	Finland	0.99
13	Brunei Darussalam	0.86	31	France	0.97
12	Bulgaria	0.90	30	Gabon	0.76
14	Burkina Faso	0.23	32	Gambia	0.39
13	Burundi	0.38	31	Georgia	0.89
15	Cambodia	0.66	33	Germany	0.97
14	Cameroon	0.65	32	Ghana	0.62
16	Canada	0.98	34	Greece	0.92
15	Cape Verde	0.75	33	Grenada	0.85
17	Central African Republic	0.39	35	Guatemala	0.62
16	Chad	0.39	34	Guinea	0.37
18	Chile	0.90	36	Guinea-Bissau	0.38
17	China	0.80	35	Guyana	0.88

Human Cap Index			Human Cap Index		
37	Haiti	0.50	55	Monaco	0.000
36	Honduras	0.70	57	Mongolia	0.85
38	Hungary	0.93	56	Morocco	0.50
37	Iceland	0.96	58	Mozambique	0.37
39	India	0.57	57	Myanmar	0.75
38	Indonesia	0.79	59	Namibia	0.81
40	Iran, Islamic Rep. of	0.75	58	Nauru <sup>a)</sup>	0.810
39	Iraq	0.930	60	Nepal	0.48
41	Ireland	0.96	59	Netherlands	0.99
40	Israel	0.91	61	New Zealand	0.99
42	Italy	0.94	60	Nicaragua	0.65
41	Jamaica	0.79	62	Niger	0.16
43	Japan	0.93	61	Nigeria	0.58
42	Jordan	0.78	63	Norway	0.98
44	Kazakhstan	0.91	62	Oman	0.67
43	Kenya	0.72	64	Pakistan	0.42
45	Kiribati	0.000	63	Palau	0.000
44	Kuwait	0.74	65	Panama	0.86
46	Kyrgyzstan	0.87	64	Papua New Guinea	0.55
45	Lao People's Dem. Rep.	0.52	66	Paraguay	0.83
47	Latvia	0.93	65	Peru	0.87
46	Lebanon	0.83	67	Philippines	0.91
48	Lesotho	0.76	66	Poland	0.94
47	Liberia	0.000	68	Portugal	0.94
49	Libya	0.84	67	Qatar	0.79
48	Liechtenstein	0	69	Republic of Korea	0.95
50	Lithuania	0.93	68	Republic of Moldova <sup>a)</sup>	0.900
49	Luxembourg	0.90	70	Romania	0.88
51	Madagascar	0.59	69	Russia	0.92
50	Malawi	0.65	71	Rwanda	0.58
52	Malaysia	0.80	70	Saint Kitts and Nevis	0.89
51	Maldives	0.90	72	Saint Lucia	0.83
53	Mali	0.37	71	Saint Vincent and the Grenadines	0.79
52	Malta	0.88	73	Samoa	0.75
54	Marshall Islands	0.000	72	San Marino	0.000
53	Mauritania	0.40	74	Sao Tome and Principe	0.75
55	Mauritius	0.77	73	Saudi Arabia	0.71
54	Mexico	0.84	75	Senegal	0.37
56	Micronesia	1.422	74	Serbia & Montenegro <sup>a)</sup>	0.694

Human Cap Index			Human Cap Index		
76	Seychelles	0.83	86	Togo	0.59
75	Sierra Leone	0.33	85	Tonga <sup>a)</sup>	0.920
77	Singapore	0.87	87	Trinidad and Tobago	0.84
76	Slovakia	0.91	86	Tunisia	0.72
78	Slovenia	0.94	88	Turkey	0.77
77	Solomon Islands	0.68	87	Turkmenistan	0.92
79	Somalia <sup>a)</sup>	0.096	89	Tuvalu <sup>a)</sup>	1.030
78	South Africa	0.88	88	Uganda	0.60
80	Spain	0.97	90	Ukraine	0.92
79	Sri Lanka	0.84	89	United Arab Emirates	0.74
81	Sudan	0.50	91	United Kingdom	0.99
80	Suriname	0.90	90	United Rep. Of Tanzania	0.61
82	Swaziland	0.77	92	United States	0.98
81	Sweden	0.99	91	Uruguay	0.92
83	Switzerland	0.94	93	Uzbekistan	0.91
82	Syria	0.71	92	Vanuatu	0.35
84	Tajikistan	0.88	94	Venezuela	0.83
83	Thailand	0.84	93	Viet Nam	0.84
85	The former Yugoslav Republic of Macedonia <sup>a)</sup>	0.860	95	Yemen	0.48
84	Timor-Leste	0.000	94	Zambia	0.68
			96	Zimbabwe	0.81

Source: UNDP HDR 2002.

[http://hdr.undp.org/reports/global/2002/en/indicator/excel/hdr\\_2002\\_table\\_1.xls](http://hdr.undp.org/reports/global/2002/en/indicator/excel/hdr_2002_table_1.xls)

Note: a) Data are from national sources.

Table 9

## E-Participation Index 2003

		E-Participation				E-Participation	
		e information	e consultation	e decision making		Index	
		I.	II.	III.	Total Pts.		
Rank	Country						
1	1	United Kingdom	17	26	15	58	1.000
2	2	United States	16	25	15	56	0.966
3	3	Canada	12	26	10	48	0.828
4	3	Chile	14	21	13	48	0.828
5	4	Estonia	13	19	12	44	0.759
6	5	New Zealand	14	17	9	40	0.690
7	6	Philippines	13	19	7	39	0.672
8	7	France	13	19	5	37	0.638
9	7	Netherlands	13	20	4	37	0.638
10	8	Australia	13	16	7	36	0.621
11	9	Mexico	10	17	8	35	0.603
12	10	Argentina	10	15	9	34	0.586
13	10	Ireland	14	13	7	34	0.586
14	10	Sweden	13	15	6	34	0.586
15	11	Germany	13	13	5	31	0.534
16	12	Republic of Korea	10	13	5	28	0.483
17	13	Italy	10	10	7	27	0.466
18	13	Singapore	11	10	6	27	0.466
19	13	Switzerland	11	7	9	27	0.466
20	14	Denmark	9	10	7	26	0.448
21	14	Finland	9	9	8	26	0.448
22	14	Portugal	11	12	3	26	0.448
23	15	Japan	10	10	5	25	0.431
24	16	Bolivia	7	12	4	23	0.397
25	16	Dominican Republic	7	13	3	23	0.397
26	16	Israel	8	8	7	23	0.397
27	16	Poland	9	11	3	23	0.397
28	16	Ukraine	9	9	5	23	0.397
29	16	Brazil	11	9	2	22	0.379
30	15	Mongolia	7	10	5	22	0.379
31	17	Panama	8	8	5	21	0.362
32	18	Malta	11	5	4	20	0.345

E-Participation						E-Participation	
		e information	e consultation	e decision making		Index	
		I.	II.	III.	Total Pts.		
Rank	Country						
33	18	Norway	8	6	6	20	0.345
34	19	El Salvador	6	9	4	19	0.328
35	20	Nicaragua	6	7	5	18	0.310
36	20	Slovenia	8	6	4	18	0.310
37	21	Belgium	6	6	5	17	0.293
38	21	Hungary	5	8	4	17	0.293
39	21	Luxembourg	7	8	2	17	0.293
40	21	Sri Lanka	5	9	3	17	0.293
41	22	India	6	4	5	15	0.259
42	22	Indonesia	6	7	2	15	0.259
43	22	Oman	3	6	6	15	0.259
44	22	South Africa	5	6	4	15	0.259
45	23	Croatia	4	9	1	14	0.241
46	23	Czech Republic	4	7	3	14	0.241
47	24	Paraguay	8	3	2	13	0.224
48	25	Nigeria	4	6	2	12	0.207
49	25	Trinidad and Tobago	5	4	3	12	0.207
50	25	Turkey	4	4	4	12	0.207
51	26	Madagascar	6	4	1	11	0.190
52	26	The former Yugoslav Republic of Macedonia	2	6	3	11	0.190
53	27	Jordan	5	3	2	10	0.172
54	27	Slovakia	6	2	2	10	0.172
55	27	United Arab Emirates	5	3	2	10	0.172
56	28	Colombia	8	0	1	9	0.155
57	28	Jamaica	5	1	3	9	0.155
58	28	Pakistan	3	2	4	9	0.155
59	28	Spain	6	1	2	9	0.155
60	28	Venezuela	4	4	1	9	0.155
61	29	Austria	5	1	2	8	0.138
62	29	Bulgaria	5	2	1	8	0.138
63	29	Cambodia	3	4	1	8	0.138
64	29	Morocco	6	1	1	8	0.138
65	29	Nepal	3	2	3	8	0.138
66	29	Peru	6	0	2	8	0.138

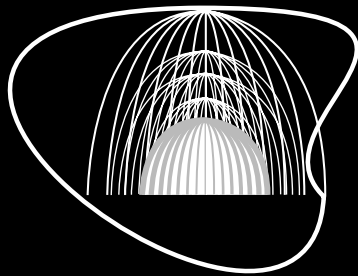
E-Participation							E-Participation
			e information	e consultation	e decision making		Index
			I.	II.	III.	Total Pts.	
Rank	Country						
67	30	Malaysia	6	0	1	7	0.121
68	30	Sudan	2	5	0	7	0.121
69	31	Kazakhstan	1	4	1	6	0.103
70	31	Lithuania	3	1	2	6	0.103
71	31	Thailand	3	1	2	6	0.103
72	32	Comoros	2	3	0	5	0.086
73	32	Costa Rica	4	0	1	5	0.086
74	32	Greece	2	2	1	5	0.086
75	32	Guatemala	4	0	1	5	0.086
76	32	Iceland	4	0	1	5	0.086
77	32	Latvia	3	0	2	5	0.086
78	32	Lebanon	2	1	2	5	0.086
79	32	Mauritius	5	0	0	5	0.086
80	32	Mozambique	3	1	1	5	0.086
81	32	Saint Lucia	4	0	1	5	0.086
82	32	Senegal	3	2	0	5	0.086
83	32	Timor-Leste	4	0	1	5	0.086
84	33	Angola	3	0	1	4	0.069
85	33	Cape Verde	3	0	1	4	0.069
86	33	China	3	0	1	4	0.069
87	33	Ecuador	3	0	1	4	0.069
88	33	Liechtenstein	1	1	2	4	0.069
89	33	Seychelles	3	0	1	4	0.069
90	33	Uruguay	3	0	1	4	0.069
91	34	Algeria	3	0	0	3	0.052
92	34	Armenia	1	2	0	3	0.052
93	34	Bahamas	3	0	0	3	0.052
94	34	Bahrain	2	0	1	3	0.052
95	34	Cameroon	1	1	1	3	0.052
96	34	Cuba	2	0	1	3	0.052
97	34	Fiji	2	0	1	3	0.052
98	34	Guyana	2	0	1	3	0.052
99	34	Romania	1	1	1	3	0.052
100	34	Russian Federation	3	0	0	3	0.052
101	34	Zimbabwe	1	1	1	3	0.052



E-Participation						E-Participation	
		e information	e consultation	e decision making		Index	
		I.	II.	III.	Total Pts.		
Rank	Country						
102	35	Afghanistan	2	0	0	2	0.034
103	35	Andorra	1	0	1	2	0.034
104	35	Barbados	2	0	0	2	0.034
105	35	Belarus	2	0	0	2	0.034
106	35	Benin	2	0	0	2	0.034
107	35	Bosnia and Herzegovina	1	0	1	2	0.034
108	35	Ethiopia	2	0	0	2	0.034
109	35	Ghana	2	0	0	2	0.034
110	35	Honduras	1	0	1	2	0.034
111	35	Iran (Islamic Republic of)	2	0	0	2	0.034
112	35	Kyrgyzstan	1	1	0	2	0.034
113	35	Lesotho	2	0	0	2	0.034
114	35	Maldives	2	0	0	2	0.034
115	35	Mauritania	1	0	1	2	0.034
116	35	Republic of Moldova	1	0	1	2	0.034
117	35	Saint Kitts and Nevis	1	0	1	2	0.034
118	35	Saudi Arabia	2	0	0	2	0.034
119	35	Serbia and Montenegro	2	0	0	2	0.034
120	35	Uganda	1	1	0	2	0.034
121	35	Vanuatu	2	0	0	2	0.034
122	35	Yemen	1	0	1	2	0.034
123	36	Albania	1	0	0	1	0.017
124	36	Azerbaijan	1	0	0	1	0.017
125	36	Bangladesh	1	0	0	1	0.017
126	36	Belize	1	0	0	1	0.017
127	36	Bhutan	1	0	0	1	0.017
128	36	Botswana	1	0	0	1	0.017
129	36	Brunei Darussalam	1	0	0	1	0.017
130	36	Cyprus	1	0	0	1	0.017
131	36	Egypt	1	0	0	1	0.017
132	36	Gambia	1	0	0	1	0.017
133	36	Georgia	1	0	0	1	0.017
134	36	Kuwait	1	0	0	1	0.017
135	36	Malawi	1	0	0	1	0.017
136	36	Mali	1	0	0	1	0.017

		E-Participation				E-Participation	
		e information	e consultation	e decision making		Index	
		I.	II.	III.	Total Pts.		
Rank	Country						
137	36	Marshall Islands	1	0	0	1	0.017
138	36	Micronesia (Federated States of)	1	0	0	1	0.017
139	36	Monaco	1	0	0	1	0.017
140	36	Namibia	1	0	0	1	0.017
141	36	Nauru	1	0	0	1	0.017
142	36	Rwanda	1	0	0	1	0.017
143	36	Samoa	1	0	0	1	0.017
144	36	San Marino	1	0	0	1	0.017
145	36	Togo	1	0	0	1	0.017
146	36	Tunisia	1	0	0	1	0.017
147	36	Turkmenistan	1	0	0	1	0.017
148	36	United Republic of Tanzania	1	0	0	1	0.017
149	36	Viet Nam	1	0	0	1	0.017
150	36	Zambia	0	0	1	1	0.017
151	37	Antigua and Barbuda	0	0	0	0	0.000
152	37	Burkina Faso	0	0	0	0	0.000
153	37	Burundi	0	0	0	0	0.000
154	37	Central African Republic	0	0	0	0	0.000
155	37	Chad	0	0	0	0	0.000
156	37	Congo	0	0	0	0	0.000
157	37	Côte d'Ivoire	0	0	0	0	0.000
158	37	Democratic People's Republic of Korea	0	0	0	0	0.000
159	37	Democratic Republic of the Congo	0	0	0	0	0.000
160	37	Djibouti	0	0	0	0	0.000
161	37	Dominica	0	0	0	0	0.000
162	37	Equatorial Guinea	0	0	0	0	0.000
163	37	Eritrea	0	0	0	0	0.000
164	37	Gabon	0	0	0	0	0.000
165	37	Grenada	0	0	0	0	0.000
166	37	Guinea	0	0	0	0	0.000
167	37	Guinea-Bissau	0	0	0	0	0.000
168	37	Haiti	0	0	0	0	0.000

E-Participation						E-Participation
		e information	e consultation	e decision making		Index
		I.	II.	III.	Total Pts.	
Rank	Country					
169	37	Iraq	0	0	0	0.000
170	37	Kenya	0	0	0	0.000
171	37	Kiribati	0	0	0	0.000
172	37	Lao People's Democratic Republic	0	0	0	0.000
173	37	Liberia	0	0	0	0.000
174	37	Libyan Arab Jamahiriya	0	0	0	0.000
175	37	Myanmar	0	0	0	0.000
176	37	Niger	0	0	0	0.000
177	37	Palau	0	0	0	0.000
178	37	Papua New Guinea	0	0	0	0.000
179	37	Qatar	0	0	0	0.000
180	37	Saint Vincent and the Grenadines	0	0	0	0.000
181	37	Sao Tome and Principe	0	0	0	0.000
182	37	Sierra Leone	0	0	0	0.000
183	37	Solomon Islands	0	0	0	0.000
184	37	Somalia	0	0	0	0.000
185	37	Suriname	0	0	0	0.000
186	37	Swaziland	0	0	0	0.000
187	37	Syrian Arab Republic	0	0	0	0.000
188	37	Tajikistan	0	0	0	0.000
189	37	Tonga	0	0	0	0.000
190	37	Tuvalu	0	0	0	0.000
191	37	Uzbekistan	0	0	0	0.000



**ANNEX II:**  
**Technical Notes**

## A. Technical Notes on the Survey Methodology and Assessment

### a) Telecommunication Infrastructure Index

The Telecommunication Infrastructure Index 2003 is a composite weighted average of six primary indicators. These are: PCs/1000 persons; Internet users/1000 persons; Telephone lines/1000 persons; On-line population; Mobile phones/1000 persons; and TVs/1000 persons. Data for UN member states was taken primarily from the UN International Telecommunication Union (ITU) and UN Statistics Division, supplemented by the World Bank, and unless otherwise stated is for 2002. The data was standardized by constructing indices for each of the indicators as follows:

Based on the scores of the countries, a maximum and minimum value is selected for each of the six indicators. The country's relative performance is measured by a value between 0 and 1 based on the following:

Indicator value = (Actual value - Minimum value) / (Maximum value - Minimum value)

Constructing the Benchmark Indices		
Indicator (per 1000 persons)	Maximum value	Minimum value
PCs	760	0
Internet users	607.6	0
Telephone lines	921	0
On-line population	699	0
Mobile subscribers	1013.4	0
TVs	875	0

For example, for the Philippines, which has 21.7 PCs per 1000 persons, the PC index is 0.029

$$\text{PC index} = (21.7 - 0) / (760 - 0) = 0.029$$

Whereas governments can, and do, use other forms of ICT such as radio and TV to improve knowledge and service delivery to people, for purposes of e-government measurement, as defined here, the Survey deemed the prevalence of PCs, Internet users, telephone lines and on-line population to be of far greater significance than mobile phones and TVs at this point in e-government service delivery worldwide. Consequently, the Telecommunications Infrastructure Index was constructed as a composite measure which assigns a 20 per cent weight to the first three variables and 5 per cent to the remaining two.

Infrastructure Index = 1/5 (PC index) + 1/5 (Internet user index) + 1/5 (Telephone line index) + 1/5 (On-line population index) + 1/10 (Mobile user index) + 1/10 (TV index)

### b) Human Capital Index

Adult literacy is the percentage of people aged 15 years and above who can, with understanding, both read and write a short simple statement on their everyday life. Combined primary, secondary and tertiary gross enrolment ratio is the total number of students enrolled at the primary, secondary and tertiary level, regardless of age, as a percentage of the population of school age for that level.

For country X, with an adult literacy rate of 96.3 per cent and a combined gross enrolment ratio of 81.2 per cent in 2002, the education index would be: Adult literacy index = 0.963; Gross enrolment index = 0.812; Education index =  $\frac{2}{3}$  (Adult literacy index) +  $\frac{1}{3}$  (Gross enrolment index) =  $\frac{2}{3}$  (0.963) +  $\frac{1}{3}$  (0.812) = 0.913

## **B. A Note on Web Measure Survey Methodology**

One of the most basic decisions for the researchers when undertaking this survey was what site to review as the national government site for each of the countries. One would think that regardless of where a nation is in its e-government development, a priority would be to provide users a clear indication as to which of the potentially many government sites available was the “official” national government site - in a sense, the starting point for national users. Not only is this easy to do - a simple, clear statement at the chosen website is sufficient to start - but also an important step toward providing government information and services to people in a usable and easy-to-find manner. In many instances, however, this basic piece of information was missing and deciding which site was the official national site, or even if there were an official national site, was more problematic than expected. Further, attempting to use any of the available commercial or university government website resources proved to be not only frustrating but also highly unreliable. None of those checked were up-to-date, none provided any validation information, and in many instances, URLs provided for government sites were actually for commercial sites or other non-governmental sites.

Thus, the researchers first looked for a clearly identified official national government site, much as members of the public would do in their initial forays onto the Web for government information. The criteria included the following:

1. Is there a distinct national government site or portal? A growing number of countries have developed true national sites and/or portals that are clearly identified as the official national government site. For users, this makes it extremely easy to find and decide where they should start.
2. Is there a Presidential or Prime Minister’s site (whichever office heads the government of the country in question) that CLEARLY states that it is the national government site? A number of countries have integrated their government information and services into the Presidential/Prime Minister’s site and clearly indicated that it is the national government site. For example, the Ecuadoran national site, <http://www.presidencia.gov.ec/>, is the Presidential site but the homepage link and title banner used throughout the site clearly state “Gobierno Nacional de la Republic del Ecuador,” the National Government of the Republic of Ecuador.
3. Is there a site operated by another agency, ministry or other government body that is clearly identified as the national government site? The United Arab Emirates, for example, operates its National Gateway Site out of its Ministry of Finance and Industry. The site is clearly labelled the national government gateway, it is linked from other ministry sites as the national government gateway, and even the URL - <http://www.uae.gov.ae> - suggests a national government site.
4. If none of the above, is there a viable Presidential or Prime Minister’s site, even if it is not clearly identified as the national government site (and as long as it is not simply a press or publicity site)? In other words, does it include information about the national government and its services even if there is no clear statement or indication that it is indeed the official national government site?

If no site could be found that clearly met any of the above criteria, then the country received no points for the Emerging Presence section of the survey. However, the researchers then attempted to identify an alternate site to score for the remainder of the survey. In attempting to identify an appropriate alternative site, researchers:

1. Reviewed a Presidential or Prime Minister's site that had not reached the threshold for a true national government site.
2. Looked for a national assembly, parliament or other national legislative body, especially if it included national government services and information.
3. Looked for another official government site, such as a Ministry of Information site.
4. Looked for another government sponsored site at the national level, such as a Tourism Board or Embassy site, but only if it was verified to be promoting the national government and was providing some sort of national or contact information.

Most countries have engaged in the procedure of actually noting on their national site that it is their "Official" Government site, or Gateway to Government, or other such statement. A good example of creating and identifying a single government access point is the U.S. <http://FirstGov.gov> site, which clearly indicates that it is the "U.S. government's official web portal." This kind of clear presence is not limited to large, industrialized nations; the Madagascar national site includes on virtually every page, a statement in French and English welcoming the user to "...the Official Website of the Malagasy Government," and the introduction on the homepage from the Prime Minister begins, "Welcome to the Website of the Government of the Republic of Madagascar." (<http://www.madagascar.gov.mg/>)

These types of clear indications on national sites made the choice relatively easy for researchers. However, a number of countries have not yet clearly consolidated their government entry point into a single service that can be clearly distinguished. One such case is Norway, which has two "national" sites. The first is Odin, <http://odin.dep.no>, which claims to be the official "gateway to information," while the second site, <http://www.norge.no>, establishes itself as "a single gateway to the public sector." In this case, the latter site represents a two-year collaborative project among national, regional and local governments and organizations, and so the former site was reviewed to better insure consistency.

In general, in the case of two "competing" sites, one could be distinguished as "more official" than the other after close examination based on who in government provided the services listed, what the site was used for, the continuity of the site and how it guided its user. For example, Sweden's <http://www.sweden.se> says it is "the official gateway to Sweden" but it is hardly targeted toward the national user; it is aimed more at external visitors. Thus, the <http://www.regeringen.se/> site (<http://www.sweden.gov.se> in English) which simply and clearly says "The Swedish Government" was considered the prime national site.

Generally, the researchers were able to identify a reliable national government site. When they could not, the country received no points for Section I - Emerging Presence. For countries without a clear national site, researchers attempted to identify some site that could be legitimately scored for other national government information. Purely private sites were not included. In the final result, the few tourism or other sites that were scored

were deemed to provide some sort of national government information, as per the researchers' criteria.

### **C. E-Participation Index: A Note on Methodology**

Qualitative analysis by definition is subjective. In the absence of impact assessment analysis, which requires both time and effort, a qualitative assessment can be a useful tool in assessing the "quality" of information and services provided through an e-government initiative. It is useful in illustrating differences in on-line strategies and approaches, illuminating nuances in seemingly objective or quantitative results, and providing detail on the degree to which government services and information are provided on line. For these reasons, and ultimately to build a foundation for analysing in detail how governments interact with the people and encourage their input on line, we have included an "E-participation" Index to complement the quantitative data collected and analysed.

The E-participation Index is segmented into three sections: E-information, E-consultation, and E-decision making. These three are the qualitative equivalent of the quantitative web measure survey. Having identified through the quantitative review specific tools and information, such as explicit information/guidance on e-participation; access to and archives for government documents and databases; web-forums and formal on-line consultation systems; and a range of other features, E-participation scoring assesses "how relevant and useful these features were; and how well were they deployed by the government."

The variations among countries were enormous. Providing such an index to complement the raw data, therefore, is an important and valuable means of evaluating both the efforts of governments and the actual quality of the information and services provided.

Focusing primarily on the national site while also considering the ministry sites, the original reviewers - who often had spent many hours reviewing a country's collective sites - completed the E-participation section of the survey for each country they reviewed (with the help of native language speakers). The reviewers were then asked to go back and refine their scoring of the E-participation section after they had completed all of their sites. The e-participation scores were then normalized. Sites were compared to other, similar sites, and various sensitivity indexes were created from the quantitative data to help identify clear over- or under-scoring. Finally, "clusters" of sites that received the same or very close scores were reviewed and compared to each other so that any variations and/or similarities in scoring could be reasonably explained.

What emerged from this careful process serves as an indicator - admittedly an initial indicator, but a good one nevertheless - not only of what a country provides in terms of e-government, but how well it promotes e-government services, and the overall quality of e-government services and information provided.



## Notes

- <sup>1</sup> Chen, Shaohua and Ravallion, Martin, “How Did the World’s Poor Fare in the 1990s?”, The World Bank. <http://www.worldbank.org/research/povmonitor/pdfs/how%20did%20the%20world's%20poorest%20fare%20in%20the%2090s.pdf>
- <sup>2</sup> UN Millennium Development Indicators.
- <sup>3</sup> Illiteracy rates data from UNESCO. EFA *Global Monitoring Report 2002*. pages 208-212.
- <sup>4</sup> “Bridging the Digital Divide through Digital Governance”, Keynote Speech of Yoshio Utsumi, Secretary-General, International Telecommunication Union, to the Third Global Forum: Fostering Democracy & Development through E-government readiness, Naples, 2001. <http://www.itu.int/osg/sg/speeches/2001/09naples.html>
- <sup>5</sup> NUA Internet statistics. [http://www.nua.ie/surveys/how\\_many\\_online/index.html](http://www.nua.ie/surveys/how_many_online/index.html)
- <sup>6</sup> Synthesis Report on the CSTD Panels on Technology Development and Capacity-Building in a Digital Society. Report of the Secretary-General. E/CN.16/2003/2. 27 February 2003.
- <sup>7</sup> “Bridging the Digital Divide through Digital Governance”, Keynote Speech of Yoshio Utsumi, Secretary-General, International Telecommunication Union, to the Third Global Forum: Fostering Democracy & Development through E-government readiness, Naples, 2001. <http://www.itu.int/osg/sg/speeches/2001/09naples.html>
- <sup>8</sup> “Kofi Annan’s IT challenge to Silicon Valley”, Kofi Annan, 5 November, 2002, 4:00 AM PT. <http://news.com.com/2010-1069-964507.html?tag=lh>
- <sup>9</sup> <http://www.studera.nu/english/index.shtml>
- <sup>10</sup> See [www.teachnet.gov.uk](http://www.teachnet.gov.uk)
- <sup>11</sup> See [www.curriculum.edu.au](http://www.curriculum.edu.au)
- <sup>12</sup> See <http://www.nks.nhs.uk/>
- <sup>13</sup> <http://platsbanken.ams.se/>

- <sup>14</sup> The World Bank, "E-government Readiness: Colombia Case Studies", Colombia Government Portal. [http://www1.worldbank.org/publicsector/egov/colombiaportal\\_cs.htm](http://www1.worldbank.org/publicsector/egov/colombiaportal_cs.htm)
- <sup>15</sup> Ibid.
- <sup>16</sup> Ibid.
- <sup>17</sup> <http://www.unicttaskforce.org/about/principal.asp>
- <sup>18</sup> The World Bank, "E-government Readiness: Sri Lanka Case Study" <http://www1.worldbank.org/publicsector/egov/srilanka.htm>
- <sup>19</sup> <http://www.healthinternetwork.org/src/millennium.php>
- <sup>20</sup> *United Nations Millennium Declaration*, September 2000 <http://www.un.org/millennium/declaration/ares552e.htm>. See Para III.11.
- <sup>21</sup> Jerzy Szeremeta, "Benchmarking E-government Readiness: A Global Perspective", Keynote address to the International Congress on Government Online 2002, Canada, UN DPADM, Mimeo
- <sup>22</sup> *United Nations Millennium Declaration*, September 2000, <http://www.un.org/millennium/declaration/ares552e.htm>
- <sup>23</sup> Heeks, Richard, "Understanding E-Governance for Development" E-Government Working Paper Series No. 11. 2001. [http://www.man.ac.uk/idpm/idpm\\_dp.htm#ig](http://www.man.ac.uk/idpm/idpm_dp.htm#ig)
- <sup>24</sup> For a more detailed discussion of information (explicit knowledge) and knowledge (tacit knowledge) see Chapter II of Part I of the Report.
- <sup>25</sup> See also Introduction.
- <sup>26</sup> Zero=never; 1 = sometimes; 2 = frequently; 3 = mostly; and 4 = always
- <sup>27</sup> Iraq is included in the 18 countries; it had an on-line presence that was discontinued after early April, 2003 when the Survey assessment was undertaken.
- <sup>28</sup> Regional groupings are taken from the UN Statistical Division classification. See <http://unstats.un.org/unsd/methods/m49/m49regin.htm>
- <sup>29</sup> Nua Internet. [http://www.nua.ie/surveys/how\\_many\\_online/index.html](http://www.nua.ie/surveys/how_many_online/index.html)
- <sup>30</sup> "Benchmarking E-government: A Global Perspective", United Nations and ASPA, 2002, p. 35.
- <sup>31</sup> "Sweden Official Policy On Citizen-Centric E Series" <http://governments-online.org/projects/portals/files/Sweden.rtf>.
- <sup>32</sup> Ibid.
- <sup>33</sup> "Digital Governance, Building and Sustaining Democratic and Accountable Governance Structures" using ICT, <http://www.cddc.vt.edu/digitalgov/gov-cases.html>
- <sup>34</sup> "E-Government: Considerations For Arab States", UNDP, April 2001, pp. 8 -11
- <sup>35</sup> Source: The African Internet - A Status Report, July 2002. <http://www3.sn.apc.org/africa/afstat.htm>
- <sup>36</sup> Source: The African Internet - A Status Report, July 2002 <http://www3.sn.apc.org/africa/afstat.htm>
- <sup>37</sup> Iraq had an on-line presence before April 2003. However its website was not on-line during the period of web measurement for this Survey, from April to May 2003.
- <sup>38</sup> See <http://www.ghana.gov.gh/governing/egovernance/index.php>
- <sup>39</sup> "Digital Opportunities for All: Meeting the Challenge. Report of the Digital Opportunity Task Force (DOT Force) including a proposal for a Genoa Plan of Action", 11 May 2001. Foreword. P 3.