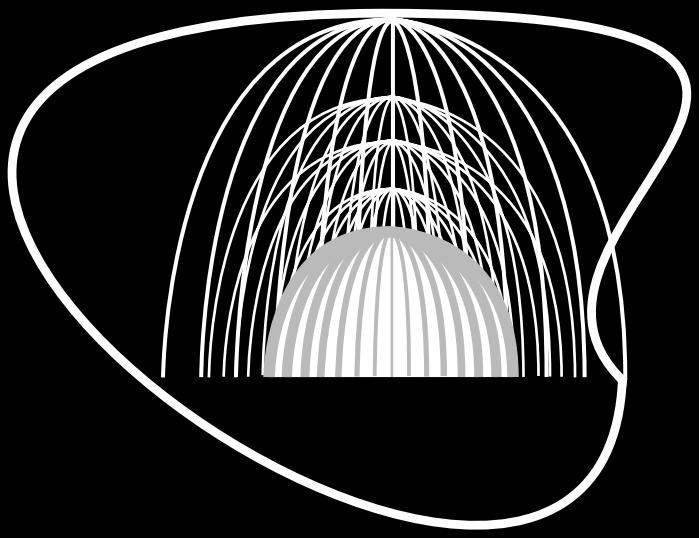

# UN Global E-government Survey 2003

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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[1]; around 20 per cent do not have access to safe water and sanitation[12]; and 57 out of 191 member states of the UN have populations where one in five can neither read nor write.[13]

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

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...[6] 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.[7] 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...."[8] 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.[9] An U.K. government endeavour has made it possible for teachers to access all curricula on line.[10] 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.[11] 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.[12] 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.[13]

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.[14] 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.[15] 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.[16]

## 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." [17]

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.[18] 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/millenium.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...."[19]

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...."[20] 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...."[21] One commitment they made was to "ensure that the benefits of new technologies, especially information and communication technologies, are available to all."[22]

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 reseracher points out, "the new model (of governance) brings information systems (IS) to the heart of reform...." [23]

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 websites 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**

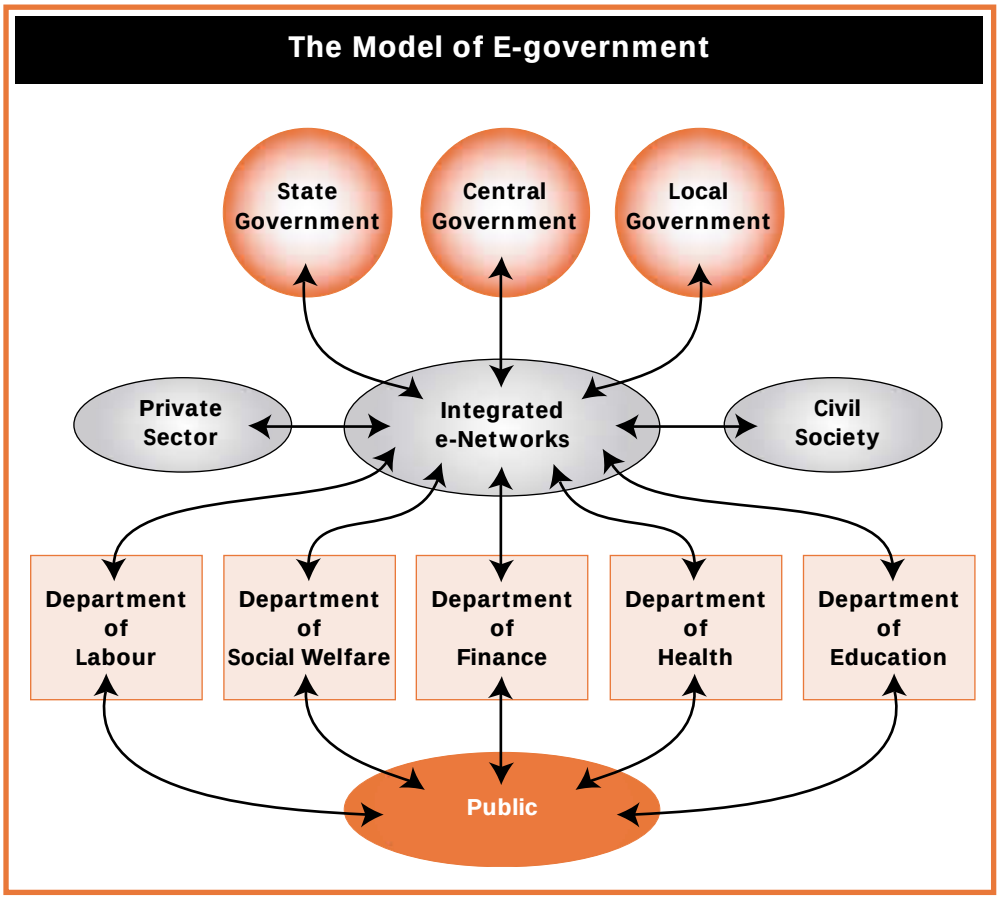
Government-to-Government (G2G) involves sharing data and conducting electronic exchanges between governmental actors. This involves both intra- and inter-agency exchanges at the national level, as well as exchanges among the national, provincial and local levels.

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)[24] 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

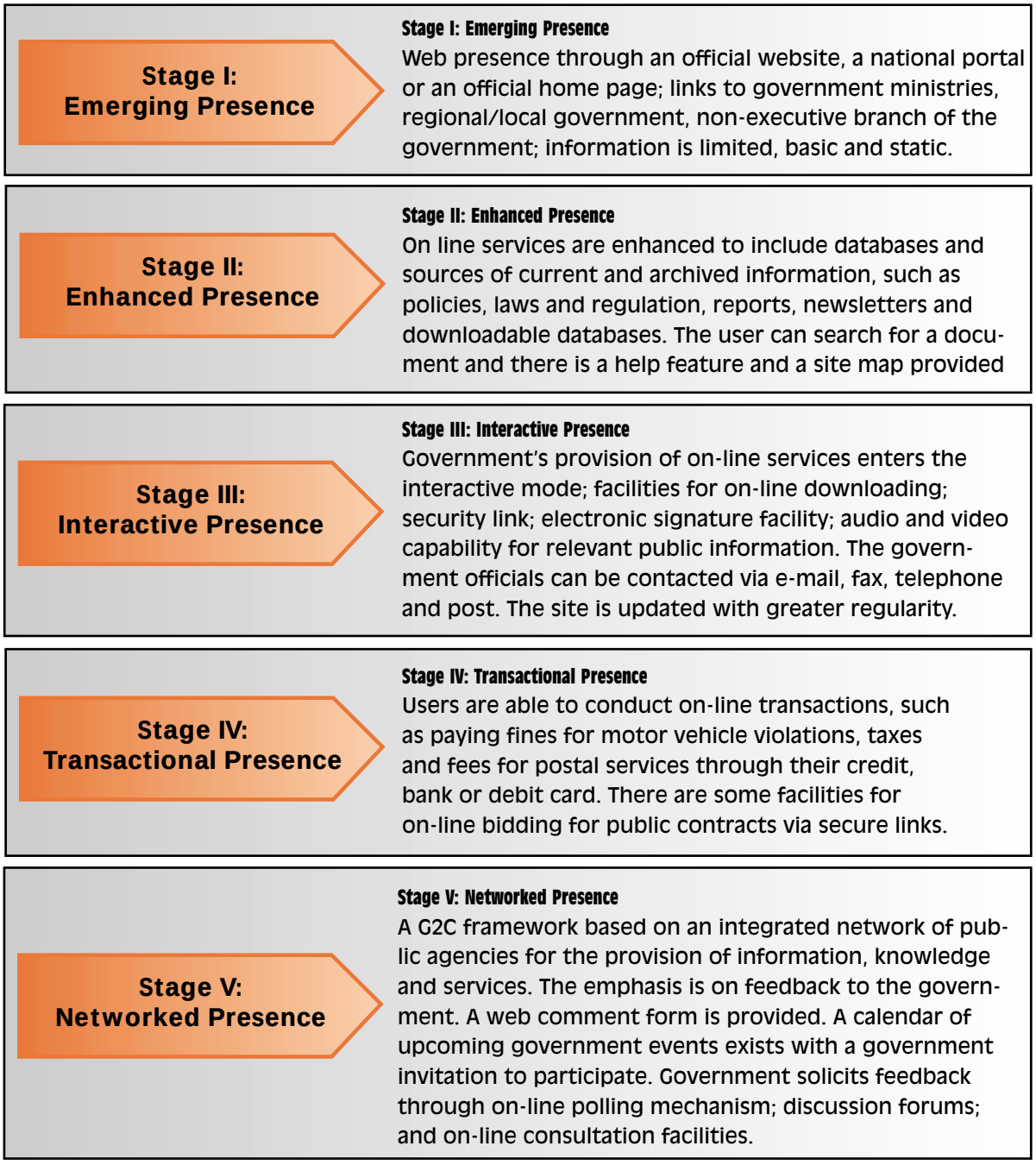
The E-Government Readiness Index is a composite index comprising the Web Measure Index, the Telecommunication Infrastructure Index and the Human Capital Index.

#### 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 contacts 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 online 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...."[25]

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.[26] 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. [27]

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. [28]

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 S**weden (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".

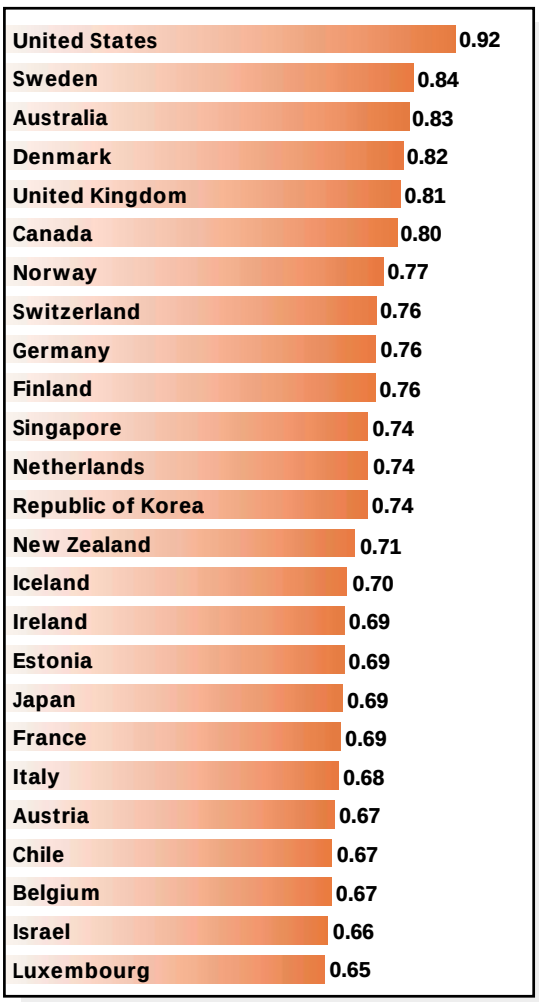
The **United States** is the current global leader with the highest index of 0.927, followed by **Sweden (0.84), Australia (0.831), Denmark (0.820),** the **United Kingdom (0.814)** and **Canada (0.806)**. Among the developing countries, **Singapore (0.746)**, the **Republic of Korea (0.744), Estonia (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**

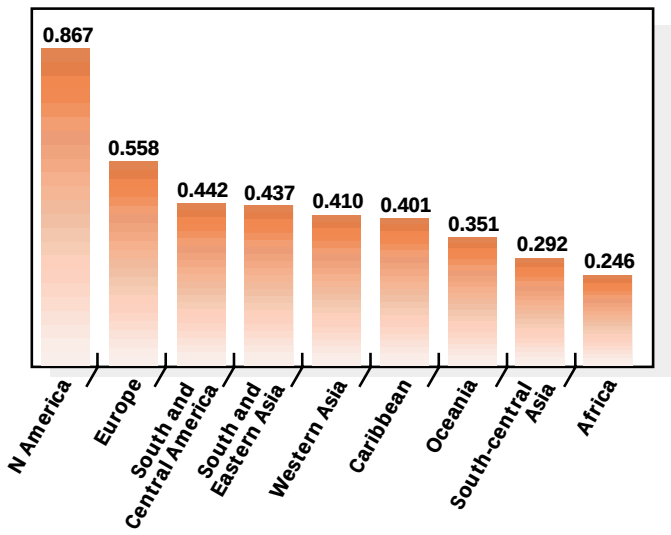
**Global E-government Readiness Rankings 2003: Top 25 Countries**

| | 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.




Graph 3.2.




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[29] 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.

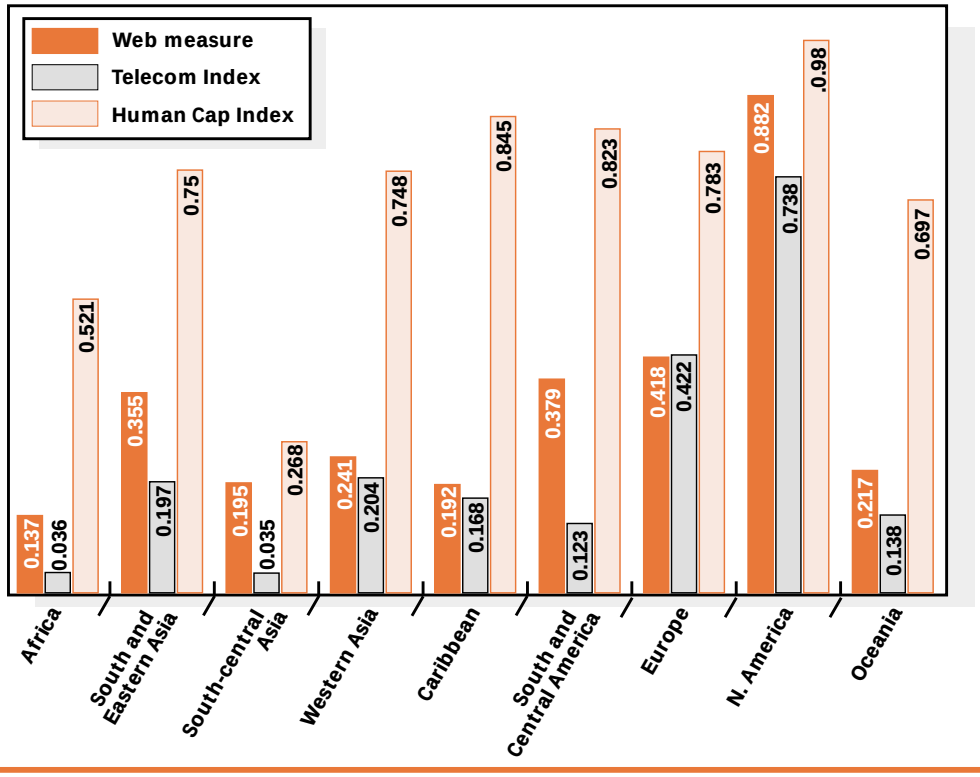
**Table 3.2**

**Regional Indices, 2003**[i]

| | 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**




i 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.[30]

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 then 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.

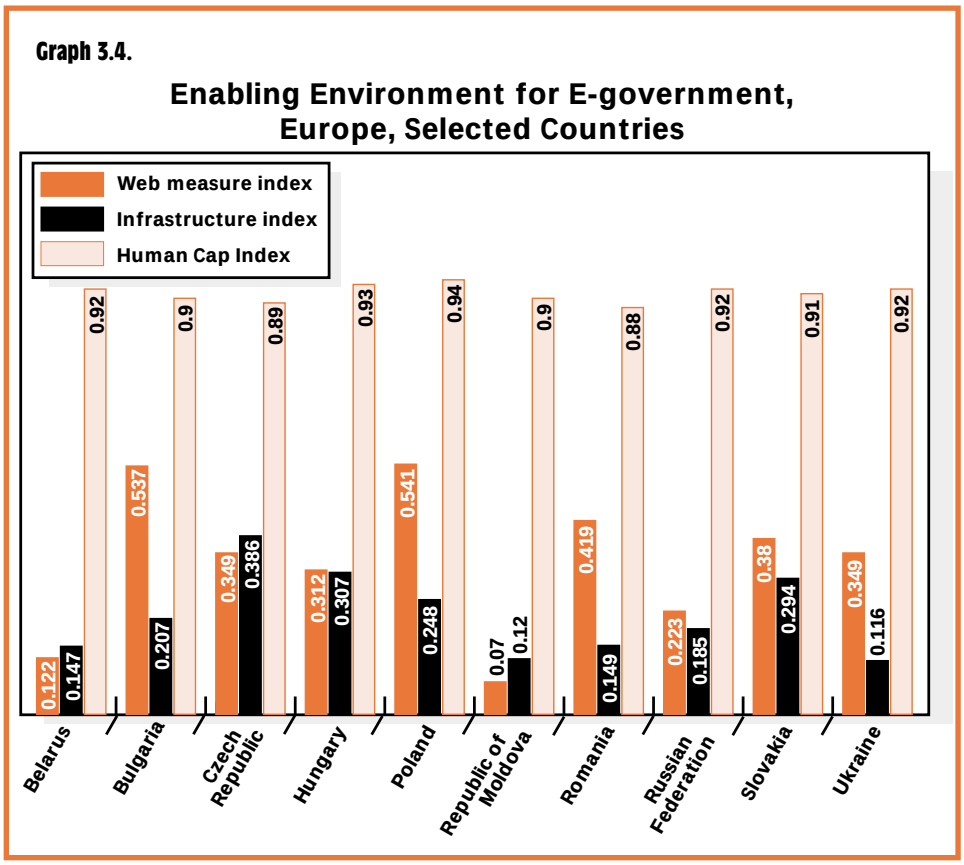
**Table 3.5**

**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.[31] 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.[32]

Graph 3.4.




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://wwww.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, open.korea.go.kr, 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**

| | E-government Readiness Index |
|---|---|
| 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 |
| **Average** | **0.437** |

**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 |

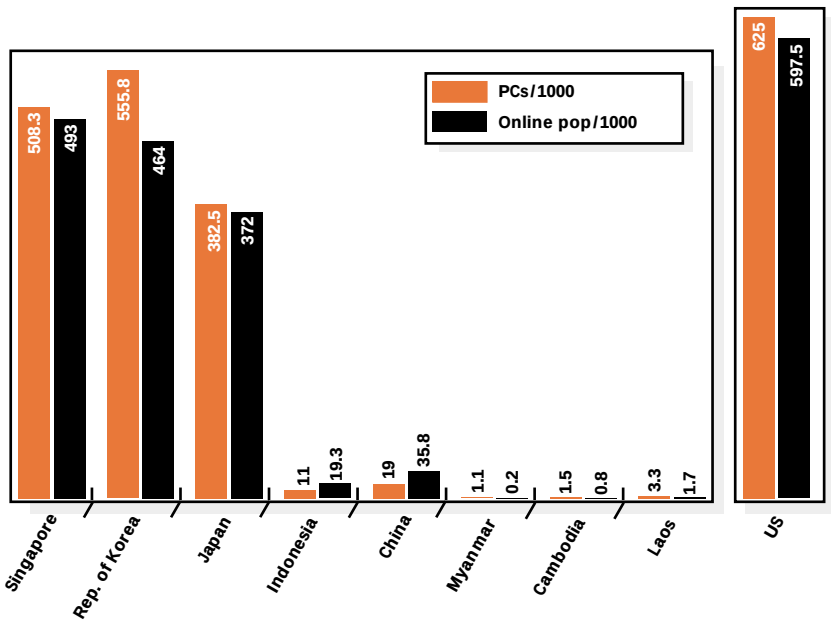
A graphic representation of the on-line population and availability of PCs/persons in selected South and Eastern Asian countries is presented in Table 3.7. As can be seen, deficient infrastructure is a very serious constraint on the potential of e-government programmes to reach all. Whereas **Japan (0.626)** 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 deve-loping 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.[33] 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.

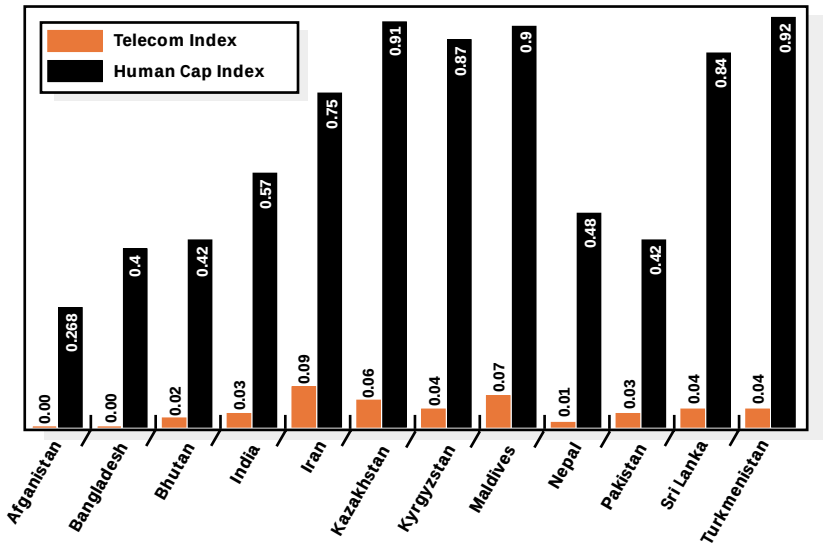
Additionally, the relatively lower level of human development impedes access to all. With 20 per cent of the global population living in the Indian sub-continent alone, the potential of e-government to development could be enormous, not only for the region but for the world as a whole. However, the serious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

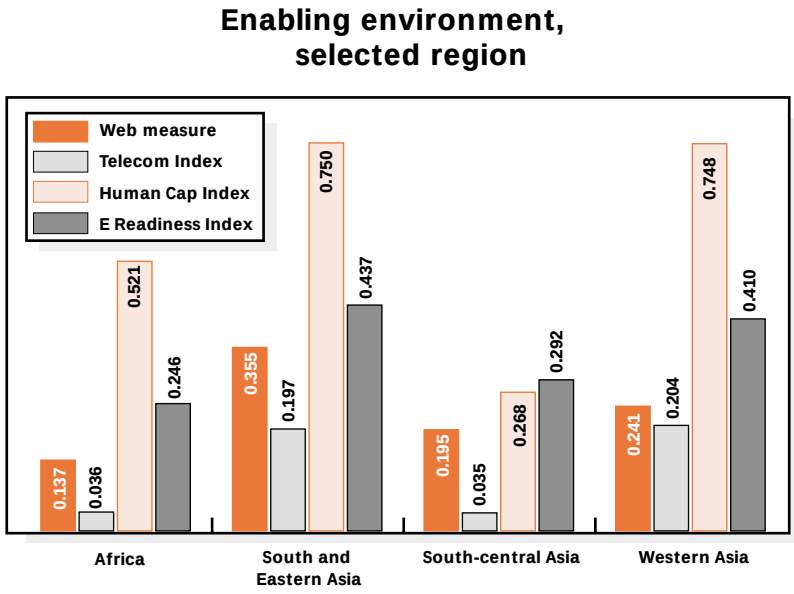
**E-government Readiness Rankings in South-central Asia**

| | E-government Readiness Index |
|---|---|
| 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 |
| **Average** | **0.292** |

Graph 3.6




Graph 3.7




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.

**Table 3.9**

**E-government Readiness in Western Asia**

| | E-government Readiness Index |
|---|---|
| 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 |
| **Average** | **0.410** |

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 S**audi 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.[34]

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.

**Table 3.10**

**E-government Readiness Rankings in Africa**

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

## *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 3.11 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.[35]

**Table 3.11**

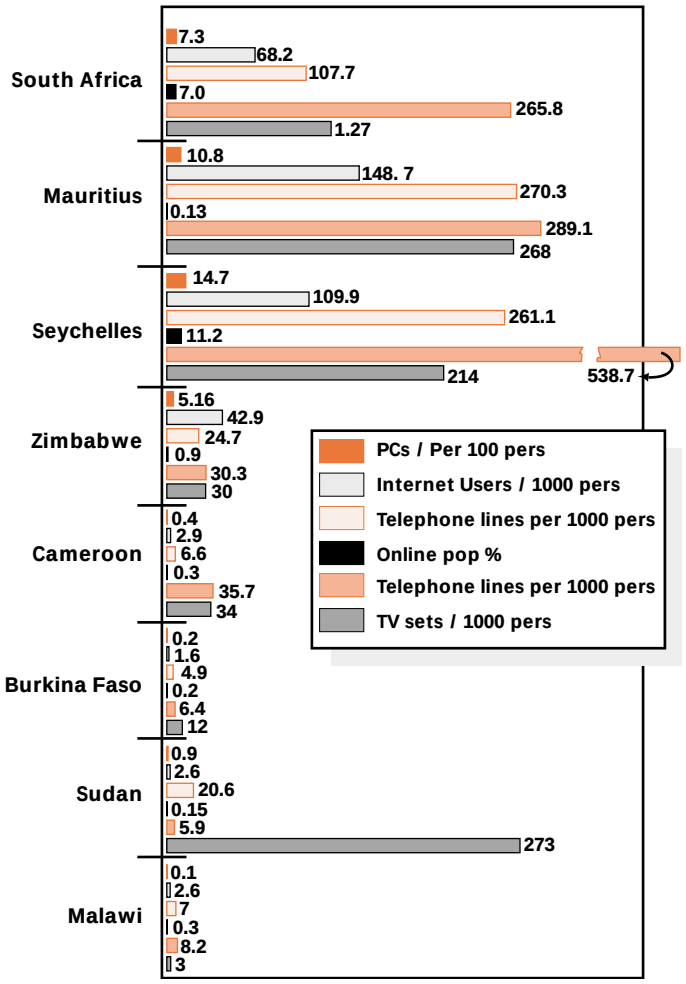
**Telecommunication Measures in Africa, Selected Countries**

| 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 a) b) | 14.65 | 109.8 | 261.1 | 11.24 | 538.7 | 214 |
| Zimbabwe | 5.16 | 42.97 | 24.7 | 0.88 | 30.3 | 30 |
| Gabon a) | 1.19 | 19.24 | 29.5 | 1.24 | 204.5 | 326 |
| Cameroon a) | 0.39 | 2.91 | 6.6 | 0.28 | 35.7 | 34 |
| Ghana a) | 0.33 | 1.93 | 11.6 | 0.2 | 9.3 | 118 |
| Burkina Faso a) | 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).36

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**

| | E-government Readiness Index |
|---|---|
| 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 |
| **Average** | **0.442** |

### *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 3.13**

**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 |
| **Average** | **0.401** |

**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 |
| **Average** | **0.351** |

### *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**

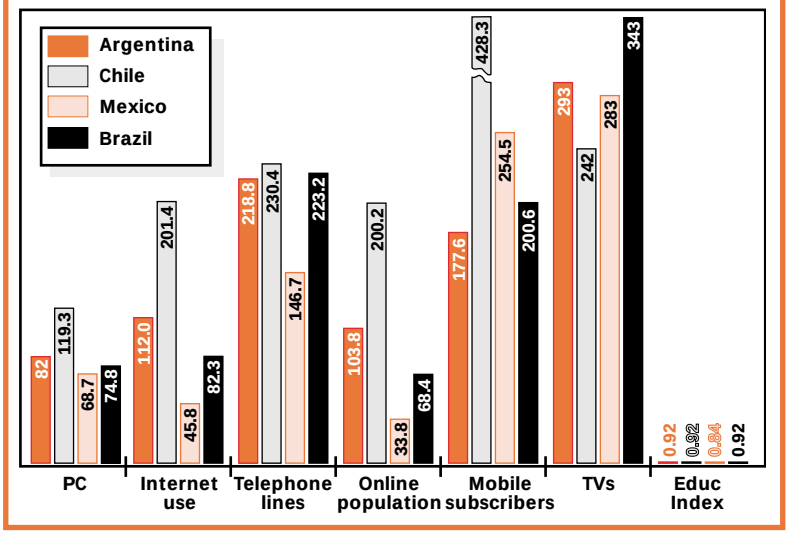
**Telecommunication Indicators in Latin America, Selected Countries**

| | 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. [37]

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.

**Table 4.3**

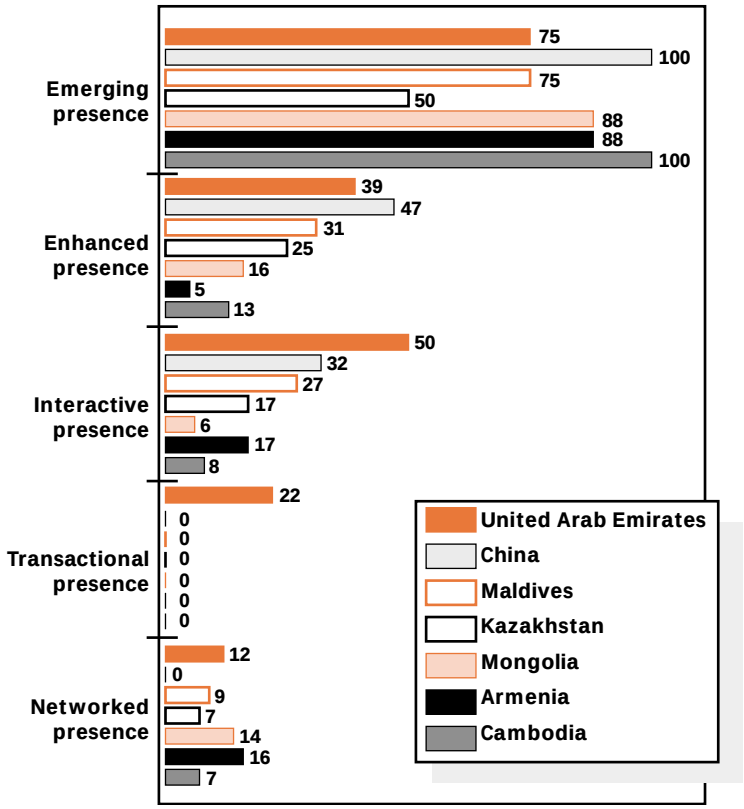
**On-line Profile of UN Member States**

| | |
|---|---|
| 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 |

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."[38]

**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.

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.

**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 |

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 |
|---|---|---|---|---|---|---|
| **Top 15 countries by egovernment readiness rankings** | | | | | | |
| 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 |
| **Other selected countries** | | | | | | |
| 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

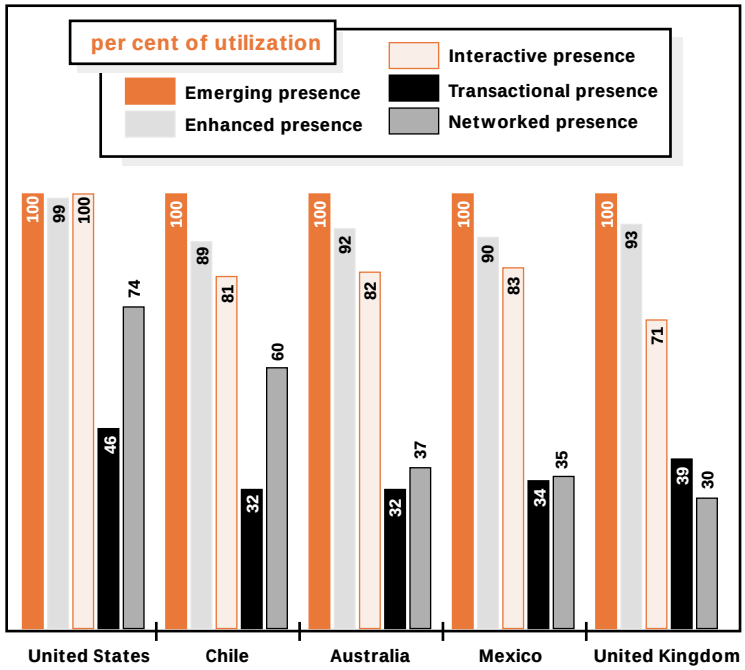
Table 4.6 presents a stages of delivery analysis for selected countries.

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.

**Graph 4.3**

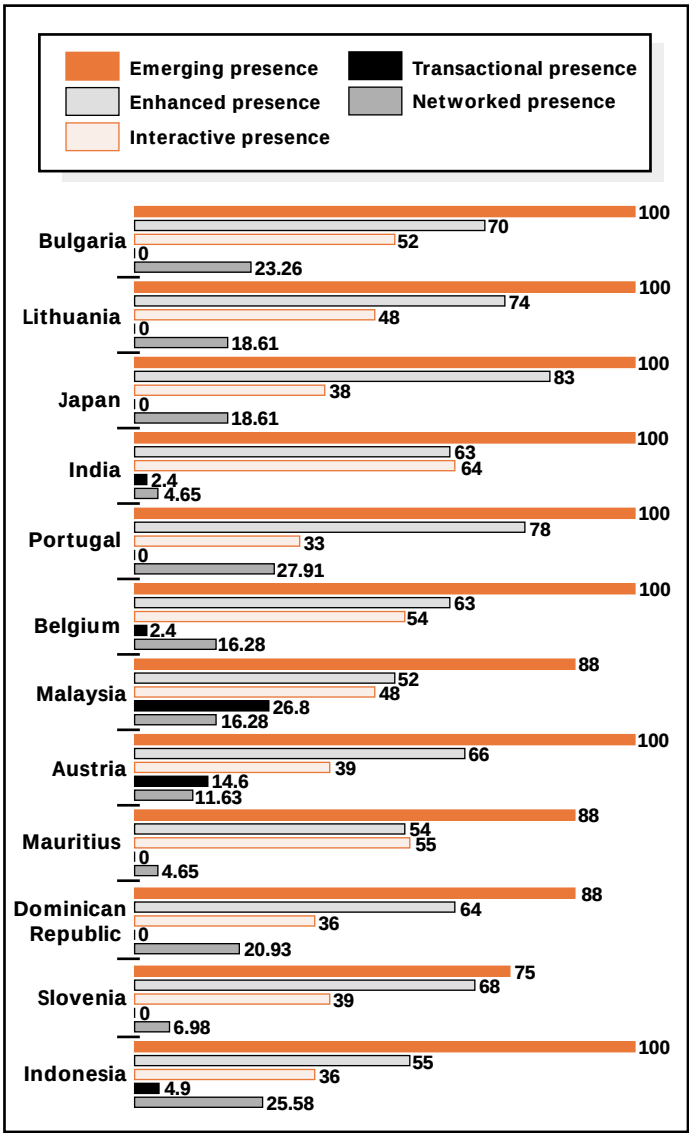
**Service delivery by stage, selected developed countries**




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

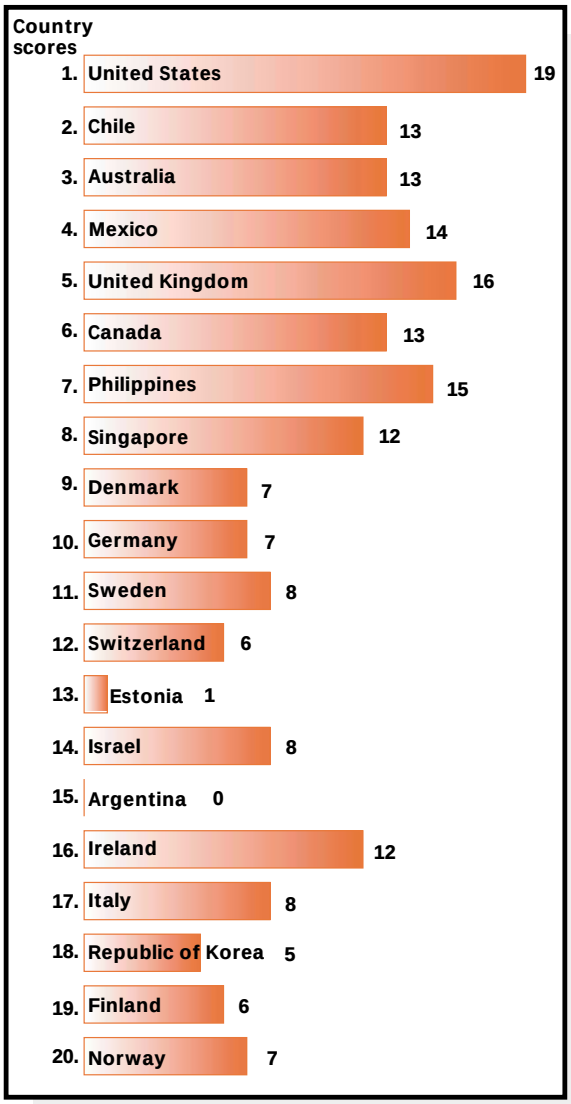
### Australian interactive job listing

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://jobsearch.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

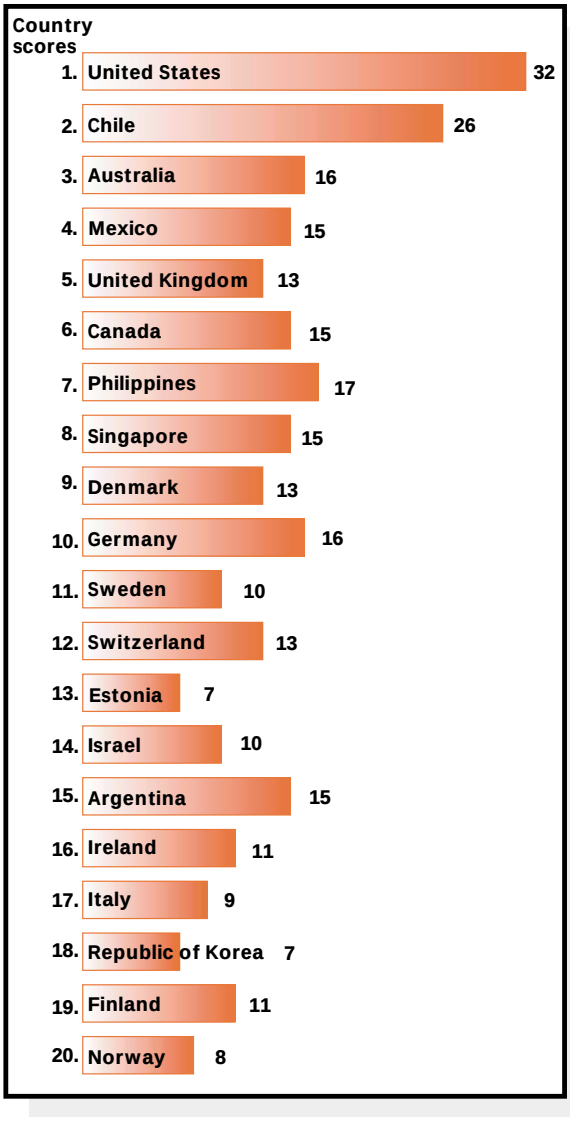
http://www.cambodia.gov.kh

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**

Table 5.2

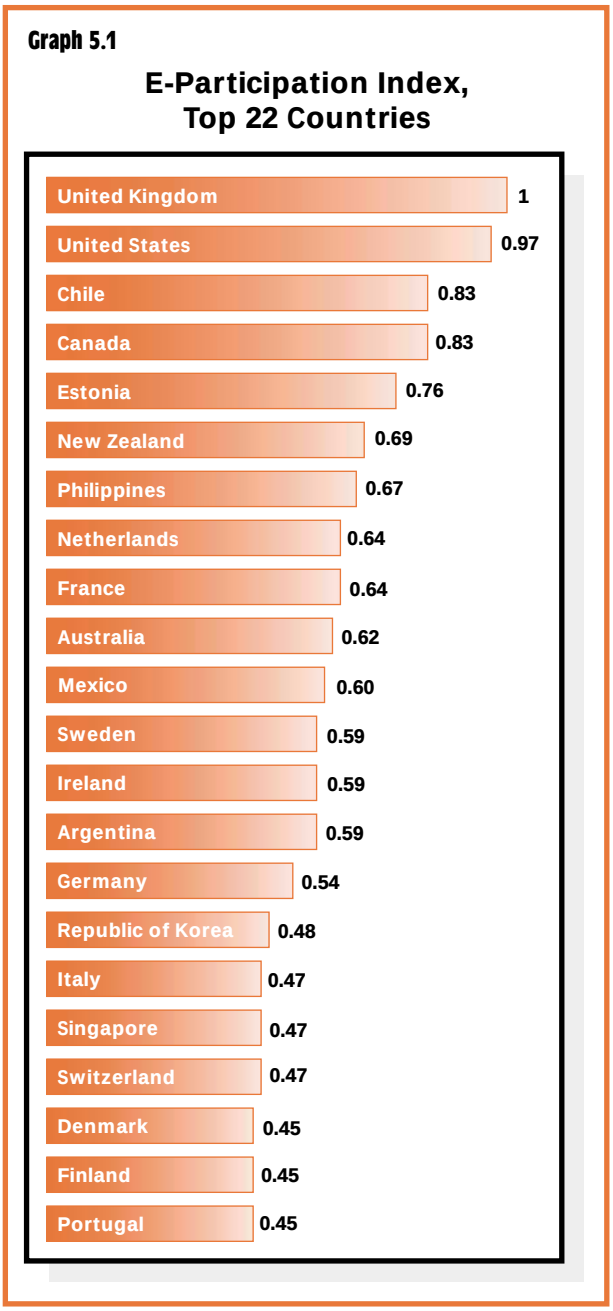
E-participation by Functional Classification

| Top 20 countries | e-information | e-consultation | e-decision making | total |
|---|---|---|---|---|
| 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




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.

**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 |

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 5.4**

**E-participation by Income Category**

| Income Class | No. of Countries Above Mean | No. of Countries Below Mean | Above Mean By Income Class | Below Mean 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 want 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."[39]

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.

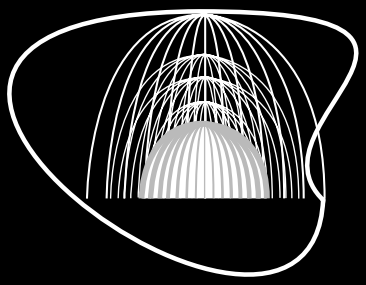
But the greatest promise of e-government is the historic opportunity for the developing countries to "leap frog" the traditionally longer development stages and catch up in providing a higher standard of living for their populations.

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 |
| 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 | 0.744 |
| 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 |
| 26 | Portugal | 0.646 |
| 27 | Malta | 0.636 |
| 28 | Slovenia | 0.631 |
| 29 | Spain | 0.602 |
| 30 | Mexico | 0.593 |
| 31 | Argentina | 0.577 |
| 32 | Poland | 0.576 |
| 33 | Philippines | 0.574 |
| 34 | Lithuania | 0.557 |
| 35 | Bulgaria | 0.548 |
| 36 | Czech Republic | 0.542 |
| 37 | Greece | 0.540 |
| 38 | United Arab Emirates | 0.535 |
| 39 | Croatia | 0.531 |
| 40 | Slovakia | 0.528 |
| 41 | Brazil | 0.527 |
| 42 | Micronesia (Federated States of) | 0.526 |
| 43 | Malaysia | 0.524 |
| 44 | Hungary | 0.516 |
| 45 | South Africa | 0.515 |
| 46 | Bahrain | 0.510 |
| 47 | Uruguay | 0.507 |
| 48 | Latvia | 0.506 |
| 49 | Turkey | 0.506 |
| 50 | Romania | 0.483 |
| 51 | Cyprus | 0.474 |
| 52 | Mauritius | 0.471 |
| 53 | Peru | 0.463 |
| 54 | Ukraine | 0.462 |
| 55 | Brunei Darussalam | 0.459 |
| 56 | Thailand | 0.446 |
| 57 | Colombia | 0.443 |
| 58 | Russian Federation | 0.443 |
| 59 | Saint Lucia | 0.438 |
| 60 | Dominican Republic | 0.438 |
| 61 | Jamaica | 0.432 |
| 62 | Panama | 0.432 |
| 63 | Jordan | 0.429 |
| 64 | Bahamas | 0.429 |
| 65 | Trinidad and Tobago | 0.427 |
| 66 | Costa Rica | 0.427 |
| 67 | Saint Kitts and Nevis | 0.426 |
| 68 | Fiji | 0.425 |
| 69 | Lebanon | 0.424 |
| 70 | Indonesia | 0.422 |
| 71 | Belize | 0.422 |
| 72 | Guyana | 0.422 |
| 73 | Seychelles | 0.420 |
| 74 | China | 0.416 |

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

| | | |
|---|---|---|
| 156 | Andorra | 0.174 |
| 157 | Mozambique | 0.173 |
| 158 | Gambia | 0.172 |
| 159 | Bangladesh | 0.165 |
| 160 | Mauritania | 0.161 |
| 161 | Bhutan | 0.157 |
| 162 | Vanuatu | 0.142 |
| 163 | Mali | 0.140 |
| 164 | Burkina Faso | 0.135 |
| 165 | Guinea | 0.132 |
| 166 | Ethiopia | 0.128 |
| 167 | Sierra Leone | 0.126 |
| 168 | Afghanistan | 0.118 |
| 169 | Timor-Leste | 0.087 |
| 170 | Niger | 0.060 |
| 171 | Somalia | 0.049 |
| 172 | Marshall Islands | 0.038 |
| 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 |
| ● | COUNTRIES WITH NO WEB PRESENCE | | | |
| 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 |
| 2 | Albania | 0.083 |
| 3 | Algeria | 0.384 |
| 4 | Andorra | 0.214 |
| 5 | Angola | 0.210 |
| 6 | Antigua and Barbuda | 0.039 |
| 7 | Argentina | 0.624 |
| 8 | Armenia | 0.140 |
| 9 | Australia | 0.812 |
| 10 | Austria | 0.476 |
| 11 | Azerbaijan | 0.131 |
| 12 | Bahamas | 0.214 |
| 13 | Bahrain | 0.332 |
| 14 | Bangladesh | 0.092 |
| 15 | Barbados | 0.122 |
| 16 | Belarus | 0.122 |
| 17 | Belgium | 0.507 |
| 18 | Belize | 0.253 |
| 19 | Benin | 0.293 |
| 20 | Bhutan | 0.035 |
| 21 | Bolivia | 0.378 |
| 22 | Bosnia and Herzegovina | 0.131 |
| 23 | Botswana | 0.223 |
| 24 | Brazil | 0.576 |
| 25 | Brunei Darussalam | 0.266 |
| 26 | Bulgaria | 0.537 |
| 27 | Burkina Faso | 0.170 |
| 28 | Burundi | 0.157 |
| 29 | Cambodia | 0.127 |
| 30 | Cameroon | 0.148 |
| 31 | Canada | 0.764 |
| 32 | Cape Verde | 0.131 |
| 33 | Central African Republic | 0.000 |
| 34 | Chad | 0.000 |
| 35 | Chile | 0.838 |
| 36 | China | 0.332 |
| 37 | Colombia | 0.362 |
| 38 | Comoros | 0.031 |
| 39 | Congo | 0.035 |
| 40 | Costa Rica | 0.223 |
| 41 | Côte d'Ivoire | 0.000 |
| 42 | Croatia | 0.424 |
| 43 | Cuba | 0.166 |
| 44 | Cyprus | 0.114 |
| 45 | Czech Republic | 0.349 |
| 46 | D.P.R. Korea | 0.000 |
| 47 | D.R. Congo | 0.000 |
| 48 | Denmark | 0.694 |
| 49 | Djibouti | 0.017 |
| 50 | Dominica | 0.000 |
| 51 | Dominican Republic | 0.445 |
| 52 | Ecuador | 0.175 |
| 53 | Egypt | 0.035 |
| 54 | El Salvador | 0.406 |
| 55 | Equatorial Guinea | 0.000 |
| 56 | Eritrea | 0.000 |
| 57 | Estonia | 0.642 |
| 58 | Ethiopia | 0.031 |
| 59 | Fiji | 0.301 |
| 60 | Finland | 0.603 |
| 61 | France | 0.570 |
| 62 | Gabon | 0.013 |
| 63 | Gambia | 0.105 |
| 64 | Georgia | 0.048 |
| 65 | Germany | 0.683 |
| 66 | Ghana | 0.083 |
| 67 | Greece | 0.328 |
| 68 | Grenada | 0.004 |
| 69 | Guatemala | 0.323 |
| 70 | Guinea | 0.017 |
| 71 | Guinea-Bissau | 0.000 |
| 72 | Guyana | 0.266 |
| 73 | Haiti | 0.000 |
| 74 | Honduras | 0.100 |
| 75 | Hungary | 0.312 |

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

| | | |
|---|---|---|
| 158 | South Africa | 0.539 |
| 159 | Spain | 0.428 |
| 160 | Sri Lanka | 0.279 |
| 161 | Sudan | 0.079 |
| 162 | Suriname | 0.000 |
| 163 | Swaziland | 0.079 |
| 164 | Sweden | 0.683 |
| 165 | Switzerland | 0.668 |
| 166 | Syrian Arab Republic | 0.044 |
| 167 | Tajikistan | 0.000 |
| 168 | Thailand | 0.380 |
| 169 | The former Yugoslav Republic of Macedonia | 0.114 |
| 170 | Timor-Leste | 0.262 |
| 171 | Togo | 0.070 |
| 172 | Tonga | 0.201 |
| 173 | Trinidad and Tobago | 0.236 |
| 174 | Tunisia | 0.179 |
| 175 | Turkey | 0.555 |
| 176 | Turkmenistan | 0.044 |
| 177 | Tuvalu | 0.000 |
| 178 | Uganda | 0.279 |
| 179 | Ukraine | 0.349 |
| 180 | United Arab Emirates | 0.419 |
| 181 | United Kingdom | 0.777 |
| 182 | United Republic of Tanzania | 0.140 |
| 183 | United States of America | 1.000 |
| 184 | Uruguay | 0.358 |
| 185 | Uzbekistan | 0.000 |
| 186 | Vanuatu | 0.052 |
| 187 | Venezuela | 0.144 |
| 188 | Viet Nam | 0.183 |
| 189 | Yemen | 0.044 |
| 190 | Zambia | 0.127 |
| 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 [a] | 7.1 | 0.009 | 15.978 | 0.026 |
| 4 | Andorra [a] [b] | 0 | 0.000 | 89.744 | 0.148 |
| 5 | Angola [b] | 2 | 0.003 | 2.942 | 0.005 |
| 6 | Antigua & Barbuda [a] [b] | 0 | 0.000 | 90.409 | 0.149 |
| 7 | Argentina | 82 | 0.108 | 112.022 | 0.184 |
| 8 | Armenia [a] | 9.2 | 0.012 | 18.412 | 0.030 |
| 9 | Australia | 515.8 | 0.679 | 427.203 | 0.703 |
| 10 | Austria [a] | 335.4 | 0.441 | 409.364 | 0.674 |
| 11 | Azerbaijan | 0 | 0.000 | 36.823 | 0.061 |
| 12 | Bahamas [b] | 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 [a] [b] | 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 [b] | 138.3 | 0.182 | 86.957 | 0.143 |
| 19 | Benin [a] | 1.7 | 0.002 | 3.878 | 0.006 |
| 20 | Bhutan [b] | 14.5 | 0.019 | 14.475 | 0.024 |
| 21 | Bolivia | 22.8 | 0.030 | 21.754 | 0.036 |
| 22 | Bosnia & Herzogovina | 0 | 0.000 | 24.390 | 0.040 |
| 23 | Botswana [a] | 38.7 | 0.051 | 29.747 | 0.049 |
| 24 | Brazil | 74.8 | 0.098 | 82.241 | 0.135 |
| 25 | Brunei Darussalam [a] [b] | 73.1 | 0.096 | 102.339 | 0.168 |
| 26 | Bulgaria | 34.6 | 0.046 | 74.627 | 0.123 |
| 27 | Burkina Faso [a] | 1.5 | 0.002 | 1.628 | 0.003 |
| 28 | Burundi [a] | 0 | 0.000 | 0.875 | 0.001 |
| 29 | Cambodia [a] | 1.5 | 0.002 | 2.176 | 0.004 |
| 30 | Cameroon [a] | 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. [a] | 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 | 0.025 | 46.009 | 0.076 |
| 37 | Colombia | 49.3 | 0.065 | 45.784 | 0.075 |
| 38 | Comoros | 5.5 | 0.007 | 4.199 | 0.007 |
| 39 | Congo | 3.9 | 0.005 | 0.321 | 0.001 |
| 40 | Costa Rica | 170.2 | 0.224 | 93.363 | 0.154 |
| 41 | Côte d'Ivoire | 7.2 | 0.009 | 5.458 | 0.009 |
| 42 | Croatia | 156.9 | 0.206 | 162.882 | 0.268 |
| 43 | Cuba | 19.6 | 0.026 | 10.679 | 0.018 |
| 44 | Cyprus [b] | 246.5 | 0.324 | 300.000 | 0.494 |
| 45 | Czech Republic [a] | 146.7 | 0.193 | 146.714 | 0.241 |
| 46 | D.P.R. Korea | 0 | 0.000 | 0.000 | 0.000 |
| 47 | D.R. Congo [a] | 0 | 0.000 | 0.114 | 0.000 |
| 48 | Denmark | 576.8 | 0.759 | 465.181 | 0.766 |
| 49 | Djibouti [b] | 15.2 | 0.020 | 6.860 | 0.011 |
| 50 | Dominica [b] | 77.1 | 0.101 | 160.256 | 0.264 |
| 51 | Dominican Rep. [a] | 17.5 | 0.023 | 21.453 | 0.035 |
| 52 | Ecuador | 31.1 | 0.041 | 38.892 | 0.064 |
| 53 | Egypt [a] | 15.5 | 0.020 | 9.295 | 0.015 |
| 54 | El Salvador | 21.9 | 0.029 | 46.458 | 0.076 |
| 55 | Equatorial Guinea | 7.2 | 0.009 | 3.484 | 0.006 |
| 56 | Eritrea | 2.5 | 0.003 | 2.261 | 0.004 |
| 57 | Estonia | 210.3 | 0.277 | 413.284 | 0.680 |
| 58 | Ethiopia | 1.5 | 0.002 | 0.742 | 0.001 |
| 59 | Fiji [a] [b] | 48 | 0.063 | 26.379 | 0.043 |
| 60 | Finland | 441.7 | 0.581 | 508.930 | 0.838 |
| 61 | France | 347.1 | 0.457 | 313.832 | 0.516 |
| 62 | Gabon [a] | 11.9 | 0.016 | 19.246 | 0.032 |
| 63 | Gambia [a] | 12.7 | 0.017 | 13.463 | 0.022 |
| 64 | Georgia | 31.6 | 0.042 | 14.897 | 0.025 |
| 65 | Germany | 434.9 | 0.572 | 423.729 | 0.697 |
| 66 | Ghana [a] | 3.3 | 0.004 | 1.936 | 0.003 |
| 67 | Greece [a] | 81.2 | 0.107 | 181.521 | 0.299 |
| 68 | Grenada [a] | 130 | 0.171 | 61.321 | 0.101 |
| 69 | Guatemala [a] | 12.8 | 0.017 | 17.113 | 0.028 |
| 70 | Guinea [a] | 4.2 | 0.006 | 1.979 | 0.003 |
| 71 | Guinea-Bissau [a] | 0 | 0.000 | 3.260 | 0.005 |
| 72 | Guyana [b] | 26.4 | 0.035 | 109.195 | 0.180 |
| 73 | Haiti | 8.8 | 0.012 | 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 [a) b)] | 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 [a)] | 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 [a)] | 50 | 0.066 | 38.471 | 0.063 |
| 85 | Japan [a)] | 382.5 | 0.503 | 449.262 | 0.739 |
| 86 | Jordan | 32.8 | 0.043 | 45.156 | 0.074 |
| 87 | Kazakhstan [a)] | 0 | 0.000 | 9.320 | 0.015 |
| 88 | Kenya | 5.6 | 0.007 | 15.978 | 0.026 |
| 89 | Kiribati [a) b)] | 10.5 | 0.014 | 23.224 | 0.038 |
| 90 | Kuwait [a)] | 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 [a)] | 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 [a) b)] | 517.3 | 0.681 | 367.483 | 0.605 |
| 101 | Madagascar [a)] | 2.6 | 0.003 | 2.259 | 0.004 |
| 102 | Malawi | 1.3 | 0.002 | 2.587 | 0.004 |
| 103 | Malaysia [a)] | 126.1 | 0.166 | 273.109 | 0.449 |
| 104 | Maldives [b)] | 35.8 | 0.047 | 53.763 | 0.088 |
| 105 | Mali [a)] | 1.3 | 0.002 | 2.885 | 0.005 |
| 106 | Malta [b)] | 229.6 | 0.302 | 252.551 | 0.416 |
| 107 | Marshall Islands [a)] | 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 [a) b)] | 0 | 0.000 | 42.997 | 0.071 |

| | Country | PCs per 1000 pers | PC Index | Internet per 1000 pers | Internet Index |
|---|---|---|---|---|---|
| 112 | Monaco [b] | 0 | 0.000 | 466.000 | 0.767 |
| 113 | Mongolia [a] | 14.6 | 0.019 | 16.660 | 0.027 |
| 114 | Morocco | 13.7 | 0.018 | 16.867 | 0.028 |
| 115 | Mozambique [a] | 4 | 0.005 | 1.699 | 0.003 |
| 116 | Myanmar [a] | 1.1 | 0.001 | 0.207 | 0.000 |
| 117 | Namibia [a] | 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 [a] | 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 [a] | 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 [a] | 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 [a] | 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 [a] | 47.9 | 0.063 | 76.649 | 0.126 |
| 133 | Philippines | 21.7 | 0.029 | 25.569 | 0.042 |
| 134 | Poland [a] | 85.4 | 0.112 | 98.372 | 0.162 |
| 135 | Portugal | 117.4 | 0.154 | 355.462 | 0.585 |
| 136 | Qatar [b] | 180.3 | 0.237 | 82.787 | 0.136 |
| 137 | Republic of Korea | 555.8 | 0.731 | 551.891 | 0.908 |
| 138 | Republic of Moldovia | 16 | 0.021 | 140.000 | 0.230 |
| 139 | Romania [a] | 35.7 | 0.047 | 80.609 | 0.133 |
| 140 | Russia | 88.7 | 0.117 | 40.932 | 0.067 |
| 141 | Rwanda [a] [c] | 0 | 0.000 | 2.516 | 0.004 |
| 142 | St. Kitts and Nevis [b] | 191.5 | 0.252 | 106.383 | 0.175 |
| 143 | St. Lucia [b] | 146 | 0.192 | 82.000 | 0.135 |
| 144 | St. Vincent & the Grenadines [a] [b] | 113 | 0.149 | 47.826 | 0.079 |
| 145 | Samoa [b] | 6.2 | 0.008 | 22.222 | 0.037 |
| 146 | San Marino [b] | 760 | 1.000 | 531.000 | 0.874 |
| 147 | S. Tomé & Principe [a] [b] | 0 | 0.000 | 60.000 | 0.099 |
| 148 | Saudi Arabia [a] | 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 [b] | 27.1 | 0.036 | 59.701 | 0.098 |
| 151 | Seychelles [a] [b] | 146.5 | 0.193 | 109.890 | 0.181 |
| 152 | Sierra Leone [a] | 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 [b] | 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 [a] [b] | 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 [a] | 16.3 | 0.021 | 3.612 | 0.006 |
| 167 | Tajikistan | 0 | 0.000 | 0.549 | 0.001 |
| 168 | Thailand [a] [b] | 27.8 | 0.037 | 77.561 | 0.128 |
| 169 | The former Yugoslav Republic of Macedonia [a] | 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 [b] | 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 [a] | 4.6 | 0.006 | 1.655 | 0.003 |
| 177 | Tuvalu [b] | 0 | 0.000 | 0.000 | 0.000 |
| 178 | Uganda | 2.9 | 0.004 | 2.518 | 0.004 |
| 179 | Ukraine [a] | 18.3 | 0.024 | 11.929 | 0.020 |
| 180 | United Arab Emirates | 135.5 | 0.178 | 367.380 | 0.605 |
| 181 | United Kingdom [a] [b] | 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 [a] | 2.9 | 0.004 | 10.874 | 0.018 |
| 186 | Vanuatu [a] [b] | 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 [a)] | 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*

*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*

**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 [a] | 5.7 | 0.008 | 61 | 0.066 |
| 4 | Andorra [a] [b] | 362.6 | 0.519 | 438.3 | 0.476 |
| 5 | Angola [b] | 5.7 | 0.008 | 6.1 | 0.007 |
| 6 | Antigua & Barbuda [a] [b] | 75.2 | 0.108 | 481.3 | 0.523 |
| 7 | Argentina | 103.8 | 0.148 | 218.8 | 0.238 |
| 8 | Armenia [a] | 9 | 0.013 | 139.8 | 0.152 |
| 9 | Australia | 524.9 | 0.751 | 538.6 | 0.585 |
| 10 | Austria [a] | 434.5 | 0.622 | 468.1 | 0.508 |
| 11 | Azerbaijan | 3.2 | 0.005 | 121.4 | 0.132 |
| 12 | Bahamas [b] | 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 [a] [b] | 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 [b] | 68.4 | 0.098 | 125.1 | 0.136 |
| 19 | Benin [a] | 3.7 | 0.005 | 9.2 | 0.010 |
| 20 | Bhutan [b] | 0.2 | 0.000 | 28.4 | 0.031 |
| 21 | Bolivia | 9.8 | 0.014 | 67.6 | 0.073 |
| 22 | Bosnia & Herzogovina | 11.4 | 0.016 | 119.6 | 0.130 |
| 23 | Botswana [a] | 7.6 | 0.011 | 84.8 | 0.092 |
| 24 | Brazil | 68.4 | 0.098 | 223.2 | 0.242 |
| 25 | Brunei Darussalam [a] [b] | 99.7 | 0.143 | 258.6 | 0.281 |
| 26 | Bulgaria | 75.9 | 0.109 | 374.6 | 0.407 |
| 27 | Burkina Faso [a] | 2 | 0.003 | 4.9 | 0.005 |
| 28 | Burundi [a] | 0.9 | 0.001 | 2.9 | 0.003 |
| 29 | Cambodia [a] | 0.8 | 0.001 | 2.5 | 0.003 |
| 30 | Cameroon [a] | 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. [a] | 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 [b] | 195.5 | 0.280 | 610.6 | 0.663 |
| 45 | Czech Republic [a] | 262.1 | 0.375 | 377.6 | 0.410 |
| 46 | D.P.R. Korea | 0 | 0.000 | 21 | 0.023 |
| 47 | D.R. Congo [a] | 0 | 0.000 | 0.4 | 0.000 |
| 48 | Denmark | 547.4 | 0.783 | 695.8 | 0.755 |
| 49 | Djibouti [b] | 7 | 0.010 | 15.4 | 0.017 |
| 50 | Dominica [b] | 28 | 0.040 | 325.8 | 0.354 |
| 51 | Dominican Rep. [a] | 21.3 | 0.030 | 110.2 | 0.120 |
| 52 | Ecuador | 24.4 | 0.035 | 110.2 | 0.120 |
| 53 | Egypt [a] | 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 [a] [b] | 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 [a] | 12.4 | 0.018 | 29.5 | 0.032 |
| 63 | Gambia [a] | 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 [a] | 2 | 0.003 | 11.6 | 0.013 |
| 67 | Greece [a] | 131.5 | 0.188 | 529.2 | 0.575 |
| 68 | Grenada [b] | 58.3 | 0.083 | 316.5 | 0.344 |
| 69 | Guatemala [a] | 15 | 0.021 | 64.7 | 0.070 |
| 70 | Guinea [a] | 1.9 | 0.003 | 3.4 | 0.004 |
| 71 | Guinea-Bissau [a] | 3 | 0.004 | 9.8 | 0.011 |
| 72 | Guyana [b] | 136.1 | 0.195 | 91.5 | 0.099 |
| 73 | Haiti | 4.2 | 0.006 | 15.7 | 0.017 |

| | Country Alphabetically | Persons on line per 1000 pers | Index | Tel lines per 1000 persons | Index |
|---|---|---|---|---|---|
| 74 | Honduras | 6.4 | 0.009 | 48 | 0.052 |
| 75 | Hungary | 118.7 | 0.170 | 361.2 | 0.392 |
| 76 | Iceland [a) b)] | 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 [a)] | 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 [a)] | 37.3 | 0.053 | 204.7 | 0.222 |
| 85 | Japan [a)] | 372 | 0.532 | 585.8 | 0.636 |
| 86 | Jordan | 39.9 | 0.057 | 127.6 | 0.139 |
| 87 | Kazakhstan [a)] | 6 | 0.009 | 120.5 | 0.131 |
| 88 | Kenya | 16.1 | 0.023 | 10.3 | 0.011 |
| 89 | Kiribati [a) b)] | 10.9 | 0.016 | 42.1 | 0.046 |
| 90 | Kuwait [a)] | 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 [a)] | 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 [a) b)] | 228.6 | 0.327 | 779.9 | 0.847 |
| 101 | Madagascar [a)] | 2.1 | 0.003 | 3.8 | 0.004 |
| 102 | Malawi | 3.3 | 0.005 | 7 | 0.008 |
| 103 | Malaysia [a)] | 251.5 | 0.360 | 197.9 | 0.215 |
| 104 | Maldives [b)] | 0.6 | 0.001 | 102.7 | 0.112 |
| 105 | Mali [a)] | 2.6 | 0.004 | 4.8 | 0.005 |
| 106 | Malta [b)] | 249.1 | 0.356 | 523.4 | 0.568 |
| 107 | Marshall Islands [a)] | 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 [a) b)] | 15 | 0.021 | 86.7 | 0.094 |

| | Country Alphabetically | Persons on line per 1000 pers | Index | Tel lines per 1000 persons | Index |
|---|---|---|---|---|---|
| 112 | Monaco [b] | 0 | 0.000 | 921 | 1.000 |
| 113 | Mongolia [a] | 14.8 | 0.021 | 51.8 | 0.056 |
| 114 | Morocco | 12.8 | 0.018 | 38 | 0.041 |
| 115 | Mozambique [a] | 0.8 | 0.001 | 5.1 | 0.006 |
| 116 | Myanmar [a] | 0.2 | 0.000 | 6.1 | 0.007 |
| 117 | Namibia [a] | 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 [a] | 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 [a] | 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 [a] | 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 [a] | 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 [a] | 107.3 | 0.154 | 77.5 | 0.084 |
| 133 | Philippines | 24.6 | 0.035 | 41.7 | 0.045 |
| 134 | Poland [a] | 165.7 | 0.237 | 295.1 | 0.320 |
| 135 | Portugal | 343.7 | 0.492 | 419 | 0.455 |
| 136 | Qatar [b] | 97.5 | 0.139 | 289.4 | 0.314 |
| 137 | Republic of Korea | 464 | 0.664 | 488.6 | 0.531 |
| 138 | Republic of Moldovia | 3.4 | 0.005 | 146 | 0.159 |
| 139 | Romania [a] | 44.8 | 0.064 | 183.8 | 0.200 |
| 140 | Russia | 124.2 | 0.178 | 242.2 | 0.263 |
| 141 | Rwanda [a] [c] | 2.7 | 0.004 | 2.7 | 0.003 |
| 142 | St. Kitts and Nevis [b] | 51.5 | 0.074 | 500 | 0.543 |
| 143 | St. Lucia [b] | 0 | 0.000 | 317 | 0.344 |
| 144 | St. Vincent & the Grenadines [a] [b] | 30.3 | 0.043 | 226.8 | 0.246 |
| 145 | Samoa [b] | 16.8 | 0.024 | 57 | 0.062 |
| 146 | San Marino [b] | 0 | 0.000 | 763 | 0.828 |
| 147 | S. Tomé & Principe [a] [b] | 0 | 0.000 | 36.3 | 0.039 |
| 148 | Saudi Arabia [a] | 25 | 0.036 | 144.8 | 0.157 |
| 149 | Senegal | 9.4 | 0.013 | 22.9 | 0.025 |

| | Country Alphabetically | Persons on line per 1000 pers | Index | Tel lines per 1000 persons | Index |
|---|---|---|---|---|---|
| 150 | Serbia and Montenegro [b] | 0 | 0.000 | 232.6 | 0.253 |
| 151 | Seychelles [a] [b] | 112.4 | 0.161 | 261.1 | 0.283 |
| 152 | Sierra Leone [a] | 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 [b] | 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 [a] [b] | 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 [a] | 3.5 | 0.005 | 103 | 0.112 |
| 167 | Tajikistan | 0.3 | 0.000 | 36.5 | 0.040 |
| 168 | Thailand [a] [b] | 19.6 | 0.028 | 98.7 | 0.107 |
| 169 | The former Yugoslav Republic of Macedonia [a] | 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 [b] | 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 [a] | 0.4 | 0.001 | 80.2 | 0.087 |
| 177 | Tuvalu [b] | 0 | 0.000 | 65 | 0.071 |
| 178 | Uganda | 2.4 | 0.003 | 2.2 | 0.002 |
| 179 | Ukraine [a] | 15.4 | 0.022 | 212.1 | 0.230 |
| 180 | United Arab Emirates | 367.9 | 0.526 | 341.8 | 0.371 |
| 181 | United Kingdom [a] [b] | 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 [a] | 5.9 | 0.008 | 66.6 | 0.072 |
| 186 | Vanuatu [a] [b] | 15.8 | 0.023 | 33.6 | 0.036 |

| | Country Alphabetically | Persons o nline 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 [a)] | 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*

*Telephone data from International Telecommunication Union,*
*Web address: 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*

**Table 6**

## Telecommunication indicators 2003 — III

| | Country | Mobile subscribers per 1000 persons | Index | TV sets per 1000 persons | Index |
|---|---|---|---|---|---|
| 1 | Afghanistan | 0 | 0 | 14 | 0.016 |
| 2 | Albania | 198.5 | 0.196 | 123 | 0.141 |
| 3 | Algeria [a] | 9.6 | 0.009 | 110 | 0.126 |
| 4 | Andorra [a] [b] | 301.8 | 0.298 | 440 | 0.503 |
| 5 | Angola [b] | 9.3 | 0.009 | 15 | 0.017 |
| 6 | Antigua & Barbuda [a] [b] | 322.9 | 0.319 | 493 | 0.563 |
| 7 | Argentina | 177.6 | 0.175 | 293 | 0.335 |
| 8 | Armenia [a] | 11.7 | 0.012 | 244 | 0.279 |
| 9 | Australia | 639.7 | 0.631 | 738 | 0.843 |
| 10 | Austria [a] | 828.5 | 0.818 | 526 | 0.601 |
| 11 | Azerbaijan | 106.8 | 0.105 | 259 | 0.296 |
| 12 | Bahamas [b] | 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 [a] [b] | 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 [b] | 207.5 | 0.205 | 183 | 0.209 |
| 19 | Benin [a] | 19.4 | 0.019 | 45 | 0.051 |
| 20 | Bhutan [b] | 0 | 0.000 | 6 | 0.007 |
| 21 | Bolivia | 104.6 | 0.103 | 119 | 0.136 |
| 22 | Bosnia & Herzogovina | 91.7 | 0.090 | 111 | 0.127 |
| 23 | Botswana [a] | 241.3 | 0.238 | 25 | 0.029 |
| 24 | Brazil | 200.6 | 0.198 | 343 | 0.392 |
| 25 | Brunei Darussalam [a] [b] | 400.6 | 0.395 | 637 | 0.728 |
| 26 | Bulgaria | 191.2 | 0.189 | 449 | 0.513 |
| 27 | Burkina Faso [a] | 6.4 | 0.006 | 12 | 0.014 |
| 28 | Burundi [a] | 4.5 | 0.004 | 30 | 0.034 |
| 29 | Cambodia [a] | 16.6 | 0.016 | 8 | 0.009 |
| 30 | Cameroon [a] | 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. [a] | 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 | Index | TV sets per 1000 persons | 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 [b] | 597 | 0.589 | 154 | 0.176 |
| 45 | Czech Republic [a] | 848.8 | 0.838 | 508 | 0.581 |
| 46 | D.P.R. Korea | 0 | 0.000 | 54 | 0.062 |
| 47 | D.R. Congo [a] | 2.9 | 0.003 | 2 | 0.002 |
| 48 | Denmark | 833.3 | 0.822 | 807 | 0.922 |
| 49 | Djibouti [b] | 22.9 | 0.023 | 48 | 0.055 |
| 50 | Dominica [b] | 119.9 | 0.118 | 232 | 0.265 |
| 51 | Dominican Rep. [a] | 146.5 | 0.145 | 97 | 0.111 |
| 52 | Ecuador | 120.6 | 0.119 | 218 | 0.249 |
| 53 | Egypt [a] | 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 [a] [b] | 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 [a] | 204.5 | 0.202 | 326 | 0.373 |
| 63 | Gambia [a] | 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 [a] | 9.3 | 0.009 | 118 | 0.135 |
| 67 | Greece [a] | 838.6 | 0.828 | 488 | 0.558 |
| 68 | Grenada [b] | 71.3 | 0.070 | 376 | 0.430 |
| 69 | Guatemala [a] | 97 | 0.096 | 61 | 0.070 |
| 70 | Guinea [a] | 7.3 | 0.007 | 44 | 0.050 |
| 71 | Guinea-Bissau [a] | 0 | 0.000 | 0 | 0.000 |
| 72 | Guyana [b] | 99.3 | 0.098 | 70 | 0.080 |
| 73 | Haiti | 16.9 | 0.017 | 5 | 0.006 |

| | Country | Mobile subscribers per 1000 persons | Index | TV sets per 1000 persons | Index |
|---|---|---|---|---|---|
| 74 | Honduras | 48.6 | 0.048 | 96 | 0.110 |
| 75 | Hungary | 646.4 | 0.638 | 437 | 0.499 |
| 76 | Iceland [a) b)] | 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 [a)] | 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 [a)] | 244.3 | 0.241 | 194 | 0.222 |
| 85 | Japan [a)] | 621.1 | 0.613 | 725 | 0.829 |
| 86 | Jordan | 167.1 | 0.165 | 84 | 0.096 |
| 87 | Kazakhstan [a)] | 36.2 | 0.036 | 241 | 0.275 |
| 88 | Kenya | 41.5 | 0.041 | 25 | 0.029 |
| 89 | Kiribati [a) b)] | 5.8 | 0.006 | 23 | 0.026 |
| 90 | Kuwait [a)] | 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 [a)] | 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 [a) b)] | 1013.4 | 1.000 | 599 | 0.685 |
| 101 | Madagascar [a)] | 9.5 | 0.009 | 24 | 0.027 |
| 102 | Malawi | 8.2 | 0.008 | 3 | 0.003 |
| 103 | Malaysia [a)] | 348.8 | 0.344 | 168 | 0.192 |
| 104 | Maldives [b)] | 150.2 | 0.148 | 38 | 0.043 |
| 105 | Mali [a)] | 4.4 | 0.004 | 14 | 0.016 |
| 106 | Malta [b)] | 699.1 | 0.690 | 549 | 0.627 |
| 107 | Marshall Islands [a)] | 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 [a) b)] | 0 | 0.000 | 20 | 0.023 |

| | Country | Mobile subscribers per 1000 persons | Index | TV sets per 1000 persons | Index |
|---|---|---|---|---|---|
| 112 | Monaco [b] | 0 | 0.000 | 758 | 0.866 |
| 113 | Mongolia [a] | 81.2 | 0.080 | 65 | 0.074 |
| 114 | Morocco | 209.1 | 0.206 | 166 | 0.190 |
| 115 | Mozambique [a] | 8.6 | 0.008 | 5 | 0.006 |
| 116 | Myanmar [a] | 0.3 | 0.000 | 7 | 0.008 |
| 117 | Namibia [a] | 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 [a] | 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 [a] | 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 [a] | 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 [a] | 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 [a] | 86 | 0.085 | 148 | 0.169 |
| 133 | Philippines | 177.7 | 0.175 | 144 | 0.165 |
| 134 | Poland [a] | 362.6 | 0.358 | 400 | 0.457 |
| 135 | Portugal | 819.4 | 0.809 | 630 | 0.720 |
| 136 | Qatar [b] | 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 [a] | 171.7 | 0.169 | 381 | 0.435 |
| 140 | Russia | 120.5 | 0.119 | 421 | 0.481 |
| 141 | Rwanda [a] [c] | 11 | 0.011 | 0.1 | 0.000 |
| 142 | St. Kitts and Nevis [b] | 106.4 | 0.105 | 256 | 0.293 |
| 143 | St. Lucia [b] | 0 | 0.000 | 368 | 0.421 |
| 144 | St. Vincent & the Grenadines [a] [b] | 65.1 | 0.064 | 230 | 0.263 |
| 145 | Samoa [b] | 17.8 | 0.018 | 56 | 0.064 |
| 146 | San Marino [b] | 0 | 0.000 | 875 | 1.000 |
| 147 | S. Tomé & Principe [a] [b] | 0 | 0.000 | 229 | 0.262 |
| 148 | Saudi Arabia [a] | 113.3 | 0.112 | 264 | 0.302 |
| 149 | Senegal | 56.5 | 0.056 | 40 | 0.046 |

| | Country | Mobile subscribers per 1000 persons | Index | TV sets per 1000 persons | Index |
|---|---|---|---|---|---|
| 150 | Serbia and Montenegro [b] | 256.6 | 0.253 | 277 | 0.317 |
| 151 | Seychelles [a] [b] | 538.7 | 0.532 | 214 | 0.245 |
| 152 | Sierra Leone [a] | 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 [b] | 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 [a] [b] | 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 [a] | 12 | 0.012 | 67 | 0.077 |
| 167 | Tajikistan | 2.1 | 0.002 | 326 | 0.373 |
| 168 | Thailand [a] [b] | 260.4 | 0.257 | 274 | 0.313 |
| 169 | The former Yugoslav Republic of Macedonia [a] | 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 [b] | 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 [a] | 1.7 | 0.002 | 196 | 0.224 |
| 177 | Tuvalu [b] | 0 | 0.000 | 9 | 0.010 |
| 178 | Uganda | 15.9 | 0.016 | 27 | 0.031 |
| 179 | Ukraine [a] | 44.2 | 0.044 | 456 | 0.521 |
| 180 | United Arab Emirates | 758.8 | 0.749 | 292 | 0.334 |
| 181 | United Kingdom [a] [b] | 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 [a] | 7.4 | 0.007 | 276 | 0.315 |
| 186 | Vanuatu [a] [b] | 1.7 | 0.002 | 12 | 0.014 |

| | Country | Mobile subscribers per 1000 persons | Index | TV sets 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 [a)] | 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

*Mobile phones data from International Telecommunication Union,*
*Web address:* 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

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 [a) b)] | 0.809 |
| 3 | Algeria [a)] | 0.036 | 3 | United States | 0.801 |
| 4 | Andorra [a) b)] | 0.309 | 4 | Denmark | 0.787 |
| 5 | Angola [b)] | 0.007 | 5 | Norway | 0.774 |
| 6 | Antigua & Barbuda [a) b)] | 0.244 | 6 | Netherlands [a)] | 0.710 |
| 7 | Argentina | 0.187 | 7 | Australia | 0.691 |
| 8 | Armenia [a)] | 0.070 | 8 | Finland | 0.691 |
| 9 | Australia | 0.691 | 9 | Switzerland | 0.682 |
| 10 | Austria [a)] | 0.591 | 10 | Republic of Korea | 0.675 |
| 11 | Azerbaijan | 0.080 | 11 | Canada | 0.675 |
| 12 | Bahamas [b)] | 0.193 | 12 | United Kingdom [a) b)] | 0.675 |
| 13 | Bahrain | 0.347 | 13 | Singapore | 0.666 |
| 14 | Bangladesh | 0.004 | 14 | Luxembourg [a) b)] | 0.660 |
| 15 | Barbados [a) b)] | 0.206 | 15 | San Marino [b)] | 0.640 |
| 16 | Belarus | 0.147 | 16 | Germany | 0.632 |
| 17 | Belgium | 0.514 | 17 | Japan [a)] | 0.626 |
| 18 | Belize [b)] | 0.153 | 18 | New Zealand | 0.613 |
| 19 | Benin [a)] | 0.012 | 19 | Austria [a)] | 0.591 |
| 20 | Bhutan [b)] | 0.015 | 20 | France | 0.529 |
| 21 | Bolivia | 0.055 | 21 | Ireland [a)] | 0.514 |
| 22 | Bosnia & Herzogovina | 0.059 | 22 | Belgium | 0.514 |
| 23 | Botswana [a)] | 0.067 | 23 | Slovenia | 0.513 |
| 24 | Brazil | 0.174 | 24 | Italy | 0.499 |
| 25 | Brunei Darussalam [a) b)] | 0.250 | 25 | Estonia | 0.498 |
| 26 | Bulgaria | 0.207 | 26 | Portugal | 0.490 |
| 27 | Burkina Faso [a)] | 0.005 | 27 | Malta [b)] | 0.460 |
| 28 | Burundi [a)] | 0.005 | 28 | Israel | 0.447 |
| 29 | Cambodia [a)] | 0.004 | 29 | United Arab Emirates | 0.444 |
| 30 | Cameroon [a)] | 0.012 | 30 | Monaco [b)] | 0.440 |
| 31 | Canada | 0.675 | 31 | Cyprus [b)] | 0.429 |
| 32 | Cape Verde | 0.086 | 32 | Spain | 0.409 |
| 33 | Central African Rep. [a)] | 0.002 | 33 | Czech Republic [a)] | 0.386 |
| 34 | Chad | 0.002 | 34 | Greece [a)] | 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 a) b) | 0.309 |
| 39 | Congo | 0.011 | 39 | Qatar b) | 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 a) | 0.292 |
| 43 | Cuba | 0.051 | 43 | Croatia | 0.291 |
| 44 | Cyprus b) | 0.429 | 44 | Chile | 0.275 |
| 45 | Czech Republic a) | 0.386 | 45 | Brunei Darussalam a) b) | 0.250 |
| 46 | D.P.R. Korea | 0.011 | 46 | St. Kitts and Nevis b) | 0.248 |
| 47 | D.R. Congo a) | 0.001 | 47 | Poland a) | 0.248 |
| 48 | Denmark | 0.787 | 48 | Antigua & Barbuda a) b) | 0.244 |
| 49 | Djibouti b) | 0.019 | 49 | Uruguay | 0.244 |
| 50 | Dominica b) | 0.190 | 50 | Seychelles a) b) | 0.241 |
| 51 | Dominican Rep. a) | 0.067 | 51 | Kuwait a) | 0.226 |
| 52 | Ecuador | 0.089 | 52 | Lithuania | 0.218 |
| 53 | Egypt a) | 0.060 | 53 | Bulgaria | 0.207 |
| 54 | El Salvador | 0.082 | 54 | Barbados a) b) | 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 b) | 0.193 |
| 59 | Fiji a) b) | 0.074 | 59 | Turkey | 0.192 |
| 60 | Finland | 0.691 | 60 | Dominica b) | 0.190 |
| 61 | France | 0.529 | 61 | Grenada b) | 0.190 |
| 62 | Gabon a) | 0.077 | 62 | Lebanon | 0.188 |
| 63 | Gambia a) | 0.021 | 63 | Argentina | 0.187 |
| 64 | Georgia | 0.115 | 64 | Russia | 0.185 |
| 65 | Germany | 0.632 | 65 | St. Lucia b) | 0.176 |
| 66 | Ghana a) | 0.019 | 66 | Brazil | 0.174 |
| 67 | Greece a) | 0.372 | 67 | Belize b) | 0.153 |
| 68 | Grenada b) | 0.190 | 68 | Romania a) | 0.149 |
| 69 | Guatemala a) | 0.044 | 69 | Belarus | 0.147 |
| 70 | Guinea a) | 0.009 | 70 | St. Vincent & the Grenadines a) b) | 0.136 |
| 71 | Guinea-Bissau a) | 0.004 | 71 | Serbia and Montenegro b) | 0.134 |

| | Country | Technological Infrastructure Index 2003 | | Country | Technological Infrastructure Index 2003 |
|---|---|---|---|---|---|
| **Alphabetical order** | | | **Sorted in descending order** | | |
| 72 | Guyana [b] | 0.119 | 72 | Oman [a] | 0.132 |
| 73 | Haiti | 0.012 | 73 | Mexico | 0.132 |
| 74 | Honduras | 0.041 | 74 | Jamaica [a] | 0.127 |
| 75 | Hungary | 0.307 | 75 | South Africa | 0.126 |
| 76 | Iceland [a] [b] | 0.809 | 76 | Republic of Moldovia | 0.120 |
| 77 | India | 0.027 | 77 | Guyana [b] | 0.119 |
| 78 | Indonesia | 0.045 | 78 | Saudi Arabia [a] | 0.119 |
| 79 | Iran (I.R.) | 0.090 | 79 | Colombia | 0.118 |
| 80 | Iraq | 0.016 | 80 | Suriname [a] [b] | 0.118 |
| 81 | Ireland [a] | 0.514 | 81 | Thailand [a] [b] | 0.117 |
| 82 | Israel | 0.447 | 82 | Venezuela | 0.117 |
| 83 | Italy | 0.499 | 83 | China | 0.116 |
| 84 | Jamaica [a] | 0.127 | 84 | Ukraine [a] | 0.116 |
| 85 | Japan [a] | 0.626 | 85 | Georgia | 0.115 |
| 86 | Jordan | 0.089 | 86 | The former Yugoslav Republic of Macedonia [a] | 0.111 |
| 87 | Kazakhstan [a] | 0.062 | 87 | Peru | 0.111 |
| 88 | Kenya | 0.021 | 88 | Panama [a] | 0.095 |
| 89 | Kiribati [a] [b] | 0.026 | 89 | Iran (I.R.) | 0.090 |
| 90 | Kuwait [a] | 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 [a] | 0.077 |
| 97 | Libya [a] | 0.043 | 97 | Paraguay | 0.074 |
| 98 | Liechtenstein | 0.319 | 98 | Fiji [a] [b] | 0.074 |
| 99 | Lithuania | 0.218 | 99 | Armenia [a] | 0.070 |
| 100 | Luxembourg [a] [b] | 0.660 | 100 | Maldives [b] | 0.069 |
| 101 | Madagascar [a] | 0.007 | 101 | Dominican Rep. [a] | 0.067 |
| 102 | Malawi | 0.005 | 102 | Botswana [a] | 0.067 |
| 103 | Malaysia [a] | 0.292 | 103 | Philippines | 0.064 |
| 104 | Maldives [b] | 0.069 | 104 | Kazakhstan [a] | 0.062 |
| 105 | Mali [a] | 0.005 | 105 | Morocco | 0.061 |
| 106 | Malta [b] | 0.460 | 106 | Egypt [a] | 0.060 |
| 107 | Marshall Islands [a] | 0.040 | 107 | Bosnia & Herzogovina | 0.059 |

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

| | Country | Technological Infrastructure Index 2003 | | Country | Technological Infrastructure Index 2003 |
|---|---|---|---|---|---|
| **Alphabetical order** | | | **Sorted in descending order** | | |
| 145 | Samoa [b] | 0.034 | 145 | Solomon Islands [b] | 0.022 |
| 146 | San Marino [b] | 0.640 | 146 | Côte d'Ivoire | 0.021 |
| 147 | S. Tomé & Principe [a] [b] | 0.054 | 147 | Gambia [a] | 0.021 |
| 148 | Saudi Arabia [a] | 0.119 | 148 | Kenya | 0.021 |
| 149 | Senegal | 0.027 | 149 | Djibouti [b] | 0.019 |
| 150 | Serbia and Montenegro [b] | 0.134 | 150 | Ghana [a] | 0.019 |
| 151 | Seychelles [a] [b] | 0.241 | 151 | Iraq | 0.016 |
| 152 | Sierra Leone [a] | 0.005 | 152 | Bhutan [b] | 0.015 |
| 153 | Singapore | 0.666 | 153 | Tuvalu [b] | 0.015 |
| 154 | Slovakia | 0.294 | 154 | Equatorial Guinea | 0.013 |
| 155 | Slovenia | 0.513 | 155 | Nigeria | 0.013 |
| 156 | Solomon Islands [b] | 0.022 | 156 | Haiti | 0.012 |
| 157 | Somalia | 0.002 | 157 | Benin [a] | 0.012 |
| 158 | South Africa | 0.126 | 158 | Cameroon [a] | 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 [a] [b] | 0.118 | 162 | Guinea [a] | 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 [b] | 0.007 |
| 166 | Syria [a] | 0.038 | 166 | Eritrea | 0.007 |
| 167 | Tajikistan | 0.046 | 167 | Comoros | 0.007 |
| 168 | Thailand [a] [b] | 0.117 | 168 | Lao P.D.R. | 0.007 |
| 169 | The former Yugoslav Republic of Macedonia [a] | 169 0.111 | Madagascar [a] | | 0.007 |
| 170 | Timor-Leste | 0.000 | 170 | Nepal | 0.006 |
| 171 | Togo | 0.034 | 171 | Niger [a] | 0.005 |
| 172 | Tonga [b] | 0.051 | 172 | Sierra Leone [a] | 0.005 |
| 173 | Trinidad & Tobago | 0.206 | 173 | Mali [a] | 0.005 |
| 174 | Tunisia | 0.089 | 174 | Burundi [a] | 0.005 |
| 175 | Turkey | 0.192 | 175 | Malawi | 0.005 |
| 176 | Turkmenistan [a] | 0.042 | 176 | Burkina Faso [a] | 0.005 |
| 177 | Tuvalu [b] | 0.015 | 177 | Cambodia [a] | 0.004 |
| 178 | Uganda | 0.007 | 178 | Bangladesh | 0.004 |
| 179 | Ukraine [a] | 0.116 | 179 | Mozambique [a] | 0.004 |
| 180 | United Arab Emirates | 0.444 | 180 | Guinea-Bissau [a] | 0.004 |

| | Country | Technological Infrastructure Index 2003 | | Country | Technological Infrastructure Index 2003 |
|---|---|---|---|---|---|
| **Alphabetical order** | | | **Sorted in descending order** | | |
| 181 | United Kingdom a) b) | 0.675 | 181 | Liberia | 0.003 |
| 182 | United Rep. Of Tanzania* | 0.009 | 182 | Rwanda a) c) | 0.003 |
| 183 | United States | 0.801 | 183 | Ethiopia | 0.003 |
| 184 | Uruguay | 0.244 | 184 | Myanmar a) | 0.003 |
| 185 | Uzbekistan a) | 0.053 | 185 | Central African Rep.a) | 0.002 |
| 186 | Vanuatu a) b) | 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 a) | 0.039 | 189 | D.R. Congo a) | 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*

*Telephone data from International Telecommunication Union, Web address: 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*

*Internet and Estimated PCs data from International Telecommunication Union, Web address: 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*

*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*

Table 8

# Human Capital Index

| | | Human Cap Index | | | Human Cap Index |
|---|---|---|---|---|---|
| 1 | Afghanistan [a)] | 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 & Herzogovina | 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 [a)] | 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 [a)] | 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 [a)] | 0.694 |

| | | Human Cap Index | | | Human Cap Index |
|---|---|---|---|---|---|
| 76 | Seychelles | 0.83 | 86 | Togo | 0.59 |
| 75 | Sierra Leone | 0.33 | 85 | Tonga [a)] | 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 [a)] | 0.096 | 89 | Tuvalu [a)] | 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 [a)] | 0.860 | 95 | Yemen | 0.48 |
| | | | 94 | Zambia | 0.68 |
| 84 | Timor-Leste | 0.000 | 96 | Zimbabwe | 0.81 |

*Source: UNDP HDR 2002.*
*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 |

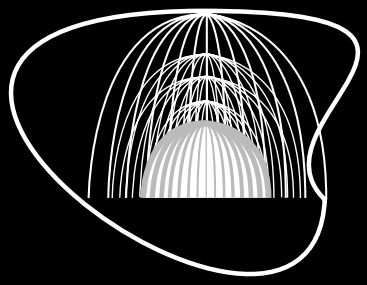
| | | | E-Participation | | | | E-Participation |
|---|---|---|---|---|---|---|---|
| | | | e information | e consultation | e decision making | | Index |
| | | | I. | II. | III. | Total Pts. | |
| | Rank | Country | | | | | |
| 33 | 18 | Norway | 8 | 6 | 6 | 20 | 0.345 |
| 34 | 19 | El Salvador | 6 | 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 | 0.000 |
| 170 | 37 | Kenya | 0 | 0 | 0 | 0 | 0.000 |
| 171 | 37 | Kiribati | 0 | 0 | 0 | 0 | 0.000 |
| 172 | 37 | Lao People's Democratic Republic | 0 | 0 | 0 | 0 | 0.000 |
| 173 | 37 | Liberia | 0 | 0 | 0 | 0 | 0.000 |
| 174 | 37 | Libyan Arab Jamahiriya | 0 | 0 | 0 | 0 | 0.000 |
| 175 | 37 | Myanmar | 0 | 0 | 0 | 0 | 0.000 |
| 176 | 37 | Niger | 0 | 0 | 0 | 0 | 0.000 |
| 177 | 37 | Palau | 0 | 0 | 0 | 0 | 0.000 |
| 178 | 37 | Papua New Guinea | 0 | 0 | 0 | 0 | 0.000 |
| 179 | 37 | Qatar | 0 | 0 | 0 | 0 | 0.000 |
| 180 | 37 | Saint Vincent and the Grenadines | 0 | 0 | 0 | 0 | 0.000 |
| 181 | 37 | Sao Tome and Principe | 0 | 0 | 0 | 0 | 0.000 |
| 182 | 37 | Sierra Leone | 0 | 0 | 0 | 0 | 0.000 |
| 183 | 37 | Solomon Islands | 0 | 0 | 0 | 0 | 0.000 |
| 184 | 37 | Somalia | 0 | 0 | 0 | 0 | 0.000 |
| 185 | 37 | Suriname | 0 | 0 | 0 | 0 | 0.000 |
| 186 | 37 | Swaziland | 0 | 0 | 0 | 0 | 0.000 |
| 187 | 37 | Syrian Arab Republic | 0 | 0 | 0 | 0 | 0.000 |
| 188 | 37 | Tajikistan | 0 | 0 | 0 | 0 | 0.000 |
| 189 | 37 | Tonga | 0 | 0 | 0 | 0 | 0.000 |
| 190 | 37 | Tuvalu | 0 | 0 | 0 | 0 | 0.000 |
| 191 | 37 | Uzbekistan | 0 | 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

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 = 2/3 (Adult literacy index) + 1/3 (Gross enrolment index) = 2/3 (0.963) + 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

[1] 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

[2] UN Millennium Development Indicators.

[3] Illiteracy rates data from UNESCO. EFA *Global Monitoring Report 2002*. pages 208-212.

[4] "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

[5] NUA Internet statistics. http://www.nua.ie/surveys/how_many_online/index.html

[6] 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.

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[8] "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

[9] http://www.studera.nu/english/index.shtml

[10] See www.teachnet.gov.uk

[11] See www.curriculum.edu.au

[12] See http://www.nks.nhs.uk/

[13] http://platsbanken.ams.se/

[14] The World Bank, "E-government Readiness: Colombia Case Studies", Colombia Government Portal. http://www1.worldbank.org/publicsector/egov/colombiaportal_cs.htm

[15] Ibid.

[16] Ibid.

[17] http://www.unicttaskforce.org/about/principal.asp

[18] The World Bank, "E-government Readiness: Sri Lanka Case Study" http://www1.worldbank.org/publicsector/egov/srilanka.htm

[19] http://www.healthinternetwork.org/src/millenium.php

[20] *United Nations Millennium Declaration*, September 2000 http://www.un.org/millennium/declaration/ares552e.htm. See Para III.11.

[21] Jerzy Szeremeta, "Benchmarking E-government Readiness: A Global Perspective", Keynote address to the International Congress on Government Online 2002, Canada, UN DPADM, Mimeo

[22] *United Nations Millennium Declaration*, September 2000, http://www.un.org/millennium/declaration/ares552e.htm

[23] 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

[24] For a more detailed discussion of information (explicit knowledge) and knowledge (tacit knowledge) see Chapter II of Part I of the Report.

[25] See also Introduction.

[26] Zero=never; 1 = sometimes; 2 = frequently; 3 = mostly; and 4 = always

[27] 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.

[28] Regional groupings are taken from the UN Statistical Division classification. See http://unstats.un.org/unsd/methods/m49/m49regin.htm

[29] Nua Internet. http://www.nua.ie/surveys/how_many_online/index.html

[30] "Benchmarking E-government: A Global Perspective", United Nations and ASPA, 2002, p. 35.

[31] "Sweden Official Policy On Citizen-Centric E Series" http://governments-online.org/projects/portals/files/Sweden.rtf.

32 Ibid.

[33] "Digital Governance, Building and Sustaining Democratic and Accountable Governance Structures" using ICT, http://www.cddc.vt.edu/digitalgov/gov-cases.html

[34] "E-Government: Considerations For Arab States", UNDP, April 2001, pp. 8 -11

[35] Source: The African Internet - A Status Report, July 2002. http://www3.sn.apc.org/africa/afstat.htm

[36] Source: The African Internet - A Status Report. July 2002 http://www3.sn.apc.org/africa/afstat.htm

[37] 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.

[38] See http://www.ghana.gov.gh/governing/egovernance/index.php

[39] "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.