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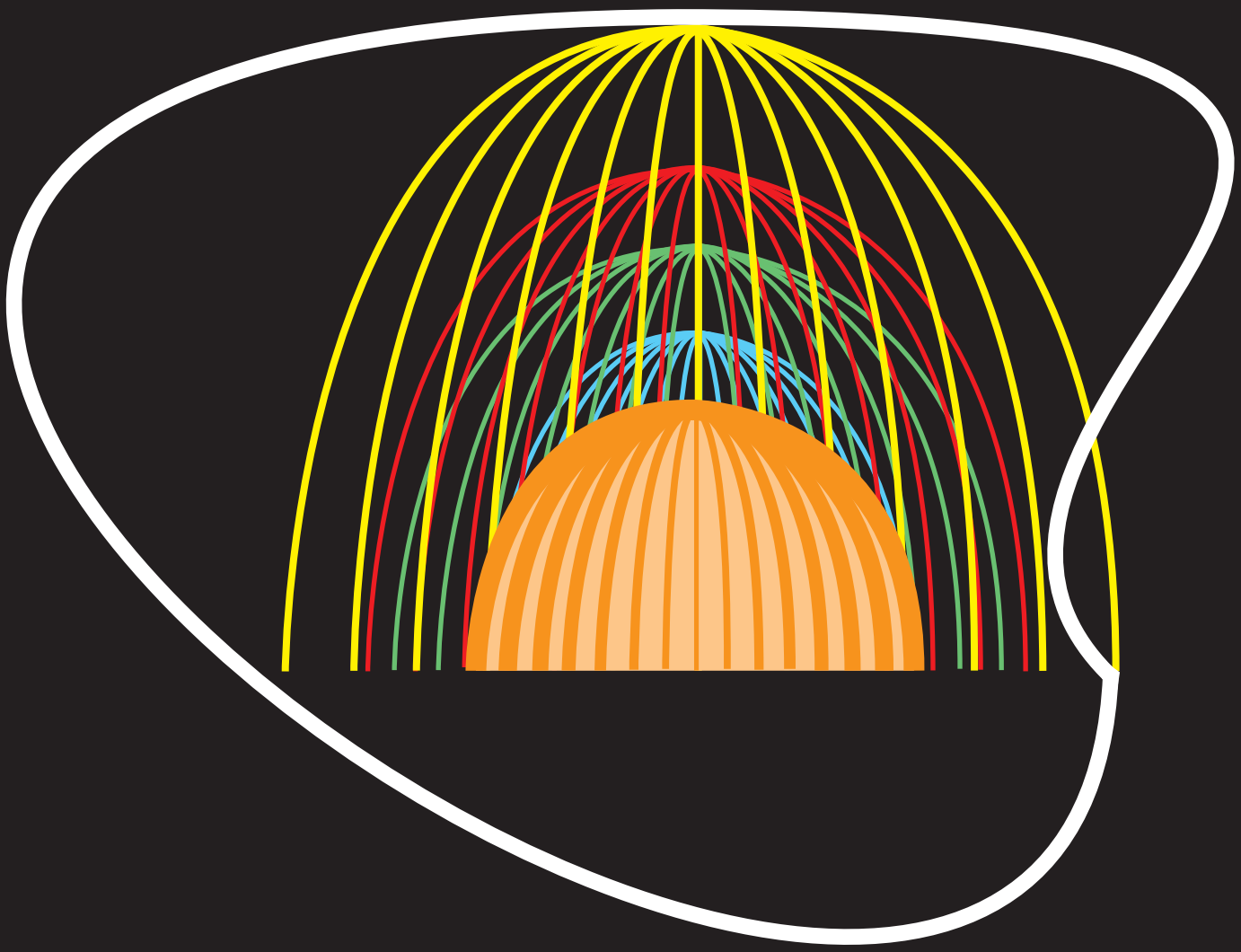
World Public Sector Report 2003

E-Government at the Crossroads



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World Public Sector Report 2003: E-Government at the Crossroads

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Preface

This second World Public Sector Report stresses that even in today's Information and Communication Technology (ICT)-rich environment, it will not be ICT by itself that redirects and re-shapes the functions of governments and makes them somehow different or better. However, ICT can certainly contribute to changes in the ways in which governments operate. More importantly, it can force us to collectively re-examine some of the fundamental building blocks of the organization of human society.

This is an important message. In the UN Millennium Declaration, Member States set out an ambitious agenda for human development. Referring to its implementation, they expressed faith in certain universal values, in better governance at the local and at the global level and in science and technology, especially in the transformative power of ICT. As time passes and we record progress (or lack thereof) in the implementation of this agenda, it is not too soon to start considering the relative value and impact of all these factors. This includes the impact of ICT on the ways we organize ourselves as a human society for choosing and achieving goals of growth and development.

Good governance presupposes people's participation. ICT challenges the institutions that have for centuries been considered as vehicles for assuring that participation.

Public sector administration has been built for the accumulation of resources and their distribution through hierarchic bureaucracies. ICT tends to strengthen networks more than it does hierarchies. Thus, it challenges the inherited ways of accumulating and distributing resources, including those of the public sector.

In the future, public value may increasingly be produced and delivered by the ICT-savvy private sector. This would hardly be possible without renegotiating norms for behaviour of public agents - public, private, corporate or individual. ICT challenges the scope of private value and its understanding by private agents who act in the public interest.

Finally, ICT - and especially ICT in the hands of governments - challenges individuals as parties to social agreements that guarantee the human right to privacy.

All these are issues that the world will have to sort out in a new way as a result of the presence of ICT in our society, including its presence in the form of e-government.

The current Report constitutes an invitation to discuss these issues and provides a UN perspective on them. We hope that the world community will read it as it has been written: as a thoughtful compendium of serious issues for serious consideration by all those who care about human development and about the role that public administrations play in it.

Nitin Desai

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for Economic and Social Affairs
and Special Adviser to the Secretary-General
for the World Summit on the Information Society

New York, 28 August 2003

Foreword

"E-Government at the Crossroads", the second World Public Sector Report, has been shaped by the results of our research, including those of the UN Global E-Government Survey 2003, the most extensive world survey of e-government to date. Its point of departure is the question "What makes e-government application meaningful?" formulated in response to requests from Member States of the United Nations for advice and technical expertise concerning the application of ICT in their government operations.

As we have discovered, there is no universal answer to this question. It depends on the interest of the one who searches for an answer to it. However, if one establishes human development as the guiding principle for e-government development, it becomes possible to start distinguishing between e-government development that is meaningful and e-government development that is pointless.

We have also looked into the decision-making process applied for choosing e-government applications and allocating resources to their development. In so doing we have relied on the UN Millennium Declaration. This milestone document has given us a clear message about the need to improve governance in order to achieve human development, along with a well-selected set of objectives that may constitute the first steps in this direction.

We considered the relationships between ICT and organizations, ICT and institutions, and ICT and individuals. Very serious concerns have emerged about the structure of governments, their abilities to seize the ICT opportunities for what really matters and the impact of e-government on human institutions and the negotiating power of individuals within these institutions in relation to human rights and freedoms.

We are confident that this report draws the correct parameters for continued discussion about e-government and will be useful for every-day policy making.

Guido Bertucci
Director
Division for Public Administration and Development Management

New York, 28 August 2003

Acknowledgements

This Report constitutes an international collaborative effort.

The Report has been finalized under the direction of Guido Bertucci, Director of the UNDESA Division for Public Administration and Development Management. Jerzy Szeremeta, author of Part I of the Report, was responsible for the whole project and in this effort was supported by the UNDESA Team: Solange Del Rosario-Duluc, Seema Hafeez (in charge of the UN Global E-Government Survey 2003, author of Part II of the Report), Neena Koshy and Jennifer Sisk. The Team benefited from the valuable contributions of experts and researchers as well as from voluntary inputs offered by managers and staff of e-government applications all over the world.

In particular, many ideas, insights and data provided in the Report originated in thoughtful papers offered by Subbash C. Bhatnagar, James X. Dempsey (together with Paige Anderson and Ari Schwartz of the Center for Democracy and Technology), Donald L. Lenihan, Steven L. Clift, Gregory G. Curtin, Pippa Norris, Carlos A. Osorio-Urzua, Sara Wilford and Dieter Zinnbauer.

The Report benefited greatly from the findings of the UN Global E-government Survey 2003. These had been made possible by tireless review of government websites as well as insightful inputs to the analysis of results of the review provided by the Civic Resource Group team - its two Managing Directors, Gregory G. Curtin and Robert B. McConnachie as well as a group of dedicated researchers: Kim Andreasson, Veronika Vis-Sommer, Michael Sommer and Christopher J. Walker.

We were overwhelmed by the willing co-operation of managers and staff of e-government programmes in 20 countries on four continents who took the time and effort to write up their achievements and experiences for us. Though some of them have preferred that we give credit to the institutions for which they work, rather than to them personally, in all cases it has been the willingness of the individuals that has made the difference. For that we remain grateful to: Tina Archard Heide (Denmark), Peder Bentsen (Norway), Kim Chan-Gon (Republic of Korea), Michael Deilmann (Germany), Jorge Fabio De León López (Mexico), Benny Eklund (Sweden), Anna Foley (Australia), Riitta Haggren (Finland), Darryl Hirsh (Canada), Andre Hoddevik (Norway), Zhu Jianyuan (China), Rodopi Kazantzidou (Greece), Terence H. Lutes (U.S.), Sandra Lynn (Australia), Steve March (United Kingdom), Thomas Menzel (Austria), Carlos Moncada Quintanilla (Bolivia), Rudolf Moser (Austria), Yoshiaki Nakano (Brazil), Knut Arve Orten Lie (Norway), Guy de Pauw (Belgium), Cesar Luis Perales Tellez (Mexico), Rainer Riedel (Austria), Sue Rickerby (Australia), Heli Sasaki (Brazil), Jari Seppala (Finland), Nanna Skovrup (Denmark), Walter Soboll (Brazil), Tex Vertmann (Estonia), Ken Warren (New Zealand), Ulla Westermarck (Finland), Margaret Whelan (Ireland), Birgit Wilder (Austria), Donna Wood (Canada), as well as staff members of Government Chief Information Office, Information Development Authority (Singapore), Government of the Hong Kong Special Administrative Region (China), Ministry of Finance (Singapore) and New Zealand Treasury (New Zealand).

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"A true measure of the State is not its "size", but rather the nature of the functions that it performs, and the efficiency and effectiveness with which it performs them."[1]

World Public Sector Report: Globalization and the State, 2001

Introduction

1. Definitions and basic concepts

We put "**e**" in front of "**government**" to recognize that a public administration is in the process of transforming its internal and external relationships with the use of modern information and communication technology (ICT). (See Box l.)

ICT is about communication among people: the quintessence of human society. We have always used communication to inform, learn, define concepts and viewpoints, deliberate and reach agreements, in private and in public life. One can put the electronic features of modern ICT into this timeless communication process and benefit from doing so. If this is done in the context of public administration, it is bound to have an impact on the creation of public value. Indeed, e-government at its best can be viewed as the process of creating public value with the use of modern ICT.[2]

The notion of **public value** (see Box 2) is rooted in people's preferences, as only the public can determine what is truly of value to its members. It is also rooted in the ability of government to create things that people want. Outcomes of the development process that improve people's quality of life, laws that are necessary and just, services that meet the people's needs, fairness, equity, due process, trust and confidence in government that stems from perception of its overall performance are all things that people want and value. They pay for them with resources and powers that they give up and in exchange they expect the government to be instrumental in producing public value. (If proper ethical values - and especially the value of human solidarity - are in place, this trade-off does not yield to minimalist interpretation: people are known to have surrendered some of their individual liberty to promote, and benefit from, the common good.) From this point of view, e-government is justified if it enhances the capacity of public administration to increase the supply of public value, i.e. the things that people want.

...e-government is justified if it enhances the capacity of public administration to increase the supply of public value, i.e. the things that people want.

This model of inter-relationships among the people, government and public value - if applied to analysis of e-government - is simple and straightforward. People express preferences, the government uses ICT to enhance its own capacity to deliver what people want, and eventually a public value - the outcome of a high quality of life - is created. In real life this model is often difficult to apply and maintain. A recently conducted global survey has indicated that two-thirds of the people think that their government does not represent them, do not trust their government and feel that their country is not governed by the will of the people.[3] What went wrong?

First, a parallel track may appear. Private, not public preferences are expressed, the government delivers and outcomes are produced that may or may not increase the quality of people's lives. We know enough about the reasons behind government failure to understand that within this scenario a government can engage in actually destroying public value. The self-serving behaviour of politicians and civil servants and/or the capture of public agencies by narrow interest groups are most often behind such an outcome.

...in a society and economy that is increasingly driven by technological innovations, people have to deal with a difficult trade-off between convenience and/or the efficiency that a technological innovation brings and the changes in the societal context that it imposes.

Second, people's preferences may not be articulated clearly. Again, this is bound to lead to the production of outcomes that may or may not increase the quality of people's lives. While this subject will be discussed in more detail in Chapter III (E-participation), several facts warrant mentioning here.

Inequalities of status (related to income, gender, religion, ethnicity etc.) continue to exclude sizeable minorities, and on occasion majorities from formulating their preferences publicly. Additionally, in the hassle of every-day life, people tend to suspend their judgement for longer than seems prudent, acquiesce and accept the formulation of preferences on their behalf by experts within or outside government. This substitution, even if performed in good faith, may or may not result in the capture and articulation of the real preferences of the public at large.

Additionally, in a society and economy that is increasingly driven by technological innovations, people have to deal with a difficult trade-off between convenience and/or the efficiency that a technological innovation brings and the changes in the societal context that it imposes. In this bargain, human values, desires and rights are being put into play alongside development objectives and the claims on the social environment that a particular technology would make. Frequently, experts make these trade-offs on people's behalf. If people make them directly, at least initially, they often act on the basis of incomplete information. If commercial interests are involved, the information available to the public may have been processed by the culture industry.[1] Let there be no doubt about it: historically, technological innovations have resulted in a vastly improved quality of life. Nevertheless, especially from a long-term perspective, some of the trade-offs seem unfair and the currency that people use in these "transactions" diminishes the stock of the things that they value. All this is a source of legitimate concern.

An author writes, "(...) an unfortunate shortcoming of technology assessment is that it tends to see technological change as a 'cause' and everything that follows as an 'effect' or 'impact'.

BOX 1

Government

Government - a public organization - is part of a broader governance system. It is a means to a goal. These days, government is seen predominantly as a public organization set up by a society for the purpose of pursuing that society's development objectives. This comprises articulating the society's development-related demands, proposals and needs, aggregating them and implementing responsive solutions. Enjoyment of public consent constitutes the source of government's legitimacy. Transparency is a condition sine qua non for government's accountability vis-à-vis its oversight body.

E-government is a government that applies ICT to transform its internal and external relationships.

Through the application of ICT to its operations, a government does not alter its functions or its obligation to remain useful, legitimate, transparent and accountable. If anything, this application raises society's expectations about the performance of government, in all respects, to a much higher level.

[1] Culture industry (Walter Benjamin, Theodor Adorno) consists of the mass media system that is intricately linked with the present day dominant models of production, distribution, exchange and consumption. As a result, culture is commodified and produced by the culture industry in the same way as other goods and services. This leads to manipulation of the public, and to the growing inability of people to independently formulate and express their cultural preferences. (Source: www.whatis.com and Table 8)

BOX 2

Public Value

Public value refers to the value created by government through provision of services, the passing of laws and regulations and other actions. The key things that people value tend to fall into three categories: outcomes, services and trust.

Only the public can determine what is truly of value to society. In a representative democracy, value is determined by people's preferences, expressed through a variety of means and refracted through the decisions of elected politicians. People's preferences are formed socially: in the family, among friends and in public debate. Citizen engagement in public affairs is desirable precisely because it challenges and changes underlying preferences.

The value added by government is the difference between the benefits that the public eventually enjoys and the resources and powers that citizens decide to give to their government. An implicit - and sometimes explicit - contract underlies public value. The legitimacy of government as a whole generally depends on how well it creates public value.

The concept of public value provides a yardstick against which to gauge the performance of policies and public institutions, make decisions about allocating resources and select appropriate systems of delivery (including application of ICT to transform the internal and external relationships of government).

For something to be of value it is not enough for people to say that it is desirable. It is only of value if they are willing to give something in return (e.g. taxes, granting of coercive powers, disclosure of private information, time or other personal resources).

Public value and ethical values are closely linked. Seen through the lens of public value, the ethos and values of any public organization, service provider or profession must be judged by how appropriate they are in the creation of public value. Inappropriate values may lead to the destruction of public value.

Politicians and public agencies can destroy public value for a range of reasons (e.g. poor information about people's preferences, self-interest, rent seeking, capture of public agencies by narrow interest groups and a lack of incentives for public agencies to act efficiently or responsively to the public's needs).

There is no systematic correlation between different levels of public spending (30%, 40%, 50% of GDP) and the public value that is being created; the key issue is how well public resources are spent. Techniques for measuring and managing public value are more complex than in the case of private value. People often place a strong value on "public" issues such as disbursement equity and due process. It is difficult to aggregate their preferences as they, themselves, are involved in the production of public services. Differences of opinion among citizens extend to ethical disagreements (e.g. over the nature of social justice). Governments have a stewardship role in relation to future generations that is different from companies' obligations to future shareholders.

Difficult as these things are to gauge, public value created by outcomes can be measured by the identification of causative factors (e.g. was the government instrumental?); services can be measured by satisfaction and perception of fairness; trust, legitimacy and confidence can be measured by perceptions of the overall performance of government.

Source: Gavin Kelly and Stephen Muers, "Creating public value. An analytical framework for public sector reform", October 2002, http://www.strategy.gov.uk/2001/futures/attachments/pv/public_value.pdf

(...) After the bulldozer has rolled over us, we can pick ourselves up and carefully measure the tread marks. (...) social activity is an ongoing process of world- making. (...) As we 'make things work', what kind of world are we making? (...) Are we going to design and build circumstances that enlarge possibilities for growth of human freedom, sociability, intelligence, creativity and self-government? Or are we headed in an altogether different direction."[4]

There is enough historical evidence to prove that various deviations from the original model of public value creation, as a rule, do not secure developmental outcomes that people want. Therefore, assuring such outcomes may require adoption of a pro-active posture of world making that refuses to see the public as an object and accepts people's preferences as the sole legitimate source of ideas about the direction, content and outcome of the development process. Such a stance assumes responsibility for both the design and the building and maintaining of the societal context for development that people want. Under this scenario, e-government can become part of world making to the extent to which it is instrumental in the supply of public value. ICT deployment in society in general can also become part of world making provided it supports the societal context that people want, as opposed to adjusting it in ways that people do not want, even if this creates private value.

...pro-active posture of world making refuses to see the public as an object and accepts people's preferences as the sole legitimate source of ideas about the direction, content and outcome of the development process.

World making is not an exclusive occupation. It engages all people as well as their institutions and organizations, government and business. It hinges on partnerships and broad co-operation. It is based on success in mobilizing the supportive strength of moral support and political power.

Adopting the outlook of world making takes enlightened, high quality leadership. It also takes enlightened, high quality citizens, as "good government originates in the quality of civil societies and results from demand for it, rather than its supply."[5] Pervasive and ubiquitous, ICT opens new development opportunities for people. Only a short time ago one could talk about the potential that a relatively narrow group of highly educated, skilled and networked individuals, multi-faceted in their interests, could bring to the world of politics and economics by being able to create domains of shared interest and, if necessary, by bestowing on them executive powers.[6] Before life has had time to prove this thesis right or wrong with the recent arrival of Broadband and especially Wi-Fi technology[ii], one can talk about "smart mobs", i.e. "people (from all walks of life) who would be able to act in concert even if they do not know each other."[7] Broadband in general and especially the Wi-Fi technology, if combined with the needed minimum of education and ICT skills, have the potential to create a situation in which "e"-government will meet the "n" (for networked) -citizens.

[ii] Broadband refers to telecommunication in which a wide band of frequencies is available to transmit information. As a result, more information can be transmitted in a given amount of time. The U.S. Federal Communications Commission (FCC) defines broadband as Internet services provided at speeds of at least 200 kilobits per second (Kbps) in one direction. TechNet, a group of high tech industry CEOs, places the true broadband at 100 Kbps. Wi-Fi (short for "wireless fidelity") is the popular term for a high-frequency wireless local area network (WLAN), an emerging but quickly spreading technology. Wi-Fi is rapidly gaining acceptance in many business companies as an alternative to a wired LAN. It can also be installed for a home network. It offers local high-speed connectivity at a minuscule cost. Its potential is being expanded by applications that bridge the "last mile" in broadband connectivity between the main telecom networks and places of business or homes. It is on its way to converging with cell phones. As a result, in the not so distant future the Internet may gain the potential to be literally everywhere, in different strengths and price tiers (mostly free), depending on the underlying local infrastructure. Source: www.whatis.com and "Unwired", supplement to the Wired Magazine, May 2003.

2. UN Millennium Declaration as an example of world making

The United Nations Millennium Declaration[8] outlines the world-making effort by the Member States.

The United Nations Millennium Declaration outlines the world-making effort by the Member States.

It adopts human development as the true measure of the progress of nations and as the **preferred development outcome**. It outlines the societal context best suited for world-wide achievement of human development in the 21st century.

The Declaration confirms the **domain** of all people everywhere.

The **developmental vision** outlined by the Member States in the Declaration is that of "a more peaceful, prosperous and just world", "a shared future, based on (...) common humanity in all its diversity", in which "the principles of human dignity, equality and equity" are upheld.

To achieve this vision, the Declaration names "**key objectives**" to which (the Member States) assign special significance.

"Just and lasting peace all over the world" constitutes one such objective.

Ensuring that "globalization becomes a positive force for all the world's people" constitutes another.

"Freeing the entire human race from want", which includes freeing "fellow men, women and children from the abject and dehumanizing conditions of poverty" as well as "making the right to development a reality for everyone" is yet another.

Other key objectives include:
- freeing all "humanity (...) from the threat of living on a planet irredeemably spoilt by human activities";
- promoting "gender equality and the empowerment of women as effective ways to combat poverty, hunger and disease and to stimulate development that is truly sustainable";
- developing and implementing "strategies that give young people everywhere a real chance to find decent and productive work";
- ensuring that "the benefits of new technologies, especially information and communication technologies (...) are available to all";
- promoting "democracy";
- strengthening "the rule of law";
- strengthening "respect for all internationally recognized human rights and fundamental freedoms, including the right to development";
- ensuring "every assistance and protection to victims of natural disasters, genocide, armed conflicts and other humanitarian emergencies";
- meeting the special needs of Africa, especially in the area of "consolidation of democracy", "lasting peace", "poverty eradication and sustainable development";
- making the United Nations "a more effective instrument for pursuing all of these priorities".

The Millennium Development Goals[9], some with specific deadlines, focus on eradication of extreme poverty and hunger; achieving universal primary education; promoting gender equality and empowerment of women; reducing child mortality; improving maternal health; combating HIV/AIDS, malaria and other diseases; ensuring environmental sustainability; and establishing a global partnership for development.

The Declaration also specifies **modalities** for achieving these objectives.

The most all-encompassing among them (listed also as a key objective in its own right) is democratic, participatory governance.

Specifically, the Member States pledge to work "for more inclusive political process, allowing genuine participation by all citizens". They resolve "to ensure (...) the right of the public to have access to information". Speaking about the basic human rights, they express their conviction that "democratic and participatory governance based on the will

of the people best assures these rights". Speaking about elimination of poverty and securing the right to development they say, "Success in meeting these objectives depends, inter alia, on good governance within each country."

Perhaps recognizing that democracy is a mere rule of majority over minority, the Declaration provides also a **reference menu of values** thought as "essential" in the 21st century. These are freedom, equality, solidarity, tolerance, respect for nature, as well as shared responsibility.

Institutions that espouse this vision, pursue these objectives, apply these modalities and adhere to these values secure the societal context for human development in the 21st century.

Governments continue to constitute a most vital part of the institutional framework for human development.

Governments continue to constitute a most vital part of the institutional framework for human development. As stated in the United Nations Millennium Report, "At the national level we must govern better (...). Effective States are essential (...), and their capacity (...) needs strengthening."[10] The Road Map towards the Implementation of the United Nations Millennium Declaration confirms, "The primary responsibility for guaranteeing the protection and well being of the individual rests with the State."[11] Finally, to quote the 2001 World Public Sector Report, "(...) the State remains central to the well being of its citizens and to proper management of social and economic development. (...) Globalization does not reduce the role of the nation-State, but redefines it (...)."[12]

The UN Millennium Declaration presupposes that every nation-State features an effective institutional structure that is capable of securing human development, or that it is ready to undergo a complex process of change to establish such a structure. This involves, inter alia, the supply of a specific public value: a government at the national and local level that relies on democratic, participatory governance in order to pursue a specific set of development objectives supporting the vision of a peaceful, prosperous and just world for all.

3. From vision to reality

The main thesis that emerges from this presentation is that the mere existence of e-government says practically nothing about the quality of life in a society.

The main thesis that emerges from this presentation is that the mere existence of e-government says practically nothing about the quality of life in a society.

A researcher who has probed the application of ICT to rural development in the poorest regions of Asia and Latin America observes[13], "(...) the way (in which) technology eventually contributes to rural development by and large is still determined by the nature of the socio-political and economic context of a given nation-State." As stressed by another author[14], "Without (...) strategic commitment (to a developmental vision/change programme), the hierarchy will use technology to reproduce itself. Technological developments, in absence of (institutional and) organizational innovation, will be assimilated into the status quo."

Similar wisdom comes from Malaysia[15], "(...) we need to pause and reflect upon the primary purpose of this journey into the future, and for many societies, into the unknown. (...) E-government (...) is no panacea for those societies with congenitally corrupt and defective political, social and economic systems and structures. (...) It is patently absurd to think that e-government could, and indeed would, transform a (failed state) into an efficient, credible, development-oriented super state. (...) E-government realistically is a function of capacity, capability and political will to break away from an existing condition."

Whatever the language, the message seems to be the same: in order to positively impact the quality of life, e-government development must be put within the context of a vision of the kind of society with which people want to identify and make part of their life experience. Technology must be put in the position of a tool and society must be mobilized around the programme of world making that comprises implementation of development objectives supporting the adopted developmental vision, while using ICT if, when and where needed.[iii]

In the global society that pursues the kind of world making that has been outlined in the UN Millennium Declaration, it must be recognized that "(...) (human) development requires the removal of major sources of unfreedom: poverty as well as tyranny, poor economic opportunities as well as systematic social depravation, neglect of public facilities as well as intolerance or over-activity of repressive states."[16]

In the global society that pursues the kind of world making that has been outlined in the UN Millennium Declaration and at the same time pursues development of e-government, it must also be recognized that a benchmark for e-government development must become the degree to which it becomes instrumental in addressing the major sources of unfreedom. It can do this by expanding opportunities for political participation, health care, education and skills development, gender equity and empowerment of women, economic prospects, environmental sustainability and greater personal security.

4. Policy choices in e-government development

For a public administration, there is no single established way, no "best practice" that would lead to successful e-government. While in broad terms the ingredients of success are known by now (see Box 3), their interpretation and application must be invented locally.

...if a public administration does cross the "digital divide", it opens endless opportunities that are practically inaccessible by any other means.

However, it cannot be stressed strongly enough that if a public administration does cross the "digital divide", it opens endless opportunities that are practically inaccessible by any other means. This is true for all public administrations in the world, regardless of the level of economic development, the level of human development and the social and cultural context that prevails in the community or country concerned.

ICT allows a government's internal and external communication to gain speed, precision, simplicity, outreach and networking capacity. This can be converted into cost reductions and increased effectiveness - two desired features of all government operations, but especially of public services. It can also be converted into 24/7 usefulness, transparency and accountability, networked structures of public administration, information management and knowledge creation in public administrations. In addition, it can equip people for genuine participation in an inclusive political process that can produce well-informed public consent, the ever more prevalent basis for the legitimacy of governments. From this point of view, ICT in the hands of government can become an effective tool for adding public value. Obviously, maximization of public value would eventually depend on deciding if, how and where to use the new communication capacities that can be acquired by governments through the application of ICT to their operations.

[iii] This line of thought suggests that, to benefit from ICT in human development, countries first have to change their goals and action patterns. It subscribes to the theory that the Internet creates little that is qualitatively new. Instead, for the most part, it amplifies the existing forces. And social forces are nothing but co-ordinated human will. Institutions channel human will in some directions more than others. To the extent that institutional actors can pursue existing (changed) goals by reinterpreting existing (changed) action patterns in terms of newly available technology, the forces that their massed actions create will be amplified. The hope that ICT brings is in the ability to greatly facilitate the change, not to bring it about. *Source: Philip E. Agre, "Real-Time Politics: The Internet and the political process",* http://dlis.gseis.ucla.edu/pagre/

The turn that we make at this crossroad will lead us towards world making, or towards just measuring the tread marks left by the technology-led governmental bulldozer.

It is a matter of policy choice.

Right now, very few dispute the claim of the New Public Management reformers that efficiency and effectiveness is possible in government operations. Therefore, for many, building e-government applications for the sake of efficiency and effectiveness alone is a beneficial enough initiative. However, a discussion on the use of ICT to raise efficiency and effectiveness would not present the whole picture. It would also have to address the fundamental issue of the above-described "trade off" with which the introduction of modern ICT confronts any society.

In the case of e-government, this trade-off and the concerns that it raises have to be considered early on and carefully. ICT alone, to say nothing of ICT in the hands of public administration, represents a great power to transform. This power can follow one of two logical paths. On one hand, it can follow people's preferences, i.e. it can recognize the supremacy of the societal context that is preferred and chosen by people and support and serve it. In particular, it can respect the values by which people prefer to live and factor them into ways in which the new technology is deployed. On the other, especially in the absence of policy guidance, it can be adopted by traditional political and commercial forces and through them establish its own supremacy, i.e. make people live with the changes that it introduces to the societal context regardless of whether these changes reflect what they want and involve those things to which they have the right. The turn that we make at this crossroad will lead us towards world making, or towards just measuring the tread marks left by the technology-led governmental bulldozer.

This is a policy choice too.

BOX 3

Guiding Principles for Successful E-government

Compelling reasons for the government to use ICT in its operations and to go on line

1. **Priority development needs that require government involvement.** E-government applications are best embedded in areas that are perceived as closely related to the priority development needs of the society. This brings broad support and makes it easier to overcome inherent difficulties and sustain attention, commitment and funding.

2. **Efficiency and effectiveness as key success criteria of government involvement.** It is best if the role that the government plays in such areas is judged partly or predominantly by factors that ICT can bring. The link between ICT applications, optimization of government operations and achievement of important social development goals is a very convincing argument for continued development of e-government.

Ability of the government to use ICT in its operations: to go and stay on line

3. **Availability of (initial) funding.** Even initial pilot e-government operations should start with a good understanding of costs involved and assured funding that follows careful analysis of opportunity cost. Whenever advisable and feasible, funding should be treated as a business investment and carry expectation of returns.

4. **Skills and culture of the civil service.** Civil servants must be able (through ICT, change and project management and partnership-building skills) and willing to support e-government, or at a minimum, must be eager to learn and change. The culture prevailing in the civil service determines the assessment of expected loss that e-government application can bring to individual civil servants and, eo ipso, the eventual strength and effectiveness of the anti-change lobby (if any).

5. **Co-ordination.** Needed "backroom" co-ordination and effort - within and between government agencies - must be ironed out before any e-government application goes on line to avoid duplication, assure interoperability and meet the expectations of users.

6. **Legal framework.** E-government introduces unique legal requirements and these should be realized and faced early on.

7. **ICT infrastructure.** Infrastructure needs should be assessed against the background of requirements and desired results of planned e-government development. Anything short of this limits both. Anything that goes beyond this carries the danger that ICT infrastructure will be converted into expensive and idle office equipment.

8. **Political leadership and long-term political commitment.** The chief executive officer of the public sector must be committed to e-government, lead and build broad support for it, and be eager to learn. This generates the all-important positive signals that the civil service needs to receive from its top leadership.

9. **Public engagement.** The public should have a personal stake in e-government development. This should be reinforced by actively, genuinely and continuously soliciting people to participate in the development of e-government applications so that these are custom-crafted to the way people live and work.

10. **Plans for development of human capital and technical infrastructure.** There should be a vision and plans for closing the existing divides in skills and access. Otherwise, neither the public administration nor the society can hope to become ICT literate and capable - important ingredients for e-government success.

11. **Partnerships.** Early on, the government should see business firms and civil society organizations (CSOs) as its partners in securing financial resources, skills improvement, better access and adequate capacity to service the ICT network. Partnerships should never be forged at the cost of transparency, accountability or economic soundness of investments.

12. **Monitoring and evaluation.** Setting clear responsibilities and realistic benchmarks for e-government development, as well as for their transparent monitoring, is an important ingredient for eventual success and builds up the overall transparency and accountability framework in the public sector.

Compelling reasons for the users of e-government to go and stay on line

14. **Perception of added value.** Any design of e-government development must incorporate a calculation of the added value that the application intends to bring to individual users. It is best if this calculation proves to be congruent with that of the users.

13. **Access and skills.** It should be made easy in terms of time, cost and effort for the potential users of e-government to actually employ it. Imaginative solutions for increasing the level of this "ease of use " must be part of any e-government development plan. They should include, but also transcend, individual access and skills.

15. **Privacy and security.** Security and privacy concerns - culturally defined as they are - must be addressed early on, openly and with demonstrated professional aptitude. The public is bound to expect a breakdown in this area and any news (even informal) of one is bound to become a huge setback with long-lasting consequences.

5. Three types of e-government development

The above analysis allows us to conclude that there are many ways to characterize the development of e-government. On the disappointing side (no public value created) we can talk about such development that is:

Wasteful - engages resources but does not result in optimization of government operations;

Pointless - even if it optimizes government operations, has no (or only minimal) effect on the development objectives preferred by society.

On the satisfying side (active engagement in public value creation), and especially from the perspective of the world-making process that has been outlined in the UN Millennium Declaration, we can talk about e-government development that is:

Meaningful - optimizes government operations, and:

- supports human development, i.e. empowers people/raises human capabilities[17], and in this framework;
- equips people for genuine participation in the inclusive political process;
- supports values considered as essential for human development in the 21st century.

Meaningful development of e-government gives the institutions of public administration additional capacity to shore up the societal context conducive to human development.

This Report will speak about e-government in the context of world making and the creation of public value. All three concepts - world making, public value and e-government - are important, as eventually they can do much more than decide the nature of the public sector. They can provide a solid foundation for human development in the world.

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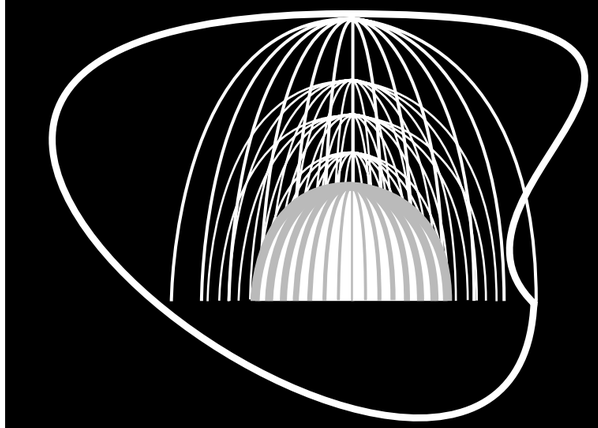


Part One

"Very few countries in the world are utilizing all aspects of the e-government potential. None does it to the full limit of this potential."

UN Global E-government Survey 2003

Chapter I: Results of the UN Global E-government Survey 2003[iv]

The three main conclusions of the UN Global E-government Survey 2003 are:

1. No country or group of countries in the world owns the monopoly on imagination, wisdom and commitment or political will for use of e-government for the delivery of the public value of human development. Original, advanced content of e-government applications finds a home in the geographic and developmental South, as it does in the North.

2. Only very few governments have opted to use e-government applications for transactional services or for networking.

3. Even fewer governments use it to support the genuine participation of citizens in politics. Those who do, in most cases, apply it at a very rudimentary level.

No country or group of countries in the world owns the monopoly on imagination, wisdom and commitment or political will for use of e-government for the delivery of the public value of human development.

The overall conceptual framework adopted by this Survey[v] is the one outlined in the Introduction to this Report (i.e. e-government as a tool in the hands of governments for delivery of public value that supports human development).

Therefore, the concept of e-government development in this Survey espouses two aspects:

- The generic **capacity** or **aptitude** of the public sector to use ICT for encapsulating public services and deploying to the public high quality information (explicit knowledge)[vi] and effective communication tools that support human development. The Survey names it the e-government readiness of the government;

[iv] This chapter constitutes an excerpt of the UN Global E-Government Survey 2003. For full text of the Survey, see Part II of the Report.
[v] For a more detailed explanation of the methodology, see Box 4.
[vi] For a more detailed discussion of information (explicit knowledge) and knowledge (tacit knowledge), see Chapter II of this Report.

- The **willingness**, on part of the government, 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.

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 the consumer of such services;
3. Provide a comparative assessment of the willingness and ability of governments to involve the people 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.

While not detracting from the importance of other forms of assessment of ICT use by governments, this Survey confines itself to an assessment of e-government on-line facilities, in themselves, a good proxy indicator for the pro-active posture of a government in e-government development in general.

Findings

1. Global e-government readiness rankings

US (0.927) is the world leader followed by Sweden (0.840), Australia (0.831), Denmark (0.820), UK (0.814), Canada (0.806) and Norway (0.778).

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.

US (0.927) is the world leader followed by **Sweden (0.840)**, **Australia (0.831)**, **Denmark (0.820)**, **UK (0.814)**, **Canada (0.806)** and **Norway (0.778)**.

Among the countries with developing economies or economies in transition, **Singapore (0.746)** leads, followed by the **Republic of Korea (0.744)**; **Estonia (0.697)** and **Chile (0.671)**.

BOX 4

2003 UN Global E-Government Survey: Methodology and Data Measurement

The UN Global E-Government Survey 2003 presents a comparative ranking of countries in the world according to two primary indicators: (1) E-Government Readiness Index; and (2) E-Participation Index.

The E-Government Readiness Index is a composite index comprising:

Web Measure Index
Telecommunication Infrastructure Index
Human Capital Index

The E-Participation Index is a proxy to measure the willingness and ability of a state not only to provide relevant information and quality services, but also to engage citizens in a dialogue in the process of service delivery and, most importantly, in public policy making through use of the Internet.

Web Measure Index

The Web Measure Index 2003 is a quantitative index, which has been revised and enhanced from last year to measure the generic aptitude of governments to employ e-government as a tool to inform, interact, transact and network. It expands and builds upon the previous year's assessment of state-provided services on line in several ways.

First, the coverage was expanded to include all UN Member States. A total of 191 countries were assessed.

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

Third, the primary site was the National Portal or the official homepage of the government. Moreover, since the numerical index is dependent on the sites chosen, which may differ in sophistication within a country, the Survey limited itself to a pre-chosen set of five additional government Ministries or Departments. Thus, the same number of functionally same/similar sites were assessed in each country.

The additional five sites chosen reflect the people-centric approach of the Survey. Since the Survey's primary objective is to measure e-government effectiveness in support of human development, the additional sector-specific sites chosen for assessment were the Ministries/Departments of Health, Education, Social Welfare, Labour and Finance. To accurately differentiate the level of sophistication by each functional site, each ministerial site was assessed on the same set of questions.

Telecommunication Infrastructure Index

The Telecommunication Infrastructure Index 2003 builds upon and expands on the infrastructure index 2002. It is a composite, weighted average index of six primary indices based on basic ICT-related infrastructure indicators. 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.

Human Capital Index

The data for the Human Capital Index 2003 relies on the UNDP "education index", which 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 gross enrolment ratio.

E-Participation Index

An assessment of a total of 21 citizen 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. As in the case of the E-Government Readiness Index, the E-Participation Index confined itself to these areas: general, education, health, social welfare, finance and employment. Each country was assessed on a scale of 0-4 (zero=never; 1 = sometimes; 2 = frequently; 3 = mostly; and 4 = always). The index was constructed by standardizing the scores.

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, financial constraints, especially on developing countries, are an important determinant of the level and extent of their e-government programmes.

The Survey also acknowledges that current e-government programmes worldwide are a reflection of the political, social and economic models and levels of development. Consequently these parameters impact on the comparative e-participation scores and rankings of the countries. The UN makes no judgment on choices stemming from political regimes, but holds the deliberative thought process (i.e. genuine participation, creation of politically useful knowledge) to be superior in the interest of human development.

Table 1 presents 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 majority are the industrialized countries, a few middle-income countries with developing economies or economies in transition are in the group, indicating a fast "catch up".

Table 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

One of the primary factors contributing to a high level of e-government readiness is past investment in telecommunication and human resources.

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 those of the other countries.

Overall, North America and Europe lead among the world regions. South-central Asia and Africa have the lowest average e-government readiness. There can be little doubt that underpinning this aggregate snapshot in time is the level of economic, social and political development of the countries concerned.

One of the primary factors contributing to a high level of e-government readiness is past investment in telecommunication and human resources. Low e-government readiness in South-central Asia and Africa is a reflection of the lowest Web Measure Index across the board, but also a low Telecommunication Index and the lowest Human Capital Index.

The disparities in e-government readiness do not only reflect the low levels of infrastructure and human capital resources in several regions of the world. They also highlight the magnitude of the existing gap: North American and European indicators 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 of the population is still not on line in the U.S., the telecommunication readiness of Africa and South-central Asia is 1/20th that of the U.S.[18]

South-central Asia, which has over one third of the world's population, has about 20 per cent of the average human capital capacity of the U.S. These wide disparities are at the root of the "digital divide"[vii].

2. Web Measure assessments

To highlight the degree to which governments use their e-government potential, as determined by their telecommunication and human capital resources, the following table provides the top 25 countries when ranked by Web Measure Index alone, with the U.S. as the comparator.

The Web Measure Index 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 public administration's on-line presence. The five stages of the schema are:

I. Emerging presence;
II. Enhanced presence;
III. Interactive presence;
IV. Transactional presence; and
V. Networked presence.

They are theoretically ascending in the level of maturity or sophistication of e-government services provided. Countries are scored on the basis of whether they provide specific products and social services identified as characteristic for a given stage.

As can be seen from Table 2, the rankings are considerably changed. For example, Chile, which was 22 in the overall E-Government Readiness Index jumps to second position 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 fourth place in the Web Measure Index.

Table 2.

Web Measure Index 2003, Top 25 Countries

	Country	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

[vii] The term "digital divide" describes the fact that the world can be divided into people who do and people who don't have access to - and the capability to use - modern information and communication technology. *Source:* www.whatis.com

The Web Measure ranking also points to the fact that in the last couple of years, content-wise, Chile, Mexico, 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 industrialized countries. The information and services provided by them are as - or more - sophisticated and mature.

Chile, Mexico, 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 industrialized countries.

Moreover, detailed analysis of website data reveals that most governments 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. However most countries, including the industrialized countries, are not fully utilizing the potential (as defined by the Survey) of using e-government for transactional services. For example, the U.S., the global leader, currently utilizes about 46 per cent of the possible transactional services on line.[19] Sweden, which is second in the overall global e-government 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 true in the case of Germany (17 per cent), Finland (15 per cent) Republic of Korea (12 per cent) and New Zealand (12 per cent).

The high income countries, with Gross National Income (GNI) per capita of more than $9,206, provide 88 per cent of the whole available scope (as defined by the Survey) of information and services in stage I (emerging presence) and 61 per cent of those in stage II (enhanced presence).[20] Though most countries in this group are at stage III and beyond, they collectively provide an average of approximately one half of the possible interactive services and a meagre 18 per cent of the potential networked services. Among the countries with developing economies, Chile, Mexico, Philippines, Malta and Malaysia have made an effort to offer substantial on-line transactional services to their citizens.

Table 3.

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

3. E-participation

Whereas the website assessments and the E-Government Readiness Index measure on-line generic availability of information and services in quantitative terms, the E-Participation Index assesses how relevant and useful these features are from the point of view of people's ability to engage in dialogue with their government as consumers of public services and to participate in the political process as citizens. Though a qualitative assessment, the E-Participation Index is helpful in illustrating differences in on-line strategies and approaches to people's involvement and illuminates nuances in seemingly objective or quantitative results.

One more caveat is important here. The Survey found it impossible to construct the questionnaire with a full account of the features of political e-participation, as described in Chapter III of this Report. This would have meant engaging in the surveying exercise with full knowledge that the result would be zero or very close to zero for the overwhelming majority of countries. Therefore, the questionnaire - and consequently the results - are tuned to the reality that exists. For instance, on the side of politics, they look for government attempts to use ICT to engage citizens, but more in the consultative rather than in the direct decision-making process, and they assume existence of e-participation at a rather rudimentary level.

This resulted in the following **E-participation Framework:**

E-information: The government websites offer to citizens: policies and programme documents; budgets; laws and regulations; briefs on key issues of public interest. Tools for dissemination of information exist for timely access and use of public information, including web forums, e-mail lists, news-groups and chat rooms.

E-consultation: The government websites explain e-consultation mechanisms and tools. They also offer 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 it will take citizen input into decision-making and provides actual feedback on the outcome of specific issues.

When tested against this framework, the websites yielded the following results:

Table 4.

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.

Table 4 presents 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, Philippines and Estonia higher than many developed countries. However, Mexico which ranked fourth in the quantitative web measure assessment, slid down to ninth position because of qualitative differences. (Gains/losses in the case of Chile, 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 Part II, Annex I for all countries.)

Most revealing however, is the pace of regression of scores in this ranking. The score 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 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 same cut-off mark (25 per cent of the comparator's score - the U.S. in this instance) is less hefty, but still lower, leaving 55 per cent of countries below this cut-off mark in the web presence ranking. The situation looks even worse in the lower part of the table. In the case of the web presence measure, the score drops to 10 per cent of its maximum possible value at number 133. In the case of the e-participation measure, it does the same at number 69. Across the board, with very few exceptions, the willingness of governments to use ICT for e-participation is lower - and in some cases much lower - than their otherwise demonstrated web presence capacity.

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

It must also be noted that a very small proportion of countries (14 per cent) offered on-line consultation facilities and an even smaller share (9 per cent) allowed any citizen feedback to government on official policies and activities put out on the government websites.

Only 13 countries, or 8 per cent of those that have a presence on the web, had a clear policy statement on their website encouraging citizens to participate in the process of decision-making. And even in such cases, the degree to which backroom support matches the web site rhetoric would have to be further tested.

Table 5 summarizes the quite revealing reality about the availability of basic e-participation facilities on the government websites:

Table 5.

E-participation Aspects in E-government On-line Postings

	No. of countries	Per cent 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

To sum up, the UN Survey shows that the status of e-government development today is much more reflective of inherited capacities in the areas of infrastructure and human capital development, as well as of inherited institutions and policy focus, than of the determination of governments to seize new technological opportunities to support human development-focused change. While the UN Millennium Declaration establishes the need for such a change, the world may still differ as to its exact interpretation, timing or sequencing. However, looking at the results of the Survey, the world must agree that right now the use of e-government to support this kind of change (whether or not it is actually ongoing) is at best incremental and spotty.

...the UN Survey shows that the status of e-government development today is much more reflective of inherited capacities in the areas of infrastructure and human capital development, as well as of inherited institutions and policy focus, than of the determination of governments to seize new technological opportunities to support human development-focused change.

The world may also differ with regard to opinions about the power of ICT to change institutions, structures and organizations in public administration, or the power of institutions, structures and organizations in public administration to absorb and accommodate technology without undergoing much transformation. Looking at the results of the Survey, the world must agree that right now the latter seems to prevail.

By establishing these facts, the Survey draws an important benchmark line, useful for examining future e-government development trends.

Dome - a circular vaulted construction used as a means of roofing.

ArchNet, Digital Library

Chapter II: Under the Dome of E-government

II.1. The assembly of e-government users

We can imagine e-government as a dome. (See Box 5.)

Both e-government and a dome are functional. Creating both takes vision, advanced technology and the desire to perfect what already exists. Both are built to extend over people. Both depend on their quality to attract visitors.

First, we can imagine that initially the entire community gathers under the dome of e-government. All members have financed it. They all bear the opportunity cost for the introduction of e-government to their community, regardless of whether the source of funding is taxes, grants or loans. They will all bear the effect that this investment will have on the macroeconomic stability of their community: positive if gains in efficiency are bigger than the investments; negative if they are not. They all - directly and indirectly - feel the effects of optimization of the government's internal and external relationships with the use of ICT.

Second, we can imagine a smaller group, when those who are not using the Internet[viii] have left.

...initially the entire community gathers under the dome of e-government. All members have financed it.

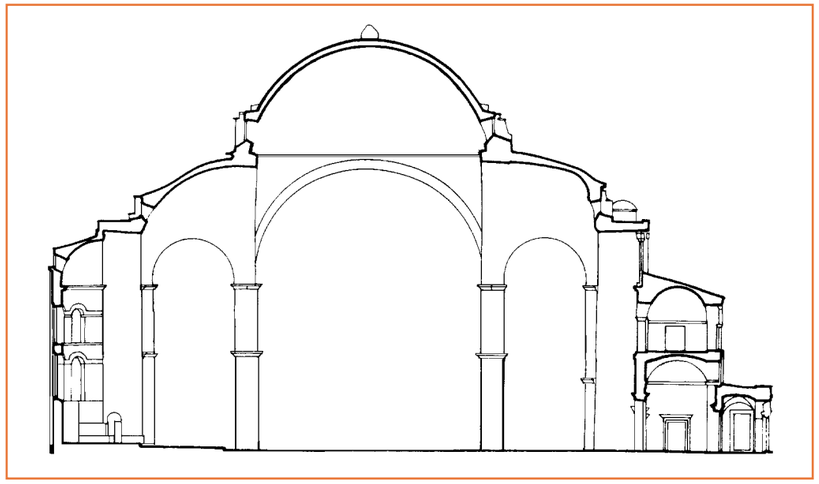
[viii] The Internet, sometimes called simply "the Net", is a world-wide system of computer networks - a network of networks in which users at any one computer can, if they have permission, get information from any other computer (and sometimes talk directly to users at other computers). It was conceived by the Advanced Research Projects Agency (ARPA) of the U.S. government in 1969 and was first known as the ARPANET. The original aim was to create a network that would allow users of a research computer at one university to be able to "talk to" research computers at other universities. A side benefit of ARPANET design was that, because messages could be routed or re-routed in more than one direction, the network could continue to function even if parts of it were destroyed in the event of a military attack or other disaster. Today, the Internet is a public, cooperative, and self-sustaining facility accessible to hundreds of millions of people worldwide. Physically, the Internet uses a portion of the total resources of the currently existing public telecommunication networks. Technically, what distinguishes the Internet is its use of a TCP/IP (for Transmission Control Protocol/Internet Protocol), the basic communication language or protocol of the Internet. The World Wide Web comprises all the resources and users on the Internet that are using the Hypertext Transfer Protocol (HTTP). A broader definition comes from the organization that Web inventor Tim Berners-Lee helped found, the World Wide Web Consortium (W3C): "The World Wide Web is the universe of network-accessible information, an embodiment of human knowledge." (*Source*: www.whatis.com)

BOX 5

The Dome of Hagia Sophia

"The dome rests on four arches that carry its weight to the great piers at the corner of the square, so that the walls below the arches have no supporting function at all. (...) In conjunction with a new technique to build domes utilizing thin bricks embedded in mortar, this device permits construction of taller, lighter and more economical domes than the older method (seen in the Pantheon, Sta. Constanza and S. Vitale) of placing the dome on a round or polygonal base. Where or when the dome on pendentives was invented we do not know. From that time on, the dome on pendentives became a basic feature of the Byzantine architecture and, somewhat later, of Western architecture as well. (...) The plan (...) and the huge scale recall the Basilica of Constantine. (...) Hagia Sophia unites East and West, past and future in an overpowering synthesis. Its massive exterior firmly planted on the earth like a great mould rises in stages (...). Once we are inside, all sense of weight disappears, as if material, solid aspects of the structure had been banished to the outside. (...) Even more than previously, light plays a key role: the dome seems to float - 'like the radiant heavens', according to a contemporary description of the building (...)."

Source: H.W. Janson and Anthony Janson, "History of Art", Harry N. Abrams, Inc., New York, 1997



Third, we can imagine a smaller group still when all those who are connected to the Internet and use it for a variety of purposes but do not use it to communicate with the government have also left. Now we can imagine the mixed group of people remaining under the dome of e-government. We can distinguish among them those who come under the e-government dome as consumers of public services (businesses, private persons), and those who are there as citizens - participants in the political process, though naturally, there will be an overlap between these two groups.

Finally, fourth, we can imagine the group of citizens, arguably smaller than the previous one, who use the available e-government applications for the purpose of political deliberation and decision making, irrespective of whether or not they use them for other purposes.

Reliable data to show this picture globally are practically non-existent.

For the U.S.[21], if one assumes that the total population of the country is 100, this four-step regression could be presented roughly as **100 - 60 - 25 - > 5**.[22]

If we attempt to show this regression globally, the first two stages tell practically the whole story: **100 - 10 - x - x**[23]

It would seem useful if the "E-government Usage Measure" (**100 - x - x - x**) were accepted more broadly. (See Box 6.) While this would be a quantitative indicator, it would provide a wealth of useful information about a community or society with an active programme of e-government development.

BOX 6

"100 - x - x - x": E-government Usage Measure

X1 (100)	Total population cum reference number for other indicators in this regression
X2	Internet users as percentage of total population (also reflected in some statistics as "adult Internet access at home, at work and other sites")
X3	E-government users as percentage of total population
X4	Users of e-government applications for political interaction with the government as percentage of total population
Notes:	"x" signifies "no data available" "0" signifies "no usage" Even if the percentage is >1, the lowest numerical entry other than 0 will always be 1.

This Report will note, but not deal with in detail, the digital divide issue.

It is noteworthy that according to the Cyber Atlas and other sources, close to 90 per cent of all Internet users live in the industrialized countries. In 14 of them, over 50 per cent of the population uses the Internet (78 per cent in Iceland). Over 80 per cent of all Internet traffic in the world today is generated within and between the 20 largest cities in these countries.[24] It is equally noteworthy[25] that "(...) in all the talk of globalization and a 'wired world' the idea of a digital divide - the fact that poor people in the industrialized world and almost all in the developing world are excluded from modern (information and communication) technologies - rarely gets more than a passing mention."

...the existence and even the disheartening size of the digital divide do not make analysis of e-government impossible.

The digital divide is a serious, though somewhat separate developmental issue, always deserving full, not marginal discussion. Commercial interests are dealing with it and will continue to deal with it in a selective and partial way. The UN Millennium Declaration mentions it as one of the symbols of deepening developmental inequality in the world and indeed, finding a comprehensive solution to it belongs to world-making efforts. As mentioned in the Introduction, technological progress stands a good chance of making the quickest positive difference in this area. However, the existence and even the disheartening size of the digital divide do not make analysis of e-government impossible. Nevertheless, throughout the whole Report, it must be remembered that it has two effects:

> In ICT applications aimed at optimizing internal relationships in public administrations (G2G), the analysis would reflect not exclusively, but in a somewhat disproportionate way, the situation characteristic of public bureaucracies that have a longer tradition of public service and easier access to large public budgets.
>
> In ICT applications aimed at optimizing external relationships of public administrations (G2C2G, G2B2G), again not exclusively but in a somewhat disproportionate way, the analysis will reflect experiences of a fairly narrow sample of e-government on-line users: predominantly urban, educated and in higher tiers of income, and by and large embedded in industrialized and technologically-advanced societies.

...while examining e-government development from the global perspective and trying to draw lessons of interest to all Member States, the Report can be built on the existing evidence that predominantly originates in a somewhat limited number of countries and cities and in the experiences of a somewhat limited group of individuals.

Furthermore, as demonstrated by the UN E-government Survey 2003, e-government has not yet happened equally in all countries of the world. Consequently, while examining e-government development from the global perspective and trying to draw lessons of interest to all Member States, the Report can be built on the existing evidence that predominantly originates in a somewhat limited number of countries and cities and in the experiences of a somewhat limited group of individuals.

II.2. The system that makes e-government happen

The demand for e-government comes from both within and outside government structures. Its proponents include those who have high on their political agenda, limiting the size of government and making government work better (not that these two are mutually exclusive). Proponents thus cover a very wide political spectrum and many interest groups, which has been assuring steady political support for e-government in many countries in the world. Barring take-over of political power by Luddites[ix], for different reasons, political parties along most rungs of the political spectrum have been and are likely to continue to support e-government.

Many reformers who have wanted to limit the size of government have been responding to pressures on public budgets.[26] They have advocated the need to achieve greater macro-economic balance in economies increasingly integrated with the global financial and trade markets. Embracing the New Public Management (NPM) ideology, they have seen as a source of savings (on staff and operating cost) the ICT capacity to automate certain public administration functions and to increase the speed and precision of others. Their insistence that government should work more like business opened the door to a search for tools to increase the efficiency and effectiveness of public organizations. Efficiency and effectiveness have become the benchmarks of performance in government. Those who have had difficulty in measuring up, in many cases have seen their functions outsourced to private business firms. This revolution has also been "customer-centred".[27] Providing public services along the lines of people's life cycle events, and in ways that satisfy consumers of public services, have become important too.[28]

Many reformers who have wanted to limit the size of government have been responding to pressures on public budgets.

We know by now the limitations of the NPM revolution, especially in developmental, political, cultural and bureaucratic contexts that are starkly different from those in which NPM originated, and in which it has brought the most commendable results. However, the example of the NPM countries has been well documented and is readily available for copying. It has impacted thinking in many multilateral and bilateral development organizations. It has been absorbed by parts of the Western-educated elite all over the developing world. And its core message is irrefutable: as long as the public interest is sufficiently protected (or even infringed upon, but still to a degree that is tolerated by the public), anything in the organisations of public administration that can bring costs down and effectiveness up should be welcomed. Investment in ICT to increase revenue intake and lower the operational cost of government across the board has presented itself as a smart choice, especially if compared with the option of facing the political consequences of cutting social services for the sake of keeping national bureaucracies intact. Difficult as it is, the NPM message, supported by capacities brought by modern ICT, is being tested all over the world.[29]

Reformers who have pursued the need to make governments work better have come from many more quarters.

Among them are the socially conscious, who have always abhorred the dwindling quality of public social services father away from the capital cities (in most developing countries) and further down the income ladder (for all countries). The low-cost outreach capabilities and improved effectiveness ICT brings have been attractive to them.

...the socially conscious, ...have always abhorred the dwindling quality of public social services father away from the capital cities (in most developing countries) and further down the income ladder (for all countries).

Others have come from the business community, and especially the small and medium-size enterprise (SME) sector, which has recognized the potential for lowering the transaction cost of doing business by making much of the relevant government-generated information and G2B2G interaction readily available *via* the Internet. ICT-induced speed, precision, simplicity and outreach matter to them most.

They have come from the international financial community (trading and investment partners, donors and multilateral financial organizations) as well as, in many cases, from the national financial and business community. Macro-economic stability and the elimination of corruption in the national economies that join the global market - developed and developing alike - have been prominent as motivating forces for them. As a rule, they have favoured ICT applications for better collection of tax revenues, more open public procurement and precise financial management, as well as all the applications that have been following the NPM track. For them, the whole spectrum of ICT features, if applied to operations of public administration has mattered, with speed, precision and simplicity especially relevant on the public finance side.

Finally, they have come from the public at large, especially from those who have seen themselves as consumers of public services.

Part of the impetus has originated from the timeless wish that government should deliver more and do it better, and that the cost of dealing with government (in time and money) should be lower. This cuts across all income groups and social sectors of society, arguably with the income-poor, marginalized groups of the population - voiceless as they are - most interested in such a change.

[ix] A Luddite is a person who fears or loathes technology, especially new forms of technology that threaten existing jobs. During the Industrial Revolution, textile workers in England who claimed to be following the example of a man named Ned Ludd destroyed factory equipment to protest changes in the workplace brought about by labour-saving technology. The term Luddite is derived from Ludd's surname. Today, the term Luddite is reserved for a person who regards technology as causing more harm than good in society, and who behaves accordingly. *Source:* http://www.whatis.com

...many academicians and original planners and practitioners of e-government development have attached to it hopes for revival of democratic governance.

Part of it has originated from pure comparison between the ways in which government has continued to operate with the ways in which private firms have started to use ICT to enhance their operations, especially at the point of interaction with customers.

Part has resulted from the spread of the NPM ideology and a growing appreciation that a new medium exists that can put a better doctor in front of a patient or a better teacher in front of a pupil. In many industrialized countries, the increasingly educated and vocal public has started to demand greater value for its tax money. And those with the highest levels of education and skills have started to vote through their decisions to resettle in the global labour market to tax jurisdictions that offer as part of the societal context for human development the best ratio between value offered by public services and tax burdens. (However it must be noted that opportunity for high income has been playing a prominent role in such decisions as well, despite the fact that the "high-income-opportunity tax jurisdictions" and the "high-quality-of-public-services tax jurisdictions" have not necessarily been overlapping.)

Finally, many academicians and original planners and practitioners of e-government development have attached to it hopes for revival of democratic governance.

In a separate but related way, it must be noted that from the point of view of the major ICT companies, e-government has become a product. This means that it has gone on the list of their development, marketing and delivery goals. It is increasingly admitted that these companies may have acquired "too much role" in creating the need for e-government, both in the industrialized countries and in countries with developing economies.[30] Indeed, it seems increasingly true that in countries where ICT vendors have found it possible to influence the decisions of the politicians, this particular interest group has become very prominent among the promoters of e-government development.[31] A researcher concludes, "Vendors are often in a position to guide - even dictate - the direction and content of e-government."[32]

With the message coming from so many quarters and in so many forms, the politicians have been bound to react positively.

They have found money for e-government development in public budgets, grants and loans, as well as in financial partnerships with private businesses (in exchange for profit sharing). They have found readily available sources of advice (private consultancy firms, international financial and development organizations) and of technical inputs (private vendors of hardware and software).

In most situations, the policy decision about if, how and where to develop e-government has looked as if it has been almost made. Anything that has promised to save or add public resources or raise the financial transparency of the government has automatically qualified as a likely entry on the list of e-government applications. The virtual one-stop shop that caters to the needs of the public along the lines of life cycle events has become an "industry standard". Another industry standard that has become widely used is the participation of consumers of public services (e.g. business firms, individuals) in the design of the government web sites addressed to them.

The above are the broad features of the system that has been responsible for the "production" of e-government, as we know it. Not surprisingly, when it has begun to play out its potential in real life situations, it has brought its measure of successes, failures and surprises.

II.3. Early achievements

II.3.1. E-government applications: main trends

As confirmed by the UN Global E-government Survey, all over the world, e-government development continues to remain at its nascent stage. As a rule, the applications tend to reflect low levels of back-stage re-engineering or inter-departmental co-operation. They tend to be based on a single capacity of ICT or a combination of a limited number of capacities. As has been observed in a recent study, "The electronic systems have been by and large electronic reproductions of existing institutional patterns and relations, so it is no wonder that few dramatic institutional changes have occurred in the process of implementing e-government. We have built e-government information systems that are electronic "clones" of the analogue systems and in this process we have institutionalized the information focus on behalf of the knowledge focus."[33]

...e-government development continues to remain at its nascent stage.

Against this background, three main trends can be identified in e-government development:

First, on-line **"customer interface"** applications (i.e. e-government as the Internet government):

As a rule, these are mono-functional. They tend to use only one of the ICT features, e.g. speed or precision or outreach. They are easiest to provide by regulatory bodies, i.e. bodies that certify or licence. Bodies that have on file personal documents (e.g. medical records) or can issue other documents people have the right to have (e.g. application forms of all kinds) belong to the same category. Where lack of transparency as to policies, rules, regulations, benefits etc. has constituted a development issue, on-line provision of such documents is significant, for life, work, political participation or businesses. Where outreach has constituted a development issue, dispatching a service to a remote location constitutes a breakthrough equal to or greater than the first telephone and telegraph connections of 100 years ago.

This approach creates awareness of ICT and its capabilities in public administrations and in societies in general, including in business communities. It can be justified by the real value that it brings to its users, mainly in terms of savings in time and money (while the self-service approach saves the public money too).

Some of these applications are based on the removal of a civil servant from the paper trail, as an intermediary between the government and a consumer of a public service. Such a removal increases the speed and precision of a transaction. Sometimes too, it is applied with the additional political goal of increasing transparency and reducing corruption.

Applications that issue on-line copies of birth and marriage certificates, ownership titles, driver's and other licenses provide examples here.

> The OPEN application of the municipality of Seoul (featured in the "In their own words..." section of this chapter) belongs here too. It has put on line, 54 categories of civil applications where corruption has been most likely to occur. To quote our contributor, "Those who have logged on to the OPEN system agree that the system has met its original goal of enhancing transparency. But, in achieving this goal, the OPEN system has also yielded other great results along the way: people now can check how their application is being processed with just a click on the Net, while public officials have been able to share information among one another and increase efficiency."[34]

> This class of application is also shown by AfriAfya[35] in Kenya, a public/private consortium established by Kenyan public health agencies and international aid organizations. The project relies on a small co-ordinating central hub and organizes up-to-date health information for communities that is sent in a steady stream of data from and to the countryside. These field centres are spread throughout the rural regions of Kenya, where 80 per cent of the population lives. The security of the website is protected and access is granted to registered participants only.

> Finally, much quoted in literature on the subject of computerization of land records, experience in Bhoomi, Karnataka, India also belongs here.[36] Prior to the introduc-

...as long as governments continue to focus on "on-line applications" (i.e. "customer interface applications" or "Internet government"), in view of the digital divide, the existing rich-poor and urban-rural gaps in access to government will grow.

tion of ICT, records on ownership of each parcel of land, its area and cropping pattern, and village maps reflecting the boundaries of each parcel were all maintained by 9,000 village accountants. Requests to alter land records (e.g. in case of sale or inheritance) could have taken one to two years to process. Requests for copies of ownership title (e.g. to secure a bank loan) could have taken three to thirty days to fill. Bribes were involved. The project computerized 20 million records of land ownership involving 6.7 million farmers in the state. Now documents can be obtained on the spot through one of the 187 kiosks in taluk offices. A small fee of Rs.15 is involved.

It is tempting to glorify and remain at this stage of e-government development. However, despite isolated and well-showcased examples like the ones above, as long as governments continue to focus on "on-line applications" (i.e. "customer interface applications" or "Internet government"), in view of the digital divide, the existing rich-poor and urban-rural gaps in access to government will grow.

Second, "functions optimizing" applications (e-government as the digital government) in which delivery or communication channels may be mixed - via the Internet, but also via traditional, non-digital means.

A fine example is provided by SchoolNet[37], an internal information-sharing system introduced in the education system of Canada. In the drive to "ready learners for the knowledge-based society", SchoolNet has connected 500,000 schools, libraries and classrooms to the Internet since 1999. Developed through a partnership involving the federal, provincial and territorial governments, the educational community and the private sector, SchoolNet is an example of new public information infrastructure. Its website links to more than 5,000 teacher approved learning resources, making it easier for Canadian teachers and students to access a vast array of resources on line. Easily searchable and well-categorized, information is accessible, accurate and up-to-date. The students still come to the same brick-and-mortar school but a much better teacher greets them.

In another example[38], in October 1996, the Winston-Salem (North Carolina) Fire Department received a grant from the U.S. Department of Commerce to fund the Integrated Network Fire Operations programme, whose goal is to provide critical information in graphical form to firefighters in emergency vehicles. The city emergency vehicles were equipped with laptop computers that could display maps, building layouts, hydrant locations and the status of other emergency vehicles. The firefighters interface with the system via touch screen icons and this transmission of data frees up communication over the traditional radio system. When a fire alarm is initiated, the firefighters are immediately able to view the optimal route to the location. The city utilized global positioning satellite (GPS) technology to create street centre line coverage, which enables the computers to determine the fastest route to the emergency. Also, each fire station is connected to a citywide network on which the firefighters constantly update data from building inspections, new construction and other information of relevance to the city's fire safety. As a result, the same fire truck arrives, but more quickly and with better-informed firefighters.

Finally, there is this example of an information-management system that frees the time of doctors and patients alike[39]. Health care in France is provided through a highly decentralized system but is largely State financed (80 per cent). Individuals obtain care directly from a provider, pay him/her and obtain a form, which the patient submits to the State for reimbursement. Upon receipt of the payment the patient then applies to the private insurer for any supplementary coverage. It is estimated that 100 billion transactions move through this system annually, including not only claims for reimbursement, but also communications among health care providers, e.g. physicians and hospitals. The programme of electronic exchange of information within the French health care sector is based on two electronic cards: "Carte vitale" serves the patients; "Health Professionals' Card" ensures security of access and of electronic exchange of information among the different health care actors, while maintaining the confidentiality of sensitive information.

Third, "platform[x] applications" (e-government as the multiplier of individual capabilities). By using the Internet to provide access to powerful electronic tools, platform applications amplify the capacity of an individual or an organization - including business organizations - to act. They help to transcend the physical and other limitations of the human body and/or the limited financial and organizational power of an organization.

Good examples are the applications found on the eCitizen portal in Singapore and the FirstGov portal in the U.S. These provide businesses with information and tools for scaling up and internationalization. A firm, especially a small firm, can use the information and tools to grow and expand in ways that it would not be able to do without them.

An experiment of the State of Georgia and the Tele-medicine Centre at the Medical College of Georgia[40] supports a state-wide tele-medicine programme. In 1996, with the help of a local cable operator, the Electronic HouseCall System (EHC) was deployed. It is a two-way system with one unit at the patient's home and the other located at the Medical College of Georgia or in the Fort Gordon/Eisenhower Army Medical Centre. The patient's unit requires no computer sophistication, using a touch screen instead. From this home unit, a patient can check his or her pulse, blood pressure, blood oxygenation, temperature, glucose levels and heart function with a modified lead 2 electrocardiogram. This is done without the presence of medical staff, to whom the information is sent. The patient and the provider can also interact on line through a videoconference activated by touching the appropriate icon. Once connected, the clinician can use a stethophone to expand examination of the patient. Thus, like a business firm in the example above, an incapacitated patient in Georgia can use an e-government platform to transcend his/her present capacity for self care.

Finally, e-government can offer a platform that changes the way in which soldiers operate on the battlefield. As reported by *Wired* magazine, space dominance wins wars because it overcomes the two fundamental impediments to victory: fog and friction. In a fog of low-quality or non-existent information, soldiers cannot see allies or enemies. Amid the friction of hostile attacks, they cannot hit the adversaries they manage to see. American soldiers enjoy what the Pentagon likes to call "comprehensive situational awareness" and "precision engagement". The key to this is a concept of Integrated, Joint, and Combined C4ISR, standing for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance - in essence, a network architecture that unifies military tasks of all kinds. C4ISR means that atmospheric data supplied by weather satellites loads directly into mobile terminals on the battlefield, and that the targeting mechanism in an F-18 fighter understands the coordinates transmitted from Air Force central command. One component of the C4ISR framework is the Global COP, the Global Command and Control System Common Operational Picture. Global COP delivers the same data to all military personnel. It runs on MSWindows.[41]

[x] A "platform" is a set of rules and tools (including technologies and pre-designed applications) on which subject-specific processes as well as other rules and tools can be developed.

A somewhat separate track of public financial management applications also exists. These applications are a hybrid of types one and two above. They are very specifically focused and deserve to be discussed separately. The three standard applications in this area relate to integrated financial management systems, procurement and taxation. The examples that follow illustrate the scope and nature of such applications:

SIAFI, the Integrated Financial, Budgetary and Asset Management System in Brazil[42] embraces 317 administrative bodies from all branches of the Brazilian government; 4,000 decision-making units; and 33,000 registered users of which, on average, 2,400 access the system simultaneously. It performs 1,600,000 transactions daily. There are 8,000 work-stations in the system with a total capacity of 650 gigabytes, and 59 external networks. In 2000, SIAFI processed 14,200,000 documents (payment commitments, refinancing documents, debt notes and orders for bank payment). All payments from the Brazilian public administration are made exclusively through SIAFI. The operators in their units enter the data. They do not have to understand accounting; they need only to understand the administrative action on which they are working. All these actions are codified in the system with tables of events. The system contains data on the necessary steps and the accounts affected with regard to each event. To record documents, the system inserts them into the system of accounts and, from that system, makes a total of about 50,000,000 accounting entries a year. A monthly statement of the account balance is obtained that is a source of information for the management system.

GeBIZ[43] is an integrated (seamless) system that allows public sector entities in Singapore to purchase on line. It is comprised of three applications: GeBIZ Enterprise, GeBIZ Professional and GeBIZ Partner. GeBIZ Enterprise is an application that allows government entities to engage in decentralized procurement activities. GeBIZ Professional is a client-server application that caters to government procurement executives and specialists. GeBIZ Partner is an application for suppliers. It enables them to search for government-wide business opportunities as well as to submit offers and bids. In a typical scenario, a public sector entity will be able to raise an "Invitation-To-Quote" through GeBIZ Enterprise and have it automatically published in GeBIZ Partner once it is approved. Interested suppliers will be able to view it and submit their bids. The quotations submitted will be automatically channelled back to GeBIZ Enterprise, after the closing date, for further processing. Purchase orders, tender documents, invoices, tender bidding and other information will also flow between the GeBIZ Enterprise, Professional and Partner applications in the same manner.

Each year, the biggest revenue service in the world, the U.S. Internal Revenue Service (IRS)[44] processes 112 million individual tax returns and 79 million business tax returns. Individual tax returns of 25 pages are not unusual and a few of the largest business returns exceed 30,000 pages. Businesses also file 1.5 billion information returns and individuals and businesses combined make 65 million payments totalling almost U.S. $2 trillion. In 2003, 53 million individual and small business 1040 tax returns and 500 million information returns were filed electronically. The IRS collected U.S. $1.6 trillion electronically. The IRS website received 4 billion hits and 500,000 forms were downloaded. The IRS Electronic Tax Administration Program is being used as it delivers on three key promises: faster refunds for taxpayers who have overpaid taxes during the year; electronic payment capabilities for those who owe more; and 99 per cent accuracy for both.

When we say - as we did at the beginning - that e-government is at its nascent stage, this does not mean that the outcomes achieved by many of these early applications are not important. There should be no mistake: e-government has been delivered to many parts of the world. In the case of many communities and many individuals this has meant the delivery of an important public value - an improvement in the quality of life. To take only the above-mentioned examples, from villages in Kenya and India to schools in Canada or bed-ridden patients in Georgia in the U.S., the development of e-government applications must be characterized as **meaningful**.

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II.3.2. In their own words...

In the preparation of this Report, close to 100 managers or persons with intimate knowledge of on-line e-government applications around the world were approached by UNDESA with a request to contribute by describing the main features of their applications. We wanted them to tell us the reasons for the development of a given e-government application; expected results at the design stage; main functions and features of the e-government application; response of the target audience; results, as compared with expectations; and lessons learned. We received over 30 responses. All of them have been valuable in broadening the overall understanding of the status of e-government in the world and the Report has benefited from them greatly. All have become part of the global UNDESA on-line compendium of e-government applications as well.[xi] A sample, which contains responses from 18 countries on four continents, is a part of this sub-chapter. It focuses on public service portals as well as applications for on-line procurement, taxation and participation. It demonstrates, inter alia, the richness of local interpretation of the functions of some of the main e-government applications that are on line today. At the same time, it offers a rare insight into the thinking and experiences of people who have been involved in the development of these applications.

While concluding the consideration of early achievements in e-government development, it seems interesting to highlight the respondents' understanding of the reasons for the development of their respective applications, as well as their take on the lessons learned.

They name the following as reasons for the development of e-government:

- **Overcome the complexity** of bureaucracy (overthrow the bureaucratic paradigm) and simplify the process of dealing with public bureaucracy;
- Help the public and business to connect to government information and services on line - **provide seamless electronic public services**;
- **Catalyse the development and deployment of ICT applications** in the society by demonstrating the potentials of the networked society via real life projects addressed to the public at large, public authorities and business companies;
- In the context of economic reform, **increase efficiency, transparency and accountability** in the use of public resources - prevent fraud and corruption;
- **Fit the digital economy** - advance in transition to the knowledge economy;

[xi] One can argue that nothing like "the best practice" exists in the development of e-government. Human creativity and imagination makes it possible to find countless new applications of ICT to public sector operations and countless, specifically fitting interpretations of the existing and tested applications. This does not mean that there is no value in learning from the experience of others. In recognition of this, UNDESA, Division for Public Administration and Development Management has created on its website <http://www.unpan.org/dpepa-kmb.asp> a compendium of e-government applications that is open to all. Anyone in the world who follows an outline provided on this web site can post a description of an e-government application and lessons learned. This compendium, in its perpetual development, constitutes a virtual annex to this report. The annex will be as good as the response of the global e-government community to the UNDESA initiative.

E-government at its best is first and foremost about producing public value

- **Lead by example** in adoption of e-business;
- **Improve a dialogue with the public** and heighten people's interest in democracy and participation;
- **Increase knowledge** in society of the issues handled by the public administration;
- **Achieve greater openness** and transparency of the policy-making process;
- **Test the new media** within the process of democracy.

To paraphrase: the governments are facing both a challenge and an opportunity; they should transform and lead by example.

The respondents also named the following lessons learned:

- ICT has become a **part of the political agenda**;
- Effectiveness alone cannot constitute the goal of e-government development: it **must respond to the public's needs** and it must be closely tied to raising the quality of people's lives;
- Government and its ICT plans **cannot progress ahead of the public**, its interests and its skills; all e-government development must take place on people's terms;
- Main difficulty - **integration of back-office systems and databases** of different government departments with the "customer interface"; without back-office integration, the customer interface is an empty shell;
- Main risk - the **culture prevailing in government offices**: staff members are fearful of increased control of their work-related behaviour; managers are fearful of losing control over information;
- **Prior exposure** of government departments to administrative reform programmes and change management helps to successfully deploy e-government applications;
- **Change must encompass business practices** (work flow) within government organizations: e-government applications make sense only if they support appropriate work processes;
- While **intensive training** of civil servants and the public at large is necessary, rare usage (little practice) undermines the effectiveness of training and brings back ICT illiteracy. Training by peers who are on the same footing as the trainees (same age group, same social status) has proven to give better results than efforts led by professional instructors who use overly technical language;
- **Design of e-government applications must be simple**, yet take care of all the critical details; it must allow the applications to run on all the operating systems and browsers;
- **Success is not a given** when one uploads a service to the Internet; one visible success is not automatically the cause of the next success;
- **Users of on-line services are difficult to attract**: no one can force people to use on-line services; they have to be convinced that doing so will be easy and advantageous;
- Development of **local context of services helps to raise interest** in on-line services, as does raising awareness via traditional media (TV, radio, printed media) about the availability of on-line access to government services;
- The digital divide directs on-line services away from those who need them most but do not enjoy affordable access to the Internet (**"for-wealthy-only" syndrome**);
- A **balance has to be preserved** between the average usage of on-line services and the quantity of these services being made available on line;
- **Traditional forms of services** ("brick and mortar") must be maintained alongside the digital initiatives;
- In e-participation, **unequivocally clear, understandable rules** must be established; anonymity must be avoided; participants must clearly see the extent to which their input is considered in policy making; information must be constantly provided about new opportunities to participate in policy making;
- **Networks and knowledge sharing** are crucial for securing the quality and sustainability of on-line service;
- While **partnerships with business firms and CSOs** (shared financing, risk, ownership) are all important, partnership building requires focused advocacy effort to break through prospective partners' lack of understanding of opportunities offered;
- **Security** of on-line connections has to be of a very high standard, but it cannot jeopardize simplicity (too little security - too little trust; too much security - too expensive and burdensome);
- **E-government is costly**: the cost factor is important and must be considered carefully, especially in jurisdictions with limited financial resources.

This rich crop of experiences constitutes an appropriate summary of the previous discussion and a fitting introduction to the discussion that follows. E-government at its best is first and foremost about producing public value. It is also about bureaucratic structures in government departments facing abrupt change brought about by technology. It tends to be a complex, prone-to-failure and costly undertaking, though no doubt one that is rewarding.

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Presentation of e-government applications

Portal / National Level / Canada: Canada Site

The Canada Site is the primary Internet access point to comprehensive and up-to-date on-line information about Government of Canada programmes and services. It was first introduced in 1995.

Many departments of the Government of Canada already have a wealth of information and services on line. The Canada Site helps the public connect to this information. Popular features on the Canada Site include the following:

Customization - allowing users to create a page of bookmarks for their favourite links accessible through the Canada Site. A graphic indicates when a new link has been added to a favourite section.

E-mail notification - allowing users to sign up to be notified by e-mail whenever new links are added to their favourite Canada Site sections.

E-forms and services - leading users directly to interactive forum links, frequently requested on-line forms, and "shop on-line" sites available from the Government of Canada.

The structure of the Canada Site focuses on audiences, subjects and, in some cases, life events such as finding a job or losing a wallet. This allows service delivery even in situations in which users are not fully familiar with the government structure.

The Canada Site is constantly evolving thanks to the ongoing feedback it collects from its users. The site undertakes regular usability research, including focus group testing and interviews. This research involves users from various age groups across Canada and those with different levels of computer expertise. Results from user feedback influence enhancements to each new version of the Canada Site, thus ensuring that the site remains informative, user-friendly, and, most importantly, that it reflects the needs of the users. Visitors to the site are also encouraged to submit their suggestions on line using feedback forms and by participating in surveys.

Future enhancements will include taking advantage of emerging technologies. This year, the Government of Canada launched a wireless portal prototype to reach people using portable and wireless devices such as mobile telephones and personal digital assistants (PDAs).

For more information view: http://www.communication.gc.ca/services/index_e.html or contact: donna.wood@communication.gc.ca

Portal / National Level / Singapore: eCitizen

Development of e-Government in Singapore follows the vision outlined in the e-Government Action Plan: "The Singapore Public Service faces the challenge of re-inventing government in the Digital Economy. This transformation of government and governance cuts across all aspects of the public sector from leadership, delivery of electronic public services, internal government operations, and ultimately economic competitiveness. It requires the establishment of an e-Government, one which recognizes the impact of ICT on governance in the Digital Economy and exploits these technologies in the workplace and in internal processes for the delivery of citizen-centric public services."

The cornerstone of e-Government in Singapore is the eCitizen Portal that provides the public with accessible and integrated customer-centric (rather than agency-centric) e-services, which enable the public to carry out complete transactions with the Government without dealing with several agencies separately. It enables users to search for and access a diversity of information from government agencies and to conduct a wide range of transactions on line with government agencies. Services and information are categorized into 16 "towns" which cater to various essential touch points in life - Arts & Heritage, Business, Defence, Education, Elections, Employment, Family, Health, Housing, Law, Library, Recreation, Safety and Security, Sports, Transport and Travel. The eCitizen portal can be accessed anywhere using an Internet connection. Individuals who do not have access to the Internet from home or workplaces or who require guidance to access government e-services are assisted by helpers at the eCitizen Help Centres.

The PSi or Public Services Infrastructure has supported quick development of the eCitizen portal. It allows various government agencies to develop, deploy and operate e-services by leveraging the "built-once, reuse-always" building blocks - packages of application services required for payments, security, authentication, encryption, digital signature, data transfer, etc.

For more information view: www.ecitizen.gov.sg, www.mof.gov.sg, and www.ida.gov.sg

Portal / Regional Level / Hong Kong: The Electronic Service Delivery (ESD) Scheme

The Hong Kong Special Administrative Region Government rolled out its Electronic Service Delivery (ESD) Scheme in December 2000, to work towards its E-government mission of providing seamless electronic services to the public and business in an efficient and customer-centric way, and to lead by example in the adoption of e-business.

The ESD Scheme is implemented through a one-stop portal, which provides integrated public and commercial services in a customer-oriented way. Some 140 on-line public services are now available, including job search, booking of sports facilities, booking for marriage dates, application for renewal of driving/vehicle license, filing of tax return, change of address, purchase of government publications, application for business registration, payment of government bills, live web cast of road traffic conditions, voter registration, etc.

The ESD Scheme highlights the public-private sector partnership model. The private sector operator is responsible for developing, financing, operating and maintaining the system, and the Government starts to pay transaction fees to the operator after the accumulated transaction volume has reached a pre-agreed level. In turn, the private sector operator is allowed to make use of the ESD portal to provide advertising and private-sector e-commerce services to generate additional income. Under this model, the business risk to the Government is kept to the minimum, while the private sector operator has the continuous incentive to promote the wider use of on-line public services and to introduce service enhancements. Most importantly, with the provision of value-added e-commerce services together with E-government services in a single portal, the public and businesses can enjoy more customer-centric and one-stop service.

The community has warmly welcomed the ESD Scheme. The average daily hit rate now exceeds 2.5 million, with 280,000 page views; while the average monthly transaction volume has increased by some 40 per cent (when compared with the year before). Currently, over 80 per cent of marrying couples who file their marriage notice on the first day of the period make their booking through ESD; and the percentage of bookings for public sports facilities made through ESD had increased to 30 per cent by mid-2003 (up from 11 per cent in mid 2002). While the general usage level is encouraging, the take-up rate of individual applications that involve more steps and documentation has not been as great as expected. Both the Government and the private sector operator are continuing to promote further usage of ESD services. Such promotional initiatives include providing financial (e.g. cash rebates, lucky draw, fast-food coupons) and non-financial (e.g. priority treatment to ESD users) incentives.

For more information view: www.esd.gov.hk or contact: jsylee@citb.gov.hk

Portal / Municipality Level / Australia: ourbisbane.com

Brisbane (population nearly 900,000) is the capital city of the State of Queensland. The Brisbane City Council launched the **ourbrisbane.com** Strategy in late 2000. It builds on earlier initiatives, inter alia, the Customer Service Integration Center (1994), which currently handles over 1.6 million calls per year, providing information and action on more than 3,000 separate services. **Ourbrisbane.com** has been an eight initiative programme. It has included pro-active support for assisting communities and businesses on line; the **ourbrisbane.com** Portal at www.ourbrisbane.com, which connects the city's people with information and other people to encourage participation in the global information revolution and the city's life; affordable access strategies to address the "digital divide"; and further work on the telecommunications infrastructure. The strategy pursues six outcomes:

Connected People: All residents can access information and services easily. Everyone can participate in the information economy and community regardless of socio-economic or cultural background.

A Stronger Community: Participation in community life across the city is strong and lively because of better access to information, resources and opportunities. Community organizations deliver better services by using easy-to-use information and communication technology.

Business On Line: Brisbane businesses derive real benefit from electronic business technology.

Seamless Government: Cross government services are easy to find and use because they are developed around customer needs and reflect the expected way of doing business.

ourbrisbane.com Portal: The Portal is the leading gateway to getting the most out of Brisbane.

Telecommunications Infrastructure: All residents and businesses have access to state-of-the-art broadband telecommunications services at the lowest possible cost.

Successes to date include doubling of community and business access to the Internet with 300 community organizations on line covering sporting, environmental and seniors groups; more than 3,000 businesses connected to each other via the eBIG user group and seven on-line business networks; a successful city Portal; over 500 "Green PCs" (refurbished PCs at affordable prices) distributed, Internet training for nearly 50,000 people and free Internet offered through an extensive Library network; and a city-wide telecommunications infrastructure plan. The next stage of the Strategy includes targets of: increasing weekly Internet usage by Brisbane people from 59 per cent to 75 per cent by December 2004; broadening the range of everyday uses for which Brisbane people use the Internet; and increasing the percentage of Brisbane business trading on the Internet.

For more information view: www.ourbrisbane.com or contact: Anna.Foley@team.ourbrisbane.com

Portal / Municipality Level / Finland: eTampere

The City of Tampere, Finland (200,000 inhabitants, 15 per cent university students) launched in 2001, a special programme for the promotion of the development of the information society. Its three mutually supportive dimensions are: strengthening the expertise base of research and education; generating new businesses connected to the information society; and developing the digital services of the local government and making them accessible to the entire population. Among six independently operating sub-programmes, Infocity has the closest connection to e-government. Infocity comprises three dimensions: content production or developing digital services, access facilitation and computer instruction. Ongoing projects and future plans of the eTampere programme and Infocity sub-programme include multi-purpose smart card, eHealth, and expanding eDemocracy, eLearning and mobile services.

The web pages of the City of Tampere are accessed over two million times a month. The bulk of the material on the website is still informative in purpose, but the share of participative opportunities, interactive services and formal correspondence with the local authorities is increasing. The most popular sites are events calendars and bus timetables. (You can also request the departure time of your next bus on your mobile phone as a short text message.) Interactive on-line services and final transactions exist in the most comprehensive way on the library website: the client can check directly from the library database whether a book or other piece of material is available and reserve it by using a personal identification number. Additionally, one can sign up for an e-mail alert service on new library acquisitions in specific fields. Reservations are answered via e-mail, mobile phone or ordinary letter. It is possible to view the housing market on the Internet and apply for rental housing by e-mail. It is also possible to monitor your electricity and water consumption over the web.

The City of Tampere has placed more than one hundred computers with free Internet connection in various kinds of public places. In addition to those computers, all schools and some shops maintain Internet computers for public use. The local authorities run one net cafe. There are connections available for senior citizens at day centres and community centres. In the suburb of Hervanta an EU-funded project is running a project to fight social exclusion with the help of Internet skills and opportunities. A service point for the visually disabled was opened in 2002. The netmobile, Netti-Nysse offers all e-government services in a wireless form on wheels, wherever people are, in an unhurried atmosphere. The bus itself has already run millions of kilometres along the bus routes of Tampere as an ordinary city bus. Refurbished into an instrument for the information society, it functions as an outreach tool for the City Library, transporting skills and knowledge to the suburbs, gatherings and even neighbourhood parties. There are 12 computers in the bus, plus printing facilities and a small auditorium. And there is always someone present to help and instruct the users along the information superhighway.

For more information view: www.tampere.fi and www.etampere.fi or contact: jari.seppala@tt.tampere.fi

Transparency / Republic of Korea: OPEN System

The Seoul Metropolitan Government introduced the OPEN System in September 1998 to lower the level of corruption in the city administration. The System allows posting on line all the consecutive procedures (reception, review, final processing, and whether the application has passed the bottom-up approval system from deputy-director to director to director-general) of cases undergoing administrative processing. Related laws are also shown in detail. This way the general public, including the person who filed an application or complaint, can monitor public administration. This is expected to prevent corruption and increase transparency.

A total of 54 categories of civil applications where corruption is most likely to occur have their procedures posted on the OPEN System. The phone numbers and e-mail address of the department in charge are available on the website so that people can reach the working-level official currently handling the case.

The System features the following characteristics:

Guarantee of Transparency: Information on progress in dealing with pending cases, how the case is reviewed and whether it has been approved is posted on line in real time.

Easy Access: Without making a phone call or paying a visit to City Hall, a person can find out anything she/he wants to know about the processing of her/his application.

Enhanced Credibility: By being open to the public, the OPEN System secures fairness and objectivity, thereby dispelling people's distrust in public governance.

According to a survey conducted from July 2000 to December 2002, 80.44 per cent of those surveyed confirmed that they saw the OPEN System as contributing to more transparent public governance.

Experience confirms that corruption develops when everyone but a handful of people is kept in the dark and everything is done behind closed doors. Bringing the matters out into broad daylight is the best way to root out corruption. What is most important in securing transparency in public administration is to put in place a system that urges people's participation and encourages public officials to guard against corruption. If applied in a smart way, Information Technology can promote democracy and good governance.

For more information view:
http://english.metro.seoul.kr/government/policies/anti/civilapplications/

Financial Information System / New Zealand: CFISnet

The New Zealand Treasury uses the Crown Financial Information System (CFISnet) to collect, consolidate, analyse and report on the finances of the New Zealand Government. Government entities use the Internet to connect to a central database developed in-house at the Treasury. The Treasury decided to develop CFISnet because the system it replaced:

- was good at collecting financial data but had no facility for handling the non-financial data that was central to many processes;
- was difficult and expensive to maintain (it required specific software to be installed and maintained at each entity - and there were plans to have a significant number of new entities coming on line due to a change in accounting policy);
- was not being regularly upgraded by our software supplier, and this was causing compatibility problems for many entities.

There was also a demand for developing the Treasury's own system so that it could continually adapt it to changing and expanding needs.

Using the Internet to connect to a central database seemed the obvious choice to provide the functionality that was desired. The main hurdle to overcome was in providing adequate security without compromising ease of use. This was primarily achieved through:

- encryption to ensure security of data transfer;
- each user being required to have a digital certificate for authentication;
- other firewall and procedural security measures.

CFISnet went live in November of 1999 for monthly financial statement data collection. Since then it has been expanded to cover most of the Crown's financial data collection processes. Feedback from CFISnet users has been positive: CFISnet has provided internal users with faster, more reliable access to more data than the previous system and in a better format. This has freed up time for analysis. External users say CFISnet requires much less technical knowledge to use than the previous system and requires no maintenance by them. CFISnet was primarily designed as a data collection tool. In looking to the future the Treasury is now considering the possibilities of using CFISnet as an information-sharing tool.

There were a number of factors that contributed to the success of the development of CFISnet. There was a real business need. There was a high level of management support. Treasury entities contributed significantly to the direction and implementation of the system. What was tried was clearly defined and could be broken into manageable chunks. The new system streamlines processes but does not drastically change them. Current industry standards were used with a view to the future. A small project team that understood the requirements well set up the system.

For more information contact: Ken.Warren@treasury.gov.nz

Taxation / U.S.: IRS Electronic Tax Administration Program

Each year the Internal Revenue Service (IRS) processes 112 million individual tax returns and 79 million business tax returns. Individual tax returns 25 pages in length are not unusual and a few of the largest businesses file returns exceed 30,000 pages. On top of this, businesses file 1.5 billion information returns (reporting wages for individuals, interest and dividend payments etc.) and individuals and businesses combined make 65 million payments totalling almost $2 trillion. At the heart of the IRS Electronic Tax Administration Program is the belief that technology can make complying with tax laws less burdensome. The Program to date includes these key components:

1. The electronic filing program for the Form 1040, used by individuals and small businesses and begun in 1986, provides faster refunds for taxpayers who have overpaid taxes during the year, offers electronic payment capabilities for those who owe more, and provides 99 per cent accuracy for both. In 2003 approximately 53 million individuals and small business 1040 tax returns were "e-filed". E-filing is accomplished through tax professionals, commercial tax software and, for the simplest returns, telephone. For the first time in 2003, as a result of an agreement between the IRS and the tax software industry, 60 per cent of these taxpayers can use commercial internet tax products at no cost. Over 2.5 million taxpayers took advantage of this service.

2. While the electronic filing of business returns is less advanced, over 6.5 million business returns and over 500 million information returns were electronically filed by businesses in 2003.

3. The IRS collected $1.6 trillion electronically in 2003 through a system that saves significant time and posted payments to taxpayer accounts with 99.9 per cent accuracy. Payments can be scheduled up to a year in advance and 16 months of payment history can be accessed via the Internet.

4. The IRS website provides easy access to forms, publications and other tax information and received 4 billion hits in 2003. Also, 500,000 forms and publications were downloaded during the year. The over 60,000 pages of content on the site is organized by user type (businesses, individuals, charities and non-profits etc.) and features a keyword search for the most commonly sought information. Also in 2003, features were added to the site allowing new businesses to obtain an Employer Identification Number and allowing taxpayers who overpaid their tax to check the status of their tax return and refund on the site, once the return has been filed.

Keys to this success include effective marketing through television, radio and print advertising and close partnerships with the tax software industry and the tax professional community, which prepares 55 per cent of all individual returns and over 80 per cent of all business returns. The final key is the focus on taxpayer needs. The IRS does extensive market research each year and all new tax products go through usability testing before rollout.

For more information visit: www.irs.gov or contact: Terence.H.Lutes@irs.gov

Taxation / Mexico: eSAT

The Tax Administration Service (SAT, in Spanish) has developed the eSAT strategy as part of the services automation project offered by the Mexican government. The Electronic Payment Plan is one of the components of the eSAT strategy. Until July 2002, the payment of Federal taxes was done quarterly, in most cases through printed fiscal formats. A small number of individuals filed their returns electronically. This was cumbersome: a taxpayer was required to obtain from SAT a security certificate and an access account. The taxpayer had to electronically transfer funds in the bank, which gave him an operation folio. As the next step, the taxpayer had to send funds via Internet from the bank to the SAT's portal, jointly with the fiscal information.

In the new system, as a result of an agreement between the Tax Administration and the Mexican Banking System, execution of payment from the taxpayer's account through the Banking Portals is allowed.

With the purpose of complementing the New Electronic Payment Plan, different applications have been developed:

Electronic Signature - a unique, personal and non-transferable means of identification that the taxpayer obtains through SAT's Internet portal or at the offices of the Fiscal Authority;

Tax Return with Statistical Information (DIE in Spanish) - a control mechanism for those taxpayers who do not declare the payment of tax to the fiscal authority to use in periodically filing a return in which they state their reasons for not doing so;

Complementary Tax Return for the correction of data - which allows taxpayers to correct mistakes pertaining to data stated in returns filed through the Internet;

Inquiry of Transactions - to provide legal certainty to the taxpayer that compliance with fiscal obligations was registered by the fiscal authority. It allows taxpayers to inquire through the Internet portal about the fiscal obligations with which there has been compliance;

Reprinting notices of receipts in zero and data corrections - in case the taxpayer does not receive a receipt or misplaces the receipt with the digital seal that is received;

Annual Tax Return - from 1 March 2003, information may be sent electronically through the Internet. This provision is optional for individuals and for corporations.

The Electronic Payment Plan has had a positive impact on integration of the information in the SAT's databases. Currently the efficiency and control of the operation has increased in the following fields: transactional management of payments; elimination of documents; centralization of processes; and reduction of process time.

For more information visit: http://www.sat.gob.mx
or contact: cesar.perales@sat.gob.mx

Procurement / China: Electronic Public Procurement (EPP)

On 1 January 2000, the Tendering and Bidding Law of the People's Republic of China came into force. Three years later, on 1 January 2003, the Government Procurement Law of China came into force. These laws stipulate which projects must use tendering procedures when purchasing goods and construction and other services. The total value of public procurement in China was US$10 billion in 2002. It is predicted to reach US$20 billion in 2003. If it were to reach the international average of 10 per cent of GDP, it would amount to US$800 billion. The traditional procurement methods could not cope with the rapid progress of public procurement. Hence, Electronic Public Procurement (EPP) was adopted.

Most enterprises in China are connected to the Internet and the Chinese Government has made great efforts to promote electronic public procurement. On 1 July 2000, the State Development and Planning Commission appointed the public procurement website, along with three newspapers, as the official media for posting public tender notices.

The EPP website registers more than 100 tendering notices daily and subscribers may freely browse tender notices. When they encounter a notice that they are interested in, they can download the attached bidding documents; communicate on line to clarify doubts; get advice from experts; submit prepared bidding documents by uploading them to the designated website; watch a live on-line broadcast of the bids opening ceremony; and check the bidding results on line. Within the framework of EPP, e-auctions have been initiated in China.

Routinely, the public procurement of drugs has been conducted electronically in China. The procurement notices are released on the website and the bidding documents can be downloaded and submitted. The governors can also approve the projects on the Internet. This kind of procurement reduces the intermediaries and contributes to decreasing the prices of drugs. The public benefits from the e-procurement, which is also a way of avoiding corruption.

Electronic Public Procurement in China is in its beginning phase. The next steps will include:

quickening the legislative steps related to Electronic Public Procurement, such as the development of information and network security;

standardizing procurement procedures such as information release, buying and selling bidding documents, consultation, the bids opening broadcast and release of bidding results, as well as providing the necessary training for bidders;

conducting Electronic Public Procurement in more industries and areas.

For more information view: www.chinabidding.com.cn or contact: Jeff@chinabidding.com.cn

Procurement / Norway: ehandel.no

"ehandel.no", the Norwegian public sector marketplace, is a part of the eCommerce Programme and was approved by the Cabinet in 1999. Efficiency, effectiveness, ease of access and affordability are among its main targeted features. As stated in the Programme, "The use of electronic commerce in public procurement shall contribute to lowering the procurement related costs and to increasing the quality of the public procurement processes." "ehandel.no" is also a step in the implementation of government policies that focus on modernization of the public administration; introducing competition to public procurement; and making the public sector a leading factor in the process of Norway's transition to a knowledge-based society.

"ehandel.no" is not a separate marketplace, but rather a facility that allows the public sector easy and affordable access to the already existing services of the open electronic marketplace. Since June 2002, a Swedish company that has been running these kinds of services for private companies, IBX, has started to offer them to the public sector as well.

In its initial phase, "ehandel.no" has worked on formalizing framework agreements between the operator of the marketplace and the public sector entities (central, regional, entity-based); integration with the "backroom" systems; and placing orders in accordance with the agreements. The future should bring about expanded catalogue buying, e-sourcing, contracting, payments and other logistical services.

Till now, 14 public sector entities have signed an agreement with the operator of "ehandel.no". Some 75 suppliers of these entities have also signed up and made their electronic catalogues available. In addition, 10 - 15 public sector entities are in the process of evaluating costs and benefits of joining the "ehandel.no" marketplace. According to their calculations, on average, 50 per cent of all transactions and 20 per cent of their purchase value seem suited for e-procurement.

The Norwegian experience demonstrates that the main challenges to successful implementation of e-procurement application are related to process improvement and change management in general. An electronic connection to a marketplace is no guarantee for e-procurement; behaviour needs to be changed. E-procurement is new not only for buyers on the public administration side, but also for suppliers. Both sides need time to adapt.

For more information view: www.ehandel.no or contact: andre.hoddevik@ft.dep.no, knut.lie@ft.dep.no or peder.bentsen@ft.dep.no

Procurement / Sub-national level / The State of São Paolo, Brazil: Bolsa Eletrônica de Compras - BEC/SP

In the second half of the 90s, awareness of the need to secure control systems that could restore the accountability of public accounts information, in conjunction with the ICT revolution, gave the São Paulo State Government the opportunity to adopt and foster a public sector modernization strategy aimed at overthrowing the existing bureaucratic paradigm. The government was able to achieve the digitization of figures on public income and expenses. In this context it implemented the "Bolsa Eletrônica de Compras" (BEC/SP), an e-procurement system, starting activities in September 2000. BEC/SP is a dynamic electronic price information system for governmental procurement. The system observes federal purchase law and extends to the whole of public management of São Paulo State. It comprises 1,200 management units, more than 7,000 public buyers, use of a materials catalogue of over 90,000 items and bids to a supplier file of over 45,000 enterprises. Its main features are:

a) Decentralization of purchases (in many cases the procurement was centralized, generating stocks and administrative costs);
b) Purchasing at the right time (due to time-consuming bureaucratic procurement, management units where not used to planning);
c) Autonomous decision of the buyer (every buyer has an on-line database at his disposal, concerning public prices paid);
d) Just-in-time logistics (eliminating warehouses and transferring distribution costs to suppliers);
e) Impersonality of negotiation (the buyer does not know the supplier; the process is confidential);
f) Payment to suppliers on the fixed dates of the public bids (the Brazilian public sector has lived the legend of the bad payer).

After two years in operation, these are the main results and impacts:

a) Almost all offices of the São Paulo State administration have practised e-procurement through BEC/SP, even legislative and judicial offices;
b) More than 90 classes of materials have been codified (following the Federal Supply Classification exercise), concerning about 13,000 items;
c) From September 2000 to December 2002, 15,736 bids were issued, with price reductions (i.e. budgetary savings) of 20.2 per cent;
d) Information on prices in effect (medium offered prices and best prices) has been disseminated to the market.

Due to the purchasing power of the state, BEC/SP will be able to develop as a regulatory tool for the goods and services market. The system is starting to be used by municipalities, with the same beneficial results as those achieved at the State level.

For more information view: www.becsp.com.br or contact: nakano@fgvsp.br or wsoboll@fgvsp.br

Procurement / Bolivia: work in progress

In Bolivia, public acquisitions deserve special attention, especially from the point of view of efficient, transparent use of public resources, facilitating prevention of fraud and corruption. Modernization of the State and suitable use of public resources is stimulated by control of public financial management through the Integrated System of Management and Administrative Modernization (SIGMA). It comprises budget, purchases, hiring of staff, administration of personnel, administration of goods, accounting, treasury and public credit. Additionally, the Information System for Governmental Contracts (SICOES) has been established. It is an Internet application that covers all the relevant information for the ongoing hiring processes in the public sector, including results, formats, conditions and norms.

To augment this structure, a strategy was developed that called for a review of best practices, and for choosing the best technical option that would fit the legal and developmental environment of Bolivia. The COMPRASNET system, successfully implemented by the Federal Government of Brazil, was considered to meet these requirements and to integrate well with Bolivia's financial management, budget and accounting sub-systems. Taking this into consideration, within the framework of the Bilateral Agreement of Technical Cooperation between the two countries dated 28 April 2003, a Complementary Agreement for the Adaptation of the COMPRASNET from Brazil to SIGMA and SICOES of Bolivia was reached.

At the same time, and in order to evaluate the conditions under which the e-procurement system might be implemented in Bolivia - both from the technological point of view (infrastructure, qualification etc.) as well as from the normative point of view - since January 2003, a Pilot Plan for the Electronic System for Smaller Purchases is under way. It integrates the smaller purchase module of COMPRASNET, which eventually will be utilized by the central government and municipality organizations. In this process, the acceptability of the use by private firms of new technologies in governmental purchases and the development of specific legal instruments are being tested.

The System for Smaller Purchases will continue to be developed through: i) completion of the functional application; ii) equipment acquisitions; iii) training; iv) a public relations campaign; v) approval of the specific legal instruments; and vi) completion of actions to improve connectivity and access to the Internet. This should facilitate the success of the implementation of the system and minimize the risks related to the change of culture and the introduction of new technologies throughout Bolivia.

For more information view: www.sicoes.gov.bo or contact: cmoncada@sicoes.gov.bo

Participation / Estonia: TOM, Täna Otsustan Mina = Today I Decide

TOM is the first attempt in Estonia to start discussion between the State and society using the possibilities offered by modern ICT. Transparency of the decision-making process and improvement of the State-society dialogue can be achieved in this way. The key objective is not to provide an electronic service, but to improve democratic discussion. TOM was launched on 25 June 2001; at present there are about 4,000 registered users and the average number of visits per month is 80,000. In broad terms, the TOM process may be divided into six parts, from the submission of an idea until its implementation:

(1) Submission of an idea. Many people have good ideas that are not voiced for some reason.
(2) After the submission of the idea, others have 14 days to comment on it and the author can defend the idea. There is discussion, from which democratic decisions emerge.
(3) This phase is followed by the editing period. The originator of the idea takes proposals, criticism and pro-arguments into consideration and makes amendments, if necessary.
(4) The idea is voted on. Everybody can vote for or against it. A simple majority endorses the idea.
(5) The person who submitted the idea and those who share the view that it should be implemented sign a document endorsing it.
(6) After signatures are gathered, the idea/proposal moves to the government for processing. The proposal is directed to the public agency to which its area of administration belongs. According to the Public Information Act, the public agency has one month to either start implementation or submit a substantiated answer that explains why the idea/proposal does not merit implementation. The answers are published in the portal.

What has been learned?

- Unequivocally clear, understandable rules must be established that would facilitate the management of discussion.
- In order to avoid excessive emotions and the feeling of impunity, the e-democratic discussion must avoid anonymity.
- All participants in the discussion must clearly see the extent to which their input is considered in the policy-shaping process or the feedback.
- The public has to be constantly informed about the opportunity to participate in policy shaping, at the regional as well as at the State level.
- People who are involved better understand the complexity of the policy-formation process and decision makers learn to make better use of people's knowledge.

For more information view: http://tom.riik.ee/ or contact: Tex.Vertmann@riigikantselei.ee

Participation / Denmark: nordpol.dk

www.nordpol.dk is an e-democracy website inviting people to participate in the political decision-making process in the County of North Jutland, Denmark. The target groups of the project (citizens, especially young citizens and politicians) have been invited to take part in the project in all its phases (definition, test, appraisal and plans for future development). This has ensured appropriate focus of the content and design and constitutes a significant reason for the overall success of the project.

The debating site allows both politicians and other citizens to define the agenda and bring up the topics on which a dialog is desired. The object is to create a more transparent decision-making process and to reach more qualified decisions, allowing broader groups of citizens to rise and speak than is the case with the conventional channels of involvement and influence for people. It facilitates access to debates on current political topics and connections to other electronic news media in order to create a coherent framework for civic involvement in the process of democracy. It offers: on-line debate, chat, news search/updates from TV station around the clock, search from the Web Portal, links to political and public websites, subscriber services (e.g. e-mails covering the agendas of the County Council) and a quiz with check tables.

The initial motive was to get in touch with the public and facilitate people's interest in democracy; to assure greater openness and insight in the policy-making process; and to improve and increase knowledge of the fields managed by the county administration. So far experience proves that all these goals have been reached: the distance between citizens and politicians has become considerably shorter and the opportunity for citizens to influence the decision-making process has increased, as has well-informed civic participation in the process of democracy. Also, the Web Portal tests the role of the new media within the process of democracy, with a view to an increased use of the Internet, particularly in hearings and consultations, debates and referendums/elections. The virtual democracy room opens a new range of potential applications, e.g. within the framework of information and public consulting sessions to be held in connection with large planning projects, as provided by Danish legislation concerning public consulting procedures. Geographical distance will not keep citizens from participating.

Dialogue in the digital democracy has experienced both ups and downs. Success is not a given when uploading a service to the Internet. It is costly. It requires marketing and exposure in the traditional media as well as interaction with these media to draw the public's attention to new possibilities. Likewise, one visible success is not automatically a cause for the next success.

However, as the net effect has been an increase in openness and transparency in the decision-making processes in the county of North Jutland, the country will continue the effort to solidify the new potentials offered by ICT as a natural and integrated part of the decision-making process.

For more information view: www.nordpol.dk/english or contact: tah@nja.dk

Participation / Austria: vCRM - Vienna Citizen's Request Management

The municipal government of Vienna (approximately 1.8 million inhabitants), the federal capital of Austria, is organized by tasks into about 70 departments with 120 sub-units. The city is also divided into 23 districts. The work of the municipal administration is complicated by the often-overlapping competences of the individual administrative areas and by periodic changes in these competencies as a result of political change.

The system, vCRM has been set up to handle not only complaints but also all kinds of requests, ideas and comments. The vCRM is based on and can be accessed via the Internet (including public access terminals). This guarantees instant interaction, quick response and enhanced transparency in dealing with issues raised by the citizens.

The system features, inter alia, coordinated treatment of issues: one continuous number for each case (which facilitates inter-departmental cooperation); identification of parallel cases (i.e. the same file for similar complaints); location-independent availability of information; digital processing of all data and documents and electronic workflow; usability for handicapped users; and multi-lingual capacity for minority users.In 2001 there were about 1,000 cases handled via the vCRM per month. In 2003 that average increased to 4,000 cases.

The system shortened the case processing time from the average of 12.8 days/file to 7 days/file (a reduction of 42 per cent). It has integrated 15 departments, 97 vCRM groups and 330 institutional users.

Main lessons learned:

- Mainly those departments were interested in participating in the project that had already had prior exposure to citizens' request management techniques or to the change management process;
- Staff expressed apprehension about increased control of their working practices and habits through the display of the workflow. Managers expressed apprehension about making certain basic information transparent on line;
- Full rollout has only been possible after gathering experience and, for the time being, in four departments only;
- Nevertheless, the full rollout was able to convince the heads of the departments of the advantages of the system;
- Commitment, i.e. conviction that the new ways provide advantages, is a pre-condition for meaningful participation in innovative projects.

For more information view: www.wien.gv.at/service/zbm/ or www.wien.gv.at/english/vcrm/ or contact: rie@adv.magwien.gv.at

Health care / Sweden: Sustains III

Sustains III is an idea for an electronic information system that would allow patients to manage their health care as Internet bank customers manage their electronic bank accounts. When fully developed it would store information on the health history of a person (health condition and treatment) and allow a comparison between that person's health status and lifestyle. Consequently, it could support a patient's and a health-care provider's decision-making processes. Right now the system is being developed in terms of its structure and functions, with a view to addressing patients' needs and preferences more closely.

It is hoped that, apart from serving as an information base, the system will have important beneficial side effects. It will offer the potential to closely involve patients in managing their health status, for instance by altering their lifestyle and monitoring (auditing) the quality of the health care that they receive. It can also introduce more equality in the patient-doctor relationship. Especially in cases of incapacitated or older persons, this can be achieved by reviewing the "health account" of a patient, given his/her consent, with family members or even trusted neighbours. This would introduce the element of "external auditing" to the health care system and build trust in the system, with no necessity for repeat visits or contacts just to clarify information. It also would make it easier to introduce the patient's point of view on what constitutes quality health care in a particular case. (Patients' and doctors' points of view on this crucial matter are known to differ.) From the point of view of the health care system as a whole, this would employ patients and their support structures as powerful resources and watchdogs of quality assurance. In addition, the element of self-service is bound to reduce the overall cost.

Some of the weak points:

1. The system addresses the part of the population that can use ICT (i.e. equipped with computer skills and physical access). However, the majority of health care customers, for various reasons, do not have such skills or access. While those in the latter group may be a decreasing part of the population, they do and will continue to exist, thereby labelling Internet-based health services as "For Wealthy Only".

2. The lack of a national patient identifier may eventually hamper the system's development.

3. The cost effectiveness of the system may be obvious, but it remains difficult to measure. User fees may be considered, but this will only deepen the rich-poor divide.

4. In a situation in which the average ICT skills of the population are low, relatively healthy individuals trained to use the system would need to do so only rarely, leading to a reversal of ICT illiteracy. This constitutes an argument for using the system only in the case of chronically ill people.

For more information contact: Benny.Eklund@it.ck.lul.se

Education / Mexico: The National Council of Education for Life and Work (CONEVyT)

The e-Mexico National System is an evolving programme that joins different levels of public administration, different public organizations, telecommunication network operators, NGOs related to the Information and Communication Technologies (ICT), as well as diverse social institutions for a common purpose: to integrate essential services like education and health care with the economy and public administration, as well as with other community services. A major initiative within the e-Mexico National System is e-learning, coordinated by the Secretariat of Education. It integrates the development of education, training and culture. Another major initiative is the creation and financial support of a nation-wide network of Digital Community Centres (DCC) to allow poor people and people in remote areas to have access to on-line services. DCC will enable broader access to e-learning.

The National Council of Education for Life and Work (CONEVyT) is the main component of the e-learning programme. It has been set up to promote tools, including the use of ICT, and support institutions for the education and training of adults. Its other goal is to contribute to reducing the negative impact of distance in providing access to educational and training opportunities to young people and adults.

An important part of CONEVyT is the Education for Life and Work Model (MEVyT). This Model offers useful information to individuals, families and communities as well as to workers. It addresses people's needs for specific information, e.g. about growing maize, soil conditions, numeracy, accounting, child-parent relationships, violence-free homes etc. Instructional materials are available in books, on CDs or on line.

CONEVyT has been establishing "quality of life" nodes - "Plazas Comunitarias", which support three kinds of educational services:

a) Traditional learning with teachers, students, books and a room-library;
b) TV-based education, with satellite antennae, TV sets, VCRs and room-media;
c) Support of local DCC, ICT-based education, with the use of networked computers and Internet access.

The e-Mexico National System provides DCCs with connectivity to the Internet. With progress in embedding DCCs in "Plazas Comunitarias", apart from educational opportunities, the communities will gain access to many other services offered by e-Mexico.

For more information contact: jdeleon@sct.gob.mx

Adding interactive and transactional capacities / Belgium: Elocket

Eloket is the name of a series of electronic, two-way services, developed by a private firm in Belgium, which can be plugged into the existing one-way websites of local government agencies. It was built based on the following premises:

> Hundreds of government agencies already have their own Internet websites and may want to deliver services 24 hours a day, seven days a week without rebuilding their websites or losing their already established "corporate identities". Unfortunately, most first-generation websites are one-way, static affairs. They provide information to people but have no inbuilt notion of dialogue or transaction. Therefore, Eloket is built as a plug-in that can literally be inserted into an existing Internet website, on the condition that a minimal set of conventions is respected. The e-government services presentation even takes on the format of the existing underlying website so as to give a homogeneous look to the government's presence on the web.
>
> Eloket works in ASP (application service provider) mode. The surfer is taken to the server owned by the private firm as soon as he/she hits a service request and is not aware of the change of service provider. In this way, the Eloket service provides the front end - the dialogue part of the interaction with the user. The private firm also offers to governments, the back-office part of the service. In case another service provider provides the back-office coordination, Eloket communicates with all parties in XML, the lingua franca of Internet transaction exchange.

The main problems that have been encountered are:

> Most government agencies do not yet have automated back offices. In such cases, Eloket does not have anybody with whom to dialogue except the surfer. E-government service delivery remains restricted to a stadium of forms delivery via e-mail.
>
> In a lot of cases, service delivery in a local government situation reaches low volume, which means that a lot of automated solutions are pure overkill.
>
> Furthermore, one needs to take into consideration that right now users only interact very few times with the currently provided local government services: perhaps one or two times a year. Rare use de-skills them.
>
> The important point is to keep it very, very simple. Do not complicate things by over-automating.

For more information visit:
http://www.demo.eloket.be/ or contact: Guy.dePauw@cevi.be

ID Card / Finland: FINEID

The Finnish Ministry of Interior, through the Population Register Centre, issued the first national electronic identity cards (FINEID) in December 1999. People can apply to the local police authorities to obtain such cards. The government guarantees the identity of a person. The Finnish Population Register Centre controls subcontractors who take care of the administration and management of the identification certificates, e.g. the revocation list or the directory service.

The Electronic Identity Card (e-ID-card) is a "smart card" containing private keys and public key certificates (PKI). In addition to the card, a card reader is needed for its on-line use. The card conforms to the European Union directives concerning electronic signatures. It can serve as a secure network key to access public and private on-line services that require identification of the user. In these electronic identity-based services people are identified and authenticated by their electronic identities and they can execute qualified electronic signatures. The card serves also as an official travel document for Finnish nationals travelling to 19 European countries.

In 2003, the card will become a multi-application card. This will enable creation of more services accessible with the use of the card. The hope is that the more electronic services are available, the more people will be motivated to obtain the cards. As of 2003, there are plans to equip mobile devices, such as cellular phones, with a special chip that would allow identification.

Right now, 50 electronic identity-based services are in use in Finland. For example, the Population Register Centre offers Change-of-Address service in co-operation with Finland Post as well as Your-Registered-Data service - access to an individual database maintained by the Centre. Other services relate to insurance, banking, business transactions, municipal services and a host of administrative services. In the near future (in 2004) the Electronic ID card will also function as a social insurance card.

Your-Registered-Data service is noteworthy as it enables on-line checking of one's own information saved on the national population register. This form of service supports the Finnish law whereby a person has the right to check information about himself/herself saved on registers. Safely and free of charge, one can see through this service, all information registered that relates to him/her. In cases where information registered is wrong, the service user is given the chance to correct it directly. However only less "relevant" data such as profession, mother tongue etc. can be changed directly.

For more information on FINEID visit: www.fineid.fi
or contact: Ulla.Westermarck@vrk.intermin.fi For more information on Electronic Change-of-Address service contact: rittaa.haggren@vrk.intermin.fn

Security / United Kingdom

The UK Government set out its vision for an on-line nation in March 2000, summarized in three targets: to make the UK one of the leading knowledge economies; to ensure that anyone who wants to can access the Internet by 2005; to ensure that all government services are available electronically by 2005.

Security underpins much of this work, and demands a careful balancing act. Too little security, and individuals, businesses and government users will not trust electronic services; too much, and the services can become too expensive, or too burdensome to use.

The Office of the e-Envoy has developed a set of Security Frameworks that describe how public sector organizations should address the security of the electronic services that they are delivering. These Frameworks are based on the Information Management Standards BS7799 and ISO17799, so should be familiar to the public sector and also to those parts of the private sector implementing government systems. A common approach is needed both because of the interconnectivity of systems across the public sector, and also because the reputation of the government as a whole can be damaged by weaknesses in specific areas. But rather than being prescriptive about security mechanisms, the Frameworks emphasize the need for risk management and encourage each organization to understand and counter the specific risks to their services.

One of the key security elements in this environment is authentication - establishing on-line identity or entitlement to a specific service. The UK government supports private sector provision of authentication services, and also supports voluntary industry-led approval of authentication (and other trust related) services. Industry has set up an organization - tScheme - to undertake approvals, and several commercial authentication services are now available. But the take-up of these services among the population at large has been slower than expected. So the UK government is also exploring other ways of enabling individuals to authenticate themselves for e-government services - by taking advantage of established relationships between that individual and, say, his/her bank or employer.

As the reliance on e-government services increases, so do these services become critical to the economic and social well being of the nation. Availability of the services, and the resilience of the underlying infrastructure, become increasingly important. The UK Government is working with the private sector, other governments and international organizations to ensure that the full benefits of a safe, modern, knowledge economy are available to all.

For more information about the Security Frameworks and other security information visit: http://www.e-envoy.gov.uk/oee/oee.nsf/sections/briefings-top/$file/info-assurance.htm or contact: steve.marsh@cabinet-office.x.gsi.gov.uk

Performance Measurement Framework / Canada

One of the key goals of Canada's Government On-Line (GOL) initiative has been to increase public and client satisfaction with government services. Performance measurement demonstrates the extent to which this is being achieved; it ensures that on-line services are based on clients' expectations and meet individual needs. Accordingly, the performance measurement framework comprises 11 performance indicators: convenience, accessibility, credibility, critical mass of services, take-up, service transformation, client satisfaction, security, privacy, efficiency and innovation.

Most of the data are being collected through departments' regular reporting to the Treasury Board Secretariat (TBS) on their plans for putting services on line, as well as on the progress that they have made to date. One of the unique aspects of this reporting is that it relies on an electronic database through which the information filed is accessible to all departments participating in the GOL initiative. This provides a good way to share lessons learned and to identify further opportunities for collaboration. The reports include, for example, assessments of the depth of on-line services. The standard tool - a three-stage model moving from publishing, to interacting, to transacting - applies primarily to transaction services as published information about the service does not describe, for instance, weather on-line or geographic information mapping. As a result, TBS has worked with a group of information-based departments to create a tool to measure the depth specifically of information services - a new model moving from publishing (basic information is available on line), to customizing (holdings are increasingly interactive), to providing client-defined access (users can increasingly manipulate/synthesize information from different sources). While the performance measurement framework combines self-assessment data with feedback from clients who use on-line services, TBS is currently working with provincial governments to finalize a second version of the Common Measurement Tool (CMT) that will measure specifically, client satisfaction with the on-line channel. TBS will publish the first GOL performance report in 2003.

One of the success factors in developing the GOL performance measurement framework was the consultation with, and feedback from, multiple groups, including measurement experts in the federal government, GOL stakeholders, senior managers across multiple departments, and an independent third party. The result was a rich exchange of ideas and a validation of the approach chosen.

For more information, view: Government On-Line and Canadians http://www.gol-ged.gc.ca/rpt/gol-ged-rpt01_e.asp and Common Measurements Tool (CMT) http://www.iccs-isac.org/eng/cmt-about.htm or contact: Hirsch.Darryl@tbs-sct.gc.ca

II.4. Unintended consequences

Almost without exception, e-government development has become a part of high-level national politics.

E-government development is not different from any other government action in that it also is subject to the "law of unintended consequences".[xii] In the case of e-government development, the source of the "unintended consequences" has been in the core of the very system for making e-government happen.

II.4.1. Ambitious goals, deadlines and size of e-government projects

Almost without exception, e-government development has become a part of high-level national politics. The developmental promise that it brings is simply too important in terms of political currency. And part, if not all, of the pro-e-government lobby (see above) is very important to any national political leadership.

Also, as has been established early on, the introduction of ICT to public administration must enjoy support at the highest levels of government. That is because it brings change (e.g. a degree of automation, greater transparency, a focus on customers) and shifts power within public administrations, both vertically (to flatter structures, possible elimination of the intermediary level of managers) and horizontally (addressing the need for exchange of information and cooperation among departments). It also introduces new demands on public budgets, which are strapped for resources. Under the circumstances, only firm leadership from the top stands a chance of assuring sustainability of the change effort, measured by the continuous supply of compliance and funds.

...in some political environments, it has been realized that e-government development could be a convenient, short-term substitute for administrative reform, a transition to the information society or a transition to the knowledge society - tasks arguably more complex and requiring much more than financial resources for the introduction of a technological application.

Additionally, the modernity that ICT represents has been maintaining its public appeal. Thus, in some political environments, it has been realized that e-government development could be a convenient, short-term substitute for administrative reform, a transition to the information society or a transition to the knowledge society - tasks arguably more complex and requiring much more than financial resources for the introduction of a technological application. (To be sure, e-government is an indispensable part of all these efforts. But, as is equally obvious, a country with operational e-government applications cannot claim, on the strength of their existence, to have accomplished administrative reform, transition to the knowledge society or human development.)

Also, in the process of planning and implementing e-government initiatives, the governments have found themselves in firm alliances with the private sector. Not only do expert advice, hardware and software originate there, but many Chief Information Officers (CIOs) from private business have become the CIOs in government. Some high-level executives from private business firms have assumed high-level governmental positions dealing with e-government development. This has brought in a culture of speed of product development and expansion of the client base, even if this has been done with the neglect of careful project planning.[45] As a rule, this culture has been welcomed without great reservations. It has appeared to be a "breath of fresh air", and also to respond to the NPM demands for greater business - like effectiveness of the public sector.

[xii] "The law of unintended consequences, often cited but rarely defined, is that actions of people - and especially of government - always have effects that are unanticipated or "unintended". (…) [This] provides the basis for many criticisms of government programmes. As the critics see it, unintended consequences can add so much to the costs of some programmes that they make these programmes unwise, even if they achieve their stated goals." *Source: Rob Norton, Unintended Consequences, The Concise Encyclopaedia of Economics,*
http://www.econlib.org/library/Enc/UnintendedConsequences.html

As a result, the e-government sector tends to adopt development goals that are ambitious. They also come with tight deadlines. An OECD study concludes, "A perhaps less constructive, although not entirely negative, aspect of external politics placing public management reform on the political agenda is the establishment of broad, often very ambitious goals. (...) What is most significant is that leaders of governments are increasingly describing reform in ICT terms."[46]

...e-government sector tends to adopt development goals that are ambitious. They also come with tight deadlines.

Thus, many a national or regional strategy for e-government development features, for instance, a promise to put on line "all" public services by a certain, rather imminent deadline. Many proclaim the ambition to do it in ways that dwarf the global competition (i.e. to be the best, the swiftest, the most comprehensive in the world), though in truth, in the national context where public value delivered via public services matters, no such benchmark is required or even practical. Naturally, thinking big is not always bad and may even be needed to initiate an innovation of these proportions. However, this single unintended consequence seems to breed many others.

Audit reports from Canada suggest that the sheer complexity of large-scale ICT projects is an important factor in under-performance. Four ICT projects developed by the public sector were assessed in 1995 and exhibited between 14,000 and 16,000 so-called function points, a measure for complexity. Projects with more than 10,000 function points are considered complex and stand a 50 per cent chance of being cancelled before completion.[47]

Yet, politically motivated, "thinking big" often translates into sweeping initiatives and large size projects. The public budgetary process seems to encourage this too. According to OECD, "Public sector budgeting systems can encourage the funding of large and highly visible projects. Small projects cannot justify 'new' funds and do not command attention during budget negotiations. Furthermore, large, expensive and spectacular projects are often favoured, because these projects are more easily communicated as evidence of political action and response to a problem. This is unfortunate, since the risk of failure is proportional to the size of the project. Very large projects, i.e. expensive, long-term and complex initiatives, often fail."[48]

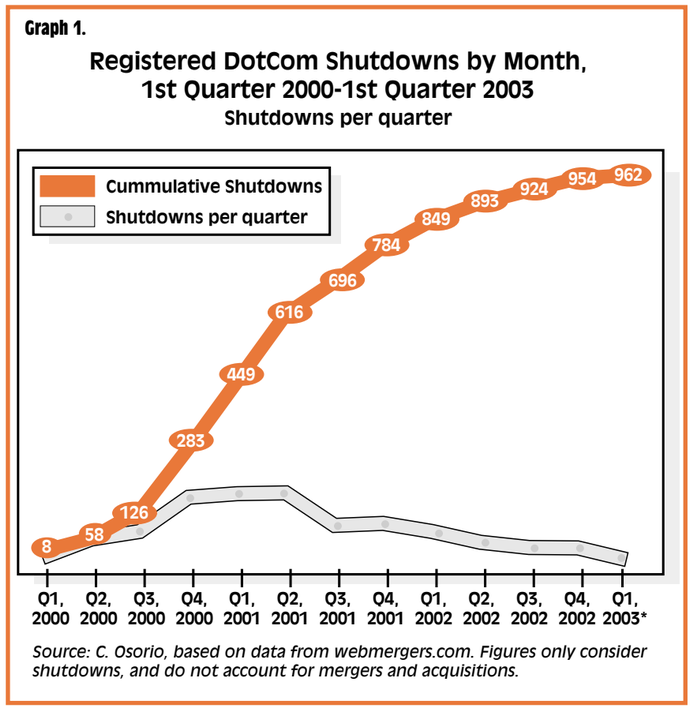
...politically motivated, "thinking big" often translates into sweeping initiatives and large size projects. The public budgetary process seems to encourage this too.

II.4.2. High rate of failure of e-government projects

Goals, budgets, deadlines

In this case, "often fail" cannot be translated easily into quotable evidence or data. For obvious reasons, some of the failures are politically sensitive. In such cases, access to data tends to be suppressed. However, the general picture presented by analysts of the e-government sector should become a matter of serious concern. It should also become a subject of much broader popular knowledge than is the case to-date.

...the rate of failure of e-government projects in countries with developing economies to be very high, at around 60-80 per cent



Such development of e-government deserves to be characterized as wasteful. And a lot is being wasted in this process: taxpayers' money, development opportunities, as well as public and political support for technology-based change.

The graph above presents the history of DotCom shutdowns. In light of what has happened to DotComs, the question may arise as to why e-government initiatives should work seamlessly if similar initiatives in the private sector have failed so dramatically. The answer is, they have not.

Some analysts[49] estimate the rate of failure of e-government projects in countries with developing economies to be very high, at around 60-80 per cent (with the higher rate of failure characteristic of Africa).[50] This can look like a staggering figure - until one reviews data concerning the industrialized countries. Garner Research puts the rate of failure of e-government projects at about 60 per cent.[51] The Standish Group estimates that only 28 per cent of all ICT projects in 2000 in the U.S., in both government and industry, were successful with regard to budget, functionality and timeliness. Twenty-three per cent were cancelled and the remainder succeeded only partially, failing on at least one of the three counts.[52] Under these circumstances, outsourcing - the traditional means for improving the ability of the public sector to allocate resources - should not be able to help either. Indeed, as a recent report concludes, "(...) outsourcing should not be viewed as a magic bullet for achieving cost reductions. A recent survey among government ICT executives indicates that (...) only half of the outsourcing endeavours that have cost-reductions as a main aim are found to deliver in this regard."[53]

Such development of e-government deserves to be characterized as **wasteful.** And a lot is being wasted in this process: taxpayers' money, development opportunities, as well as public and political support for technology-based change.

Dealing with detailed analysis of reasons for this high rate of failure is outside the focus of this Report. The literature on this subject is rich[54], and there is little that one can add to the available body of knowledge in this area. The emerging consensus can be noted though.

The principles for successful e-government (see Box 3) are not elective; they are critical. Yet practically no e-government development project in the world starts with all of them in place. The situation resembles an ill-informed gamble in which developers are trying to find out which of these principles can be left out without jeopardizing the whole initiative. Among these principles, three areas seem to stand out.

The principles for successful e-government are not elective; they are critical.

The situation resembles an ill-informed gamble in which developers are trying to find out which of these principles can be left out without jeopardizing the whole initiative.

1. As a rule, the specificity of the public sector, as distinct from the private sector and the diverse cultural environment, tends to be grossly underestimated. Governments, structured as they are, lack flexibility and capacity to adjust to semi-market conditions. And public organizations lack capacity to deliver results regardless of politics or limits introduced by their jurisdictions (i.e. it is easier for them to visibly "go on line" than to network with other public organizations or digitize their internal procedures in ways that affect the overall system of government). In other words, while governments want to create public value by using ICT, the complexity involved increases the risk of e-government projects to levels that they can be unable to bear. Finally, by and large, governments simply lack incentives for raising efficiency (every financial saving this year is likely to appear as a reduction in next year's budget).

2. The political and legal environment for e-government development cannot be managed easily. Political priorities and laws can shift rapidly in response to a plethora of social, economic and cultural factors, often with devastating effects for the basic assumptions on which the e-government projects are based.

3. It is rare to see an e-government development programme established within a transparent framework of monitoring and evaluation mechanisms.

Development impact

...documented research of the social or economic impact of e-government development is virtually non-existent.

The issue of the developmental impact of e-government is closely related to this discussion. Following the conceptual logic of this Report (world making, public value, e-government), one would especially want to explore it. Yet documented research of the social or economic impact of e-government development is virtually non-existent. A contributor to this Report writes, "Scholars have not attempted to measure this impact as perhaps it is too early to do so. It is therefore difficult to make recommendation that the investment in e-government should be stepped up to a certain level." Available information is largely anecdotal and suffers from overuse of the same examples, described and

analysed by many a researcher or institution. Additionally, documented case studies often highlight success stories. Failed projects, by and large, remain undocumented.

Often discussion of the developmental impact is stopped by an argument that investments in e-government - high as they are - are too insignificant to influence the main economic and social variables and be reflected in statistics. This may be true, especially if there is an expectation that these investments can achieve results outside the broad framework of reform and change. However, in one specific area - that of financial management - making a difference in the area of corruption and financial transparency should not be beyond measurement. The desired outcome of increased financial flows should also be easily documented, with the help of statistical databases of the major multilateral financial institutions.

It is noteworthy that analysis of such data remains inconclusive.

If one takes 1996 as a basis, between 1996 and 2000, during spectacular development of financial management applications in a number of developed and developing countries alike, seven countries - Sudan, Guatemala, Bangladesh, El Salvador, The former Yugoslav Republic of Macedonia, Dominican Republic and Madagascar - recorded relative change in net private capital flows[xiii] above +1,000 per cent. None of these countries was in the forefront of global e-government development. Twenty-four other countries that also recorded positive change in their net private capital flows could not make such a claim either (with the single exception of Brazil, with +48 per cent). At the same time, countries recognized for their pioneering efforts in e-government development, and also for initiatives on the transparency,

[xiii] Net private capital flows consist of private debt and non-debt flows. Private debt flows include commercial bank lending, bonds and other private credits. Non-debt private flows are foreign direct investment and portfolio equity investment.

Table 6.

Corruption Perception Index: Cumulative Change from 1998 to 2002

Selected Countries	Cumulative change (max. score in index: 10; min. score: 0)
Belgium	1.7
Japan	1.3
Bangladesh	0.8
Chile	0.7
Italy	0.6
Dominican Rep.	0.4
Luxembourg	0.3
Mexico	0.3
Rep. of Korea	0.3
Singapore	0.2
Israel	0.2
United States	0.2
Finland	0.1
Iceland	0.1
New Zealand	0.1
Brazil	0
Netherlands	0
United Kingdom	0
Australia	-0.1
Estonia	-0.1
Canada	-0.2
Sweden	-0.2
Argentina	-0.2
El Salvador	-0.2
India	-0.2
Turkey	-0.2
France	-0.4
South Africa	-0.4
Switzerland	-0.4
Denmark	-0.5
Norway	-0.5
Guatemala	-0.6
Germany	-0.6
Philippines	-0.7
Ireland	-1.3

Source: GCR, 1999-2003. Note: Not all calculated changes pertain to the full five-year period as not all countries have been assessed in all five years.

anti-corruption and financial management side, found themselves further down in this ranking: Republic of Korea and Chile (-34 per cent); Mexico (-54 per cent); and Malaysia (-75per cent).

When one moves to the analysis of the perception of corruption, the analysis remains equally inconclusive.

Countries with a noteworthy record in e-government development found themselves among both those with the highest perceived gain insofar as the elimination of corruption was concerned (e.g. Belgium, Japan, Chile) and among those with the highest perceived loss in this area (Germany, Philippines, Ireland). Even less conclusive is the review of results in the case of countries identified above as those that advanced most in attracting net private capital flows: Guatemala (-0.6), Bangladesh (+0.8), El Salvador (-0.2), Dominican Republic (+0.4). (Sudan, The former Yugoslav Republic of Macedonia and Madagascar are not reflected in this ranking.)

There are also concerns related to the financial efficiency of e-government applications.

E-government applications in the area of public financial management are capable of providing transparent, timely, accurate and complete financial management information. Obviously, these applications are necessary - or even indispensable - to counter corruption, but not sufficient. To uproot corruption, political will and a change of the societal context to include free and active media, active monitoring by people and their organizations, active opposition parties, free and fair elections, legal whistleblower protection and an independent judiciary have to be in place too. A professional civil service, internal controls and an active audit system are essential as well.

Efficiency

There are also concerns related to the financial efficiency of e-government applications. These are raised with full understanding that public value sometime cannot be discussed in terms of price. Elimination of a fire department in a community that has calculated the cost of its upkeep as compared with the projected cost of material loss, the projected monetary value of hypothetical human lives loss and the projected cost of insurance has yet to materialize. Be that as it may, a researcher observes, "(...) their (e-government projects') achievement of financial cost-cutting goals is questionable. In industrialized countries, replacing costly civil servants with cheap ICTs may cut costs, though even here evidence of efficiency gains is limited. In Africa, average public sector wage costs can be one-tenth or less than those in the West; average ICT costs can be two to three times higher. E-government automation therefore means replacing cheap civil servants with costly ICTs - something that is most unlikely to be justified on financial cost grounds."[55]

II.4.3. Limited demand for the Internet government

The final unintended consequence is the limited demand for services provided by government on line.

The final unintended consequence is the limited demand for services provided by government on line. One has to approach this issue with a lot of care. Demand-side analysis of e-government development is rare and even if it were done more widely, there would be difficulty with global comparability of results. Locally-specific public attitudes towards new technology, and especially towards the Internet; trust in government, especially as the recipient of personal information; trust in information that is not conveyed personally; the strength of informal networks and the role they play in mitigating personal crisis situations; the overall level of human development; the impact of inequalities of status on access to sources of information - these are only a few of the factors that would have to be taken into consideration in interpreting the results of such an analysis. Therefore, the future growth of such analysis (if it happens) would most likely mean the multiplication of country or community-specific case studies. Nevertheless, demand-

side analysis is important. Quite obviously, it allows managing supply and therefore deserves more than a fleeting mention.

The users themselves most often quote security and privacy concerns as the reasons for reluctance to use e-government on line.

If one remembers Geoffrey Moor's Technology Adoption Life Cycle[56], initial low demand for e-government on line should not come as a great surprise. An analyst observes, "The initial set of customers, the innovators, and early adopters, appreciate technology for its own sake (...). The technology savvy groups comprise only a minority of the population, generally less than 20 per cent. (...) The majority of the population is not overly enamoured of technology. Often comfortable with the status quo, they must be convinced of a significant improvement in their daily lives by using technology in new ways. There is little tolerance for services that are difficult to use, erratic in their availability, or sluggish."[57] Indeed, though one can find isolated examples to the contrary, generally in the world e-government experiences difficulty with rollout above and beyond the 20 per cent of people with access to the Internet. In its composition, this group may not correspond entirely with Moor's "early adopters", but there is no doubt that globally, e-government services provided on line have not been embraced with the enthusiasm characteristic of their planners and designers.

The users themselves most often quote security and privacy concerns as the reasons for reluctance to use e-government on line. The issue is then part technical and part legal. (While privacy-related issues will be discussed separately in Chapter IV, security concerns are real. In 2002, among consumer fraud complaints to the U.S. Federal Trade Commission, electronic identity theft, the "ultimate humiliation and nightmare" was at the top of the list, with 43 per cent of reported cases, way ahead of the number two complaint, fraud related to Internet auctions [13 per cent].[58])

often, governments focus on objectives that are not in line with what people want.

Some analysts are quick to point out that in most real-life situations today, reliability and quality of electronically provided public service often takes a back seat to the rush to deploy. The management and maintenance of facilities must be taken care of at the design stage of the project, properly budgeted and firmly put in place. Indeed, in this area the time to worry about tomorrow is today. Here, project design would be the issue.

Others observe that often, governments focus on objectives that are not in line with what people want.[59] Some suggest, "Immediate (ICT-based solutions) (...) should relate to health, civil rights, employment (...)."[60] Governance would be the issue in this case.

The focus on availability of information

According to the survey conducted in September 2001 by the Pew Internet and American Life Project[61], one can distinguish 18 most popular types of activities engaged in at government sites by those who use them (the X3 group). Assigning all of these types of activities to categories in which it is important to raise human capabilities/remove human "unfreedoms", the picture for the U.S. users of e-government sites is presented in BOX 7.

BOX 7

Percentage of users of government web sites in the U.S. who have engaged in activities to raise human capabilities/remove human "unfreedoms" at these sites (grouped by areas of activity):

Political participation	
• Seek information about a public policy issue of interest to you	62%
• Send comments about an issue to a government official	34%
• Get information about elections, such as where to vote	22%
• Get information that helped you decide how to vote in an election	21%
Health conditions	
• Get advice or information about a health (or safety) issue	49%
Education and skills development opportunities	
• Do research for work or school	70%
Gender equity and empowerment of women	
• (No data available)	
Economic opportunities	
• Get information about potential business opportunities relevant to you or your place of employment	34%
• Get information on or apply for a government job	24%
Environmental sustainability	
• (No data available)	
Personal security	
• Get advice or information about a (health or) safety issue	49%
Related in a generic way	
• Find out what services a government agency provides	63%
• Get information about or apply for government benefits	20%
Not directly related	
• Get tourism and recreational information	77%
• Download government forms	63%
• Get information about a lottery	21%
• File your taxes	16%
• Renew driver's licence or auto registration	12%
• Renew a professional licence	7%
• Get a fishing, hunting or other recreational licence	4%
• Pay a fine	2%

Source: Pew Internet & American Life Project Government Web Site survey, September 5 - 27, 2001

...preference for using e-government applications for searching and downloading information.

It seems safe to observe that the U.S. users perceive the availability of e-government first and foremost as an opportunity to get quick and easy access to information. They seek information as citizens and as consumers of public services. Prevailing are matters related to participation in the existing political process; getting access to existing public social services; raising the level of education and skills; health and safety issues; and improving one's economic situation.

In another survey, conducted in May 2002 by the same institution, among the U.S. non-users of the Internet who assumed that at some point in future they would go on line[62], the largest number (30 per cent) saw it as an opportunity to conduct a general search for information (from all sources). Education and employment needs were also mentioned. Another probe by the same institution[63] has found a significant growth in the use of the Internet in the search for jobs, with 60 per cent of those who have used it for that purpose admitting that the Internet has played an important role in their finding a job or re-training opportunities. Women have been most likely to express satisfaction with finding the re-training opportunities - an indication of their high ICT skills, effective bracketing by ICT of the gender-related inequality of status, or both.

In France, 40 per cent of users of public websites seek information. Thirty-five per cent visit for discovery. Another 30 per cent does it to obtain application forms. Only 5 per cent logs on to pay taxes on line. Those who do not use the public websites are either not interested (7 per cent), consider download time as too long (8 per cent), fear errors (12 per cent), do not have access to the Internet at home (13 per cent), prefer human contact (15 per cent) or fear security risk (another 15 per cent).[64]

Several other studies, also focused on the most advanced Internet user societies in the world, confirm this trend.[65] They again show the preference for using e-government applications for searching and downloading information. Within this group, the use of e-government applications for on-line interaction with the government that would require providing it with personal data is low (down in single percentage points) among users of e-government applications, with Japan and Germany showing the lowest rates. Security and privacy issues are quoted by the studies as reasons. However, in Norway, a leading country in the use of the Internet and e-government, and also perceived as one of the countries with the highest on-line safety assurance, the ratio of users who seek/download information to users who conduct on-line transactions that require revealing personal data shows the same spread of preferences.

The focus on content of information

People tend to look for specific information that will allow them to solve their problems. Arguably, the most important problems are those that relate to people's well being.

Saying that people predominantly use e-government services provided on line to search for information is not enough. People tend to look for specific information that will allow them to solve their problems. Arguably, the most important problems are those that relate to people's well being. And such information has to contain elements for useful follow-up.

Bearing this in mind, the Report has created a fictional character with quite real life problems and has looked at websites in nine countries (Australia, Brazil, Canada, India, Norway, Singapore, South Africa, the U.K. and the U.S.),[xiv] and in the largest cities in these countries, through her eyes. Our fictional character is a poor woman - poor to capture the special needs of the millions in the world living in poverty, and a woman to capture the special needs of the largest population group in the world that continues to live under conditions of inequality.

We have chosen a day, 1 May 2003, and we have imagined that she (and an ICT-skilled intermediary) have travelled the world to find solutions to her unfreedoms. We have assigned her the following statements (as characteristic of her situation):

> "I am sick and I need to get better."
>
> "My education and skill levels are inadequate to support my well being; I need to raise them."
>
> "I suffer from gender inequality and I want to improve my condition."
>
> "I am unemployed and I need a job."[xv]
>
> "I live in a natural environment that has degenerated and I want to change this situation."
>
> "I do not feel personally secure in my neighbourhood and I want to change this circumstance."

We reviewed the websites, searching from the point of view of that poor female visitor for the following clues: In such a situation, what is the government telling her? Can she communicate with the government about her situation? Can she establish through this website a helpful relationship that in the long run would allow her to get rid of her unfreedom(s) (on line/off line, with a public agency or non-governmental agency to which she may be referred)? Additionally, we wanted to know if any of the relevant parts of the websites (if they existed) were gender-sensitive or geared especially to the needs of the poor.

We know the limitations of this inquiry. Societies are organized differently and in different countries the social role of government is perceived and funded differently. But poor women like this one are real. They seek public value from their governments and should be part of world making.

The general impression from this review is that in all of these places, our visitor could get easy access to information about her condition. On the basis of this information, she could much better define her condition. In some cases, she could get a better understanding of the government structures and/or plans that in general deal with the issues of vital importance to her. In the majority of cases, however, it would have been difficult to make practical, immediate use of this information to improve her condition, as well as to establish relationships to remedy her situation in the long run.

[xiv] These countries have been chosen to represent a good mix of developmental circumstances. All can claim advanced e-government development. They differ in size of population from slightly over four million in the case of Norway and Singapore to over one billion in the case of India. They differ in percentage of people under the officially accepted poverty line from over 86 per cent in India to 7 per cent in Norway. They differ in the official rate of unemployment from 9.6 per cent in Brazil (no data available for India) to 3.4 per cent in Norway and Singapore. Women constitute roughly half of the population in all of these countries (48.4 per cent in India; 51.7 per cent in South Africa) .

[xv] We also searched for accommodation in two related situations: "I have a business idea and I want to start my own business." and "I have a (micro) business firm, but I am in trouble /I want to improve it /I want to run it better."

If she wanted to choose where to live on the sole basis of the availability of e-government on-line services catering to her needs, and if she were allowed to choose one country and one city in each category, she would most likely have made the following choices[xvi]:

Poverty sensitivity	None[xvii]	/	None
Gender sensitivity	Norway[xviii]	/	None
Health	United Kingdom	/	New York
Education	Singapore[xix]	/	New York
Jobs/SME	Australia	/	New York
Environment	Canada	/	Toronto
Personal security	None	/	None

This does not mean that other countries/cities do not provide such services to the population nor that institutions that are behind the websites in the chosen countries and cities can in reality deliver. It only means that the information provided on many of the websites was found to have lacked, totally or in part, the focus that would have been of use to this poor woman. If the focus of a website does not correspond to that of the poor woman, while e-government exists, for her it is essentially pointless.

If the focus of a website does not correspond to that of the poor woman, while e-government exists, for her it is essentially pointless.

From this perspective, low usage of e-government services on line looks very much - if not predominantly - like a governance issue.

...low usage of e-government services on line looks very much - if not predominantly - like a governance issue.

From the same perspective, the customer surveys that have become the industry standard may be judged as misleading. There is rich evidence that hardly an e-government website is developed anymore before its potential and actual users are asked, "What do you want to see reflected on this website?" However, little attention is paid to the fact that while this is a correct question, it appears to be a stand-alone query posed in the absence of its proper context. A short version of the full question might perhaps have been better: "Considering as a given the current functions and *modus operandi* of the government, what do you want to see reflected on the website?" Had the whole question been asked, perhaps it should have been separated into two queries as follows: (1) "From the point of view of your human development needs, what kind of government (function, size) would you like to see?" (2) "Considering as a given the (current) functions and *modus operandi* of the government (that have been revamped to serve your human development needs), what do you want to see reflected on the website?"

[xvi] We realize that in some societies it is not socially acceptable or politically correct to refer directly to the income-poor as a category of people and therefore such information, if available, might have been provided indirectly. However, none of the sites had been constructed in a truly gender-sensitive way or in a way that, on specific issues, would make it easy for the income-poor to acquire access to a "special treatment" track. If information on funding was available (scholarships, grants, insurance) it seemed like information that would be most useful to people above, not below the poverty line. Health information directed at aboriginal people or shelter information for the homeless met the criteria of this review, but was below the overall level of sensitivity that was sought by this exercise.

[xvii] "None" does not signify a total absence of such on-line services. Rather, it is a qualitative judgement on their low adequacy, as compared with the adopted criteria.

[xviii] A choice of a country or city here does not signify that all specified criteria are met. (In reality, they are all met in almost none of the cases.) It signifies that the level of their adequacy allows a qualitative judgement to be made putting them above the "none" category and judging them as the best in the sample.

[xix] Singapore is a *de facto* city-state. If treated as a city, it would have been chosen as a preferred location or as a close co-contender for health, education and jobs/SME.

II.4.4. Government as the public venture capitalist

From a financial point of view, governments' experience with the introduction of ICT to their operations, i.e. building e-government, is a real venture capitalist[xx] experience. As demonstrated above, there is high risk associated with investments for this purpose. The rewards are substantial, though the inability to measure them may start to haunt those who stand behind the investments. In the long run, anecdotal evidence may not suffice. People must be convinced that the money spent brings public value. Otherwise, a political correction will be made and may unnecessarily slow down governments' adjustments to the new reality created in the world around them by the ICT revolution.

From a financial point of view, governments' experience with the introduction of ICT to their operations, i.e. building e-government, is a real venture capitalist experience.

This important part of the analysis should start with an assessment of the size of the public sector's financial exposure due to e-government development. However, making an authoritative pronouncement on the financial cost of e-government is not easy. Verifiable, systematic comparable data are difficult to come by for a variety of reasons.

...making an authoritative pronouncement on the financial cost of e-government is not easy. Verifiable, systematic comparable data are difficult to come by.

Definitions of e-government adopted by governments for budgetary purposes vary widely. They range from narrow notions of government-citizen or government-consumer interaction via the Internet to all encompassing concepts of applications of modern ICT in support of government activities. This makes it difficult to compare aggregate e-government spending patterns.

Different funding strategies for longer-term e-government projects come with different accounting practices. Bond financing, for example, might consolidate anticipated costs of a project over its life cycle as capital investment in one fiscal year, whereas leasing is likely to spread related expenditures as operative costs over several fiscal years.

Comparisons of ICT spending for e-government across countries are further exacerbated by different ICT investment histories and thus differing installed bases, capital replacement costs and spending requirements for ancillary infrastructures for e-government readiness.

Nevertheless, it is quite remarkable how little attention case studies on e-government pay to cost aspects. Usually the focus is on expected benefits. Even where anticipated savings are quantified it is not made explicit whether they factor in project costs or are merely calculated on the basis of pre-e-government operating costs for the provision of a specific service. Where cost estimates are provided, they are insufficiently differentiated for individual components of the service and it is often not clear what is and what is not included.

A recent report by a private consultancy firm[66] put, in 2000-2001, Japan, Italy and Canada in the US$0-$100 category of per capita spending on ICT; the U.S., the U.K., France, Australia and Germany in the $100-$200 bracket; and Sweden in the $200-$300 range.

The study points out that spending levels (flows) should not be equated with the overall level of ICT diffusion within government (stocks). The lower spending levels of Australia and Japan, for example, are somewhat misleading since both countries are found to have a strong history of spending on ICT and thus a large installed base. Likewise, the study also emphasizes that higher spending does not necessarily translate into better e-government performance, leaving scope for "smart spending".

...higher spending does not necessarily translate into better e-government performance, leaving scope for "smart spending".

[xx] Venture capital (VC) is funding invested or available for investment in an enterprise that offers the probability of profit along with the possibility of loss. Venture capitalists often don't tend to think that their investments involve an element of risk, but are assured a successful return by virtue of the investor's knowledge and business sense. Source: www.whatis.com

A number of countries have announced multi-year e-government action plans. The scope of projects, cost estimates and financing strategies varies considerably:

Norway, for example, does not provide an overall cost estimate, but relies for its action plan, eNorway, mainly on financing through the normal departmental budget process.[67] Particularly large departmental ICT modernization projects can be entered into a competition for funding through a special central investment fund.

The **German** Government is in the process of rolling out a comprehensive e-government action plan, BundOnline, to bring more than 100 federal agencies on line by 2005 with an overall investment of EUR1.65 billion.[68]

For the **U.K.** initiative to make all government services accessible on line by 2005, the government has committed a total of GBP1 billion.[69] The overall expenditure in the U.K. public sector in 1998-99 on IT hardware and software, maintenance and other services amounted to GBP7 billion (US$11 billion).[70]

Central funding for a similar initiative in **Canada** is estimated to reach CAD$760 million (US$525 million) with CAD$160 million already spent and another CAD$600 million in the pipeline for the next four years.[71]

The **U.S.** government spends more than $38 billion each year on ICT. Below the central government level, expenditures for e-government for local authorities can also be considerable. According to comparative statistics provided by Fortune 500 in June 2000, ICT budgets of eight U.S. States exceed $1 billion, with California and New York as top spenders with $3.9 billion and $3.1 billion, respectively.[72]

Malaysia, a newly industrializing country in pursuit of an ambitious ICT modernization strategy reports government expenditures for ICT of on average RMY 412 million (US$108 million) per year between 1996 and 2000, with an average annual growth rate of nearly seven per cent.[73]

There are no reliable data on large-scale donor-funded e-government projects. A researcher estimates that it would cost between $15 million and $20 million for a donor agency to finance two to three e-goverment pilot projects.[74] This corresponds with our own, UNDESA rough calculation.

Comprehensive data about the cost involved in back-office restructuring needed for e-government development is not readily available.

ICT training for public sector workers constitutes a significant cost factor in e-government projects and many governments have committed extra funding for this purpose.

Germany devotes EUR150 million (US$163 million) of its federal ICT modernization initiative BundOnline for ICT training of civil servants.

Italy set aside EUR65 million (US$70 million) to meet its target to have all government employees acquire the European Computer Driving License.

While on-line information disclosure might appear to be the most straightforward component of e-government, putting information generated by large and complex bureaucracies on line is far from trivial and does not come cheap.

In line with the **U.K.** e-government action plan, the U.K. Department of Health, for example, aspires to publish 100 per cent of the information it produces on line by 2005. In 2001 the provision and maintenance of almost 130,000 pages generated between 1995 and 2001 was estimated to require an equivalent to 6.6 full-time staff. Increasing the current volume to the envisaged target of 300,000 pages of fully searchable documents in 2005 will at a minimum require a doubling of staff input to between 14 and 16 full-time employees for the maintenance of this departmental on-line information repository.[75]

A decision to provide on-line service delivery also involves additional financial outlays.

A survey of 16 portal projects of **U.S.** state governments puts average development costs at more than $2 million, excluding private sector costs.

The **U.K.** pursues a strategy of pooling costs for electronic service delivery. It has launched a Government Gateway project to develop a technical infrastructure for G2C interactions that provides for secure transactions and authentication and can be utilized by all government departments. The system is being developed in conjunction with a private developer and is estimated to cost GBP36 million between 2000 and 2002.[76]

The **Philippines** is deploying a full-scale on-line system for clearance of imports, payment of duty and delivery of release orders for shipments to leave the docks. The price of the system, which is based on an "off-the-shelf" customs application software package is put at $27 million, with software and hardware accounting for the bulk of the cost.

Jamaica is following a different strategy and is developing customized software for its customs department. Needs assessment, software development and hardware have consumed $5.5 million.

...budgets of e-government projects tend to shift during the life of the project.

Table 7.

Features of Public Budgeting for Non-ICT and ICT Projects

Focus of Traditional Government Budgeting	Characteristcs of High-Value IT Investments
single-year (or biennial) expenditures	multi-year investments
program-by-program performance	enterprise or cross-boundary performance
financial costs/benefits	financial and non-financial costs/benefits
level of effort within existing work flows	changes in the flow of work
ongoing operations	"start-up" operations
control	innovation

*Source: Harvard Policy Group, 2001**

**Harvard Policy Group on Networked-Enabled Services and Government (2001): "Imperative 4: Improve Budgeting and Financing for Promising IT Initiatives", Series: Eight Imperatives for Leaders in a Networked World, Kennedy School of Government, Harvard.*

It is also noteworthy that budgets of e-government projects tend to shift during the life of the project. One big problem is introduced by political changes that can cut off the funding and cause a total loss that is difficult to recover. But even if political support is maintained, the very nature of ICT investments puts a complex budget management problem in front of public sector managers. As a result, these budgets tend to evolve.

Many e-government projects tend to start with an unrealistic projection of their total cost:

> An analysis of 25 **U.S**. flagship e-government projects in the process of being implemented found that cost estimates for twelve initiatives had to be revised by more than 30 per cent upwards in only five months, between May and September 2002.[78]
>
> Audit results from **Danish** government ICT projects confirm that out of 124 projects with individual budgets over DKK2 million (US$300,000) and a total budget volume of $700 million only 18 were completed on budget and according to plan. Eighty-eight projects experienced delays and budget overruns of, on average, 33 per cent of the planned budget.[79]
>
> For **Sweden** the national audit office found that nearly 20 per cent of more than 200 large government ICT projects in 1998-1999 had no systematic quality reviews and 75 per cent of projects were over time or budget.[80] Poor budgeting for government ICT projects is also confirmed by a **U.K.** survey of 20 U.K. government departments. Nineteen departments agreed that "more resources are required to support IT-enabled change programmes", and 14 departments complained about a lack of reliable assessments of costs and benefits of e-government initiatives.[81]

...we must realize that we are facing the DotGov bubble.

One also has to bear in mind the rich anecdotal evidence about ICT procurement processes gone wrong. The causes range from officials who lack the expertise to decide what they really need, to local procurement processes that are so complex and time consuming that they all but ensure that the technology will be out of date by the time it finally comes on line. The behaviour of some vendors, especially in countries less experienced in such complex technical contracts, is also known to leave a lot to be desired.

All this deepens the dilemma of the public venture capitalists. Financially, large investments that are risky but may bring public value can be defended. It is much more difficult to defend a big, risky investment when one does not know how much the investment eventually will be or exactly what it is that will be purchased.

The time has come to conduct an evaluative inventory of on-going e-government initiatives. Taking public value as a benchmark, the time has come as well to close some of these initiatives while leaving others operational.

II.5. Restructuring the e-government sector

In private business a situation that is characterized by a continuing, very active investment programme, producing on one hand a lot of non-starters and on the other, huge (over) capacity that is difficult to manage and seems to miss part of the demand, is called an investment bubble.

There is no easy parallel for the public sector. The closest one can come to describing such a situation is a continuing, very active public investment programme that in a very consistent way under-produces public value. To the extent that this has been happening with e-government development, we must realize that we are facing the **DotGov bubble**.

DotCom valuations have not plummeted through an aberration. They were too high as a result of speculation that ran out of control. Competition created too much DotCom capacity and the customers did not materialize.

In the case of the DotCom bubble, the market arranged the correction. The correction in the case of the DotGov bubble must come via a political process.

Only the people affected will eventually give true depth to plans for e-government development.

The time has come to conduct an evaluative inventory of on-going e-government initiatives. Taking public value as a benchmark, the time has come as well to close some of these initiatives while leaving others operational.

The time has come, too, to start planning new e-government initiatives more carefully, learning from technical mistakes, but also very carefully calculating the opportunity cost for creation of public value. (It is the public value that counts, not the medium through which that value will be achieved.)

And definitely, the time has come to look carefully at the bureaucratic hierarchies in public administrations, at ICT, and finally, to conclude that it would be in the public interest if the former started to use the latter to transform itself.

All three tasks belong to the world-making category.

The "if" question simply says that thoughtful moderation is still a virtue.

II.5.1. Revisiting the "if", "how" and "where" policy decisions

The corrective political process must be informed by people's preferences. This may require changing the composition of the current pro-e-government lobby. People's unfreedoms must be brought into play. Only the people affected will eventually give true depth to plans for e-government development. They could also help in defining what constitutes the public value that a community or society should pursue. This would inform the political process of selecting the existing e-government applications that should be allowed to stay, which would create a solid foundation for future e-government-related investments. In most real-life situations today, doing this would require rebuilding the environment for citizens' participation in political decision making (the public sphere). [This key issue will be dealt with in more detail in Chapter III of the Report.]

This process would answer in a much more informed way the "where" question that is mentioned among the political choices above, in the Introduction to the Report.

...in all situations, e-government projects can use better budgeting and evaluation methods.

Two other equally important questions, i.e. "if" and "how" remain.

The "if" question is in essence the "opportunity cost" question combined with the E-Government Readiness standing (see Chapter I).

It also relates in part to the rarely used notion of "appropriate technology". It is not about denial of the benefits of ICT to the countries with less advanced economies: in one form or another, modern ICT exists in these countries in the business environment and among the public at large. It either is being or can be used in government in a plethora of useful, easy to deploy and manage applications. Local LAN or WLAN and e-mailing can go a long way to improve efficiency in many a public office in the world today. The "if" question simply says that thoughtful moderation is still a virtue. It says that somewhere in the E-Government Readiness ranking of countries provided by the UN Global E-Government Survey 2003 there must be a point below which consideration of a complex, costly e-government project should come with a very strong justification and be subjected to a very thorough public debate. This justification would have to tie the project strongly to a process that people consider beneficial from the point of view of public value creation. And it would have to include guarantees for enhancing in a dramatic way, the capacity of the government to add public value. If it does not, it should better be avoided.

...careful planning is a virtue too.

The "if" question also says that nothing like an abundance of public funds exists, even in the industrialized countries. There is an opportunity cost attached to every public investment decision. If these decisions are not sufficiently informed by public prefer

ences, they can lead to wasteful or pointless development of e-government, no matter at which geographic latitude such decisions are made.

The "how" question relates closely here.

As follows from the previous analysis, in all situations, e-government projects can use better budgeting and evaluation methods. They must also learn important design lessons. An analyst thoughtfully observes, "Those government leaders responsible for launch of these new services should ask themselves three questions: Have they swung too far in how they look at technology deployments? Have they become entranced by the equivalent of the private sector's dreams of market share dominance (universal access by the whole population to a one-stop shop of a myriad of life-enhancing government services, available anytime, anywhere)? (Have they) focused for now on time to market, and (are they) content to worry tomorrow about managing the complexity of the network and the range of services being considered?" He continues, "The one lesson from private industry that does not seem to get enough attention is the importance of service assurance, and that lesson simply states that, when it comes to managing the reliability of an ICT infrastructure, the time to worry about tomorrow is today. Although there are many reasons for DotCom collapse, one key factor was insufficient planning in rush to the market."[82] As it turns out, careful planning is a virtue too.

The "how" question brings also to the forefront, the tension between the public sector and the private sector as potential providers of public value. What started with the NPM revolution in terms of privatization of government functions has been partially highjacked by the one-sidedness of the "smaller government" lobby. For its members, smaller government has meant budgetary savings resulting from cuts in the public sector's staff and physical structure, with government functions shifted to the private sector and funding shifted to the private budgets of citizens. It is time for the "better government" lobby to seriously consider the benefits of "smaller government" (i.e. cutting the current staff and structures of governments and shifting the government functions to the private sector), but without shifting the funding from a public to a private budget.

To put it differently, if a public organization and a private firm compete for the provision of the same public service and the private firm can both maintain the same public ethos as the public organization and deliver the public service more effectively (or in a less expensive way), there is every reason for the private organization to do the job. Then government has the option to use public money to buy from that private firm what it delivers and offer it to the public for free, if such is the preference of the people. This has always been true. Now it starts to be prominent, as evidence mounts that the hierarchies in private business firms have managed to more quickly adopt the opportunities offered by modern ICT than the hierarchies in public sector organizations. As a result, many private business firms can operate as a network, supported with ICT, through which they create and use knowledge and turn out better products in a more efficient way.

Examples of the private sector competing with the public sector for the delivery of public value are multiplying:

> *PubSCIENCE*, an initiative by the **U.S.** Department of Commerce launched in 1999 offered searchable bibliographic citations to scientific articles from 1,200 journals on energy-related disciplines, fulfilling the statutory mandate of the agency to disseminate scientific and technical information. With estimated annual operating costs of $400,000, as compared to prior conventional cataloguing expenditures of $1.2 million, *PubSCIENCE* provided significant savings. The initiative was shut down on 4 Nov. 2002 on the grounds that it would provide unfair competition to private sector services, a claim heavily contested by the user community.

> As described in the "In their own words..." section of this Report, ehandel.no, the **Norwegian** public e-procurement service has decided not to create a separate marketplace, but rather a simple facility that allows easy and affordable access by the public sector to the already existing open electronic marketplace services. Since June 2002, a Swedish company, IBX, that has been running this kind of a service for private companies in Norway has started to offer it to the public sector as well.

> An ICT project to modernize the **Thai** revenue department was launched in 1992 (pre-Internet). The project envisaged the development and installation of a comprehensive database management and processing system. Ill-specified objectives were identified as core reasons for the failure of the venture, which saw the main software developer default on the contract and the development and delivery of very little application. Nevertheless the project expended $41.6 million for hardware and related peripherals, $11 million for software, US$1.2 million for training, and $2 million for communications and utilities.

A "civil" society that can be imagined on the basis of the conceptual framework provided by the UN Millennium Declaration is clearly a preferred option

Obviously, large-scale private sector involvement in producing public value would require a new framework that would protect the public interest and not compromise the integrity of public value. It is possible.

II.5.2. New social contract, "civil" society and "public space"

A **new social contract** would be necessary. A contract that binds three partners - the public at large, government and business - in the pursuit of human development. The parties to the contract would have to agree on the kind of society that they wanted to create and sustain. A "civil" society that can be imagined on the basis of the conceptual framework provided by the UN Millennium Declaration is clearly a preferred option. In the long run, the currently preferred objectives that the Declaration names would change. But, the unity (connective tissue) of the domain of all people; the values (with tolerance understood as social coherence and an appreciation of diversity, with solidarity extending across individuals, geography and generations, and with the value of shared responsibility embracing all segments of the society); and the modality of genuine participation would remain. Laws would demarcate the boundaries of such a "civil" society and the government would guard them. In the age of globalization, globally negotiated standards, globally adopted and respected values and acceptance of cosmopolitan diversity would complement this new social contract.

...the institution of "public space" can be established in which the government would not just privatize its functions, but rather, open them to public participation.

The need for a new social contract is being increasingly recognized in the world. Debating this issue in the framework of a networked knowledge society, a European think tank concluded, "There is a pressing need for a more holistic approach (...) (that requires) definition of the value matrix reflecting the aspirations of individuals and groups. (...) This value matrix has to provide guidance and inspiration to political leaders, captains of industry and business, local leaders in the civil society for the fulfilment of these aspirations."[83]

Based on such a value matrix, the **institution of "public space"** can be established in which the government would not just privatize its functions, but rather, open them to public participation. With the goal of human development firmly in place, values clearly pronounced, the public free to formulate and/or change its developmental preferences, and the government upholding the laws that protect the "civil" society, public value could be created by anyone and should be entrusted to those who can deliver it best, individuals, business firms and public organizations alike.

ICT has converted networks into powerful, efficient forms of social organization.

It must be understood that the above does not constitute a blueprint for changing the world in order to accommodate a private vendor interested in competing with a city hall for the right to issue drivers' licenses on line. Something fundamental and still little understood is happening right before our eyes as a result of the ICT revolution. A potential exists for the private sector to take over the public sector's role as a provider of public services. This can only be seen as a reason to celebrate if we have forgotten that the government has been created by society to deliver public value. If we do not make sure that the activities of the private sector in the public arena (e.g. in the public space) regard the creation of public value as an indicator of performance, private value will be sold to us as public value and the culture industry will convince us that this is to our unquestionable advantage. These are truly world-making shifts of historical proportions and we had better appreciate their true nature and shape them according to our preferences.

II.5.3. The networked government

The discussion about restructuring the e-government sector cannot conclude without a review of the record of the use of ICT by governments to support the transformation of the hierarchical structures of public administrations into networked structures. This makes a full circle to the "where" policy question, but is has been left to the end for a good reason. The previous analysis has dealt with what has already happened, or with what the consensus seems to be is likely to happen in the area of e-government development. Transforming public hierarchies into public networks is uncharted water, though arguably, this constitutes the most important ICT application that a public administration can build. It does not enter into public awareness as an imminent task with relevance to people's well being (erroneously, as one can argue). It is by and large avoided by many civil servants and politicians, as it may have far-reaching consequences for the emancipation of people, with all the ensuing consequences of the unavoidable shift in control of power and resources. If use of modern ICT has the capacity to dismantle and build at the same time, it can achieve the most extensive impact by reshaping human society and by enabling us all - people, governments and businesses - to operate as networks.

However, one can ask, what has suddenly become wrong with organizations of public administration that rank grades of authority one above the other? They have been created by society as a convenience and have functioned reasonably well for at least as long as the nation state has been around, and in effect, much longer. Large-scale hierarchical organizations have been perfect for large governments. They have been very effective in moving power and resources in order to secure power, develop economies or win wars.

The answer is: networks that use ICT and the speed and precision that they offer.[84]

People have known networks at least as long as hierarchies though and, till now, have opted for the latter when choosing a preferred form for the organization of government. Networks are flexible and adaptable, they can react to a changing environment and they can move around people and resources to re-adapt to a task. But they have major problems too, e.g. difficulty in focusing on the fulfilment of a given task beyond a certain size or level of complexity or difficulty in co-ordinating and executing decisions in order to concentrate resources. Modern ICT facilitates communication in human interactions. It has offered its capacities to hierarchies and to networks. Hierarchies have not been able to use it too well as it has threatened vertical structures. Networks have embraced it. ICT does not eliminate their advantages and is capable of smoothing out their disadvantages. Networks can use it to enhance flexibility and reconfigure capacities. More importantly, they can use real-time processing to reintegrate command and decentralize execution. ICT has converted networks into powerful, efficient forms of social organization.

The big business hierarchies gave up first. Multi-national corporations (MNC) had the structures of networks but did not act much like them. They used networks for moving investments to low tax rate jurisdictions and employing assets developed at home for the exploitation of international factor cost differentials (mainly labour). Over time they have converted these rudimentary networks into "horizontal corporations" - Global Production Networks (GPN), or vehicles for the creation and diffusion of international knowledge as well as the creation of local capacity to internalize the disseminated knowledge. Small and medium sized enterprises (SME) have organized themselves into networks within the decentralized networks of large corporations, thereby forming a structure of internally decentralized networks connected to external networks throughout the globe. Firms have become networks of different elements organized around a business project: loose networks with common interests, customers, objectives and functions. The bottom line of this change is offering whatever customers want, anywhere, anytime.

It is beginning to appear that governments can create a considerable amount of public value just by reproducing themselves as networks.

In the midst of all this activity, we still see the silos of government organizations: focused on maintaining boundaries of their jurisdictions, internal standards, rules and structural hierarchies. The networked economy has not stopped needing them. But it needs them at different levels of speed and flexibility. A vibrant private sector that is sophisticated and intensive in its use of ICT for digital business needs a vibrant public sector that is sophisticated and intensive in its use of ICT. We see many efforts of government organizations to adjust. On-line, customer interface e-government applications have a very strong business focus. E-procurement mimics e-commerce. Business-focused e-government "platform applications" have become a standard in many national portals.

More importantly though, the people have not stopped needing governments either, for facilitation of the expression of developmental preferences; for direct involvement in the production of public value; and eventually, for the creation and protection of public space in which public value can be produced and delivered by a multitude of agents. They also need the information, knowledge and other resources that are locked up inside the silos of government organizations. Their availability and more efficient use in the public interest than is possible right now also constitutes an increasingly important public end.

It is beginning to appear that governments can create a considerable amount of public value just by reproducing themselves as networks.

This would be a very complex undertaking, an e-government project for the millennium. It would need political will, popular support, skills and persistence. It would need ICT too. However, it would be pointless to assume that technology alone can change the way in which government works by affecting organizational practices and structures. Institutional and structural embeddedness are powerful enough to bring on board objective technologies, yet produce no or little change if the adoption of these technologies is not accompanied by a process of reform.[85]

Attempting such a transformation of government seems possible though. Governments at the central and local level are structured as rudimentary networks. These networks have been used for the control and transmittal of information and resources in a vertical way. Governments are already surrounded by private business networks and formal and informal social networks. They can bring about transformation by moving in several directions to:

[xxi] It must be appreciated that building a networked government goes far beyond partnership building, as recommended in current e-government development practice. Partnership building is obviously a step in the right direction and an attempt to deal with an imperfect situation. The distance that separates it from networking is demonstrated by a good-faith suggestion made during a recent international conference by an experienced practitioner: partnership commitments must be formalized through the signing by senior managers of a Memorandum of Understanding, and, to raise commitment, it is advisable to engage senior managers in a public celebration of successes. This reflects reality. It also proves why we need networked government quickly.

The force locked within these transformations is so powerful that if networked government happens mainly in the industrialized countries of the North, the gap between them and the countries of the South will grow again, for a new reason. Wherever it happens though, it will immediately create a new centre of gravity for growth and development.

- Give freedom to various public organizations at the central and local level to act as independent nodes in a network;
- Accept that authority within government comes not from hierarchy, but from recognized individual knowledge and skills;
- Use public resources to facilitate the strengthening of people's networks and the development of individuals as citizens;
- Recognize the existence of private business networks;
- Use ICT to link across conventional boundaries all nodes and networks (government, business, the public at large);
- Engage people in expressing their developmental preferences and in establishing a common developmental purpose (e.g. human development) as well as more detailed objectives that lead to the achievement of that common purpose (e.g. key objectives from the UN Millennium Declaration, Millennium Development Goals);
- Reaffirm (through legislation) the rules and values of a "civil" society that focuses on achievement of the preferred common purpose;
- Construct a public space in which public value is delivered;
- Play a catalytic role in assembling networks and providing them with resources to accomplish a chosen objective (producing public value) and in disbanding them afterwards, as needed;
- Focus their own efforts on (1) guarding the boundaries of the "civil" society; (2) managing information, creating knowledge and disseminating them across all networks; and (3) networking for public value delivery, using ICT in this process (e-government) if, how and where applicable.

This does not and cannot mean the simple change of a hierarchical government into a horizontal government overnight. If that were to happen, in many countries this would mean no government at all overnight. These countries do not even have capable public organizations at the central or at the local level (physical infrastructure, skilled civil servants) that can be converted into capable nodes of a network. Additionally, a culture that has prevented importation of the NPM revolution may not prove conducive in this case either.

For other countries, the power sharing that comes with networks would not be easly accepted by the financial or political elite. The alternative seems to be to just do nothing. Slowly growing conflict between the private and the public sector, between hierarchies and networks, between technology and organizations does not have at its base, a hostile ideology, leader or even a face. It does not look like it will erupt before the next election and piece-meal management of it seems like a splendid alternative. Enough flexibility to accommodate the business needs and enough collusion between the government and the media to cope with the sentiments of the public seem like the right modalities here. And indeed, they may work for a relatively long time.

The illusion of doing nothing is not new. But it freezes the capacity of societies to develop. It erodes economic and political power from within. Time will pass and somewhere, someone will start experimenting with the new ideas. The force locked within these transformations is so powerful that if networked government happens mainly in the industrialized countries of the North, the gap between them and the countries of the South will grow again, for a new reason. Wherever it happens though, it will immediately create a new centre of gravity for growth and development.

A groundbreaking, visionary study has no hesitation in pointing to the future. It states, "A new paradigm is emerging. We call it "the networked state". (...) Along with the new structure comes a new and emerging capacity to link ideas, people, organizations and information in new ways."[86] This means building a society that is capable of the creation and diffusion of information and knowledge on an unprecedented scale.

II.5.4. Information and knowledge

In pursuit of public value, governments use public resources - things that they control and can use to achieve public ends. Two such resources are information and knowledge.

One can argue that we are entering the age of an abundance of information and a deficit of knowledge. If this is so, two distinct issues emerge:

Governments must learn how to manage information.[xxii]

Governments must learn how to create knowledge.[xxiii] [87]

Managing information[88]

One can argue that we are entering the age of an abundance of information and a deficit of knowledge

ICT is already bringing and will increasingly bring massive increases in the availability of information. If societies succeed in building networked government, an even larger supply of information will originate in public organizations. The public sector is the main producer, holder and provider of information.

On one hand, more and better information can bring public value. It can enrich people's lives and contribute to better governance (e.g. more informed public debate, and strengthened transparency of government and business). On the other hand, too much information could lead to information overload, creating information fatigue and mistrust, and rendering this abundance of information unusable. The basic governance challenge is to ensure that the spectacular increases in the availability of information will strengthen rather than weaken opportunities for the production of public value. Therefore, governments should start thinking more strategically about how ICT is affecting the production and use of information in the public sector and in the society at large.

As ICT is quite instrumental in this process, this would constitute one more critical e-government application.

Many of the current e-government applications focus on making public information available anywhere, anytime and to anybody. However, the idea that people will need an abundance of information in the future is an incomplete thought. What they will need is an abundance of reliable, accurate and authoritative information that is relevant to their needs. And they also must be able to trust the source that provides such information. More often than not, they will be unable to personally test its quality.

People are bound to turn to a variety of sources to meet their information needs. Various organizations, universities and think tanks, and the private sector will all have a role, as will the government. In some cases, private sector and other organizations will meet these standards. Peer review processes and a desire to preserve a hard-earned reputation for quality information would ensure that some organizations dedicate themselves to becoming trusted information providers. However, it is unlikely that all people's information needs would be fully met in this way. There are simply too many areas where quality information will be needed, but where reliable providers will not emerge. In such cases, people most certainly will require that the government produce it as a public value.

[xxi] Information (explicit knowledge) refers to knowledge that is codified in formal, systemic language. It can be combined, stored, retrieved and transmitted with relative ease and through various mechanisms. ICT increases the mobility of information and lowers its cost. Information is useful only when knowledge (tacit knowledge) enables individuals and organizations to make sense of it and utilize it.

[xxiii] Knowledge (tacit knowledge) is difficult to define. One can speak about it as a fluid mix of framed experience, values, contextual information and expert insights that provides a framework for evaluating and incorporating new experiences and information. Knowledge is information combined with experience, context, interpretation and judgement. It is acquired through one's own experience or reflections on the experiences of others. It is intangible, without boundaries and dynamic. It is highly personal and hard to formalize, making it difficult to communicate or share with others. Subjective insights, intuitions and hunches all fall into the category of knowledge.

in the process of information production and sharing, the government should think and act as a network.

The relevance of public information to people's needs could be assured by perfecting the system for the formulation and expression of people's preferences. And while the rules for the "civil" society and the public space, as described above, should secure provision in the public domain of information that not only is relevant but true, practical measures supported by appropriate policy and regulations can help to reinforce this:

- The government can certify information it provides according to well-recognized methodological standards. It is well placed to avail itself of methodological principles and to ensure that information that it presents conforms to them.
- The release of public information should be de-politicized by removing any possibility of private control over how, when and where it is released. A legislated framework of principles and criteria for reporting public information would protect its release from private interests.
- The government should organize itself for the release of information that in its structure does not follow the current organization of public administration by sector (e.g. health, education, defence, economy, environment, immigration etc.), but by outcomes or agreed developmental objectives that serve the adopted developmental goal (e.g. human development). In many cases, this would move the release of informa tion from being misleading by being incomplete to being immediately usable and useful by being comprehensive.

In other words, in the process of information production and sharing, the government should think and act as a network.

Creating knowledge

The thesis about the relative deficit of knowledge can be more easily contested than the one about the relative abundance of information. People are surrounded by a glut of information. However, they cannot easily detect the relative deficit of knowledge in decisions that are made by them in their personal life, by businesses in pursuit of private value and by government in pursuit of public value. Failure is an eternal companion of people's endeavours and even if the gap in the availability of knowledge were considerably closed, no one could guarantee human infallibility.

Yet, certain things can be established without contest.

...we live in a period characterized by chaos, complexity and flux (C2X).

One of them is the perception that we live in a period characterized by chaos, complexity and flux (C2X). Too many factors in people's lives, some of them taken for granted, have developed in counterintuitive directions, disappeared or become amplified beyond expectations. A partial list of them, collected in the process of writing this Report, follows:

1. **Globalization** has become virtually irreversible due to ICT-induced reduction in the friction of space and time, as well as the firm demand for a global market in order to profit from huge investments in ICT networks, R&D and organizational change in business firms.

2. **Markets** must deal with products void of excludability, rivalry or transparency. They have not found a response to this challenge yet. The social cost of some of the ways of dealing with the invisible hand, which has become blind (e.g. lowest common denominator of TV programming)[89] is very high.

3. **Global Production Networks (GPN)** have replaced Multinational Corporations (MNC). They have become the most powerful forces behind transition to the networked society, international knowledge creation and diffusion.[90]

4. **Competitive business firms** must deal with a situation in which, in large parts of the economy, the diminishing return from investments is replaced by the increasing return from investments. This breeds a "winner-take-all" mentality, as it leads to a huge, often monopolistic pay-off for moving to the market first with a new product. It also results in a situation in which innovation becomes more important than productivity or cost-cutting and adaptive cost (monitoring of market for change and developing competitive response) becomes more important than transaction cost.[91]

5. **The culture industry** has obtained new tools: geo-demographic ICT applications and vast consumer databases. This enables it to "segment" and then "reconstruct" consumers with unprecedented speed and precision.[92] This may convert the market into an overpowering, self-contained, independent, stand-alone institution.

6. **Work without a job** and the convenience of the wage increases and benefits that come with a job are new, as is the spread of tax burdens to lower income groups of the population without assurance of an adequate social safety net.

7. **Rebellion of children in their teen-age years** that is based on cultural content brought to them directly, and not via their family circle, is new all over the world.

8. **Periodic unpopularity of political parties** takes on a new dimension in view of the growing phenomenon of the return of the disenchanted electorate (especially educated, skilled and networked individuals of multi-faceted interests) to politics outside the realm of established political parties. They opt increasingly for ICT-supported, single-subject interest groups (domains of shared interest) that often extend across state boundaries.

9. **High social esteem for knowledgeable people** also gets a new dimension with the growth of conscious efforts on the part of some national governments to build robust knowledge-based societies and economies. In this process they develop liveable states[xxiv], as a way to attract and trap knowledgeable and skilled individuals.

[xxiv] The concept of a liveable state assumes that a government can and wants to devote itself to catering to the preferred needs of those whom it wants to attract and trap as creators of innovations and carriers of large amounts of tacit knowledge. Human rights and freedoms, genuine political participation, a vibrant economy, personal security, affordable access to health care, education and ICT infrastructure, a clean natural environment and a government that is fully committed to the production of public value are some of the likely features of liveable states. They promote human development to the extent to which they espouse the value of human solidarity.

10. **The progress of science** is powered by organized scientific research supported by innovative and highly effective ICT-based knowledge-developing and knowledge-sharing tools. It can produce at high speed, temporary scientific "certainties" that for a while can masquerade as truth. Unbridled commercial application of some of them can damage life as we know it. The resultant emerging switch from "truth" to quality of life and safety as the organizing principles and guiding benchmarks in scientific research is new.[93]

When the problem context lacks structure and the certainty of outcomes, decision makers tend to rely on tacit, intuitive knowledge.

Another truth that is beyond contest is that "when the problem context is highly structured (the problem is easily defined and solutions are well known) decision makers place greater confidence in automated technology and information. When the problem context lacks structure and the certainty of outcomes, decision makers tend to rely on tacit, intuitive knowledge."[94]

In the vast majority of societies these days, partly due to the factors listed above, the environment for life and work lacks structure or certainty of causes or outcomes. In such an environment, an attempt to engage in world making creates an equation that features many unknown variables. All this creates the permanent demand for knowledge. The equally permanent deficit of knowledge is caused by the fact that there cannot be too much of it - the flux element that accompanies chaos and complexity demands continuous adjustments via an intensive decision-making process. Under delivery of knowledge is bound to negatively impact people's well being. Conversely, increased delivery of knowledge constitutes a very important public value.

Under delivery of knowledge is bound to negatively impact people's well being. Conversely, increased delivery of knowledge constitutes a very important public value.

"Technology does not bring about sharing knowledge by itself and in creation of knowledge it is of little help."[95] Rather, governments must organize for knowledge creation and knowledge sharing. This would involve change, as any bureaucracy monopolizes and centralizes knowledge and tends to push it upward in the organization instead of making it widely available.[96] It is not a question of competing with the private sector or other groups in the area of knowledge creation as a public value. Even if governments were to become the producers of knowledge as the last resort, they would still have to turn out a product of the highest quality. And the government structures on the executive, legislative and judiciary sides - whether they are separated from each other or not - must be knowledgeable throughout the political process. In today's reality, when so much power and so many resources are in public hands, the last thing people want is a government that is not knowledgeable. People must trust their government to do the right thing. Knowledge informs such decisions.

In the context of organizational change, governments can use ICT to organize for knowledge creation and knowledge delivery. This is yet another critical e-government application.

There is not much experience with knowledge creation in public administrations. As mentioned above, hierarchies have structural problems in facilitating it. And, although business firms have started to perform much better in this regard, the required informality and flexibility of the process involved remains difficult to institute even for them.

The best to be found in the literature concerning knowledge creation and distribution[97] allows the formulation of several broad principles that a government should adopt or act upon if it intends to generate knowledge. It should:

- Accept that human beings are the storage medium for knowledge.
- Accept that knowledge creation has it own dynamic - it cannot be ordered or administered.
- Create an organizational context, i.e. set up public shared spaces (physical and/or virtual) with borders of space and time in which people would want - and would have enough trust - to redirect their thinking processes away from the usual mental valleys. This cannot be participation by personal exclusion (naiveté and curiosity are key skills by which one challenges the received wisdom). However, to allow public value creation, private interests would have to be excluded.
- Make knowledge creation part of public problem solving. This involves activating public knowledge-creation spaces by encouraging and facilitating the full circle of knowledge creation:

  Socialization (sharing of knowledge between and among individuals);

  Externalization (expression of knowledge and its translation into comprehensible forms that can be understood by others, i.e. information);

  Combination (conversion of newly created information into analogue or digital signs that allow capturing, integrating, dissemination and editing, combining it with existing information and making it more usable); and

  Internalization (conversion of thus created information into tacit knowledge of individuals [e.g. decision-makers, project managers]; public organisation; the government; society at large).

In the context of organizational change, governments can use ICT to organize for knowledge creation and knowledge delivery.

- Finally, for greater effect, conjoin these public knowledge-creating spaces (i.e. network).

Logic dictates that the maximization of knowledge creation would require a multiplication of the shared spaces, their conjoining and the involvement of a maximum number of carriers of knowledge, i.e. people.

In organizational terms this translates into networked government.

In the political arena this translates into genuine participation in the political process.

Democracy is "a system of ruled openendedness, an organized uncertainty"

Adam Przeworski,
"Democracy and the Market", 1991

"Democracy places exceptional demands on the self (for maturity, autonomy and discursive engagement) (...). Individuals may be drawn to democratic participation not necessarily because it is attractive, but because it is the least unattractive way of organizing power in the face of contest."

Mark E. Warren, "What Should We Expect from More Democracy?: Radically Democratic Response to Politics", 1996

Chapter III: The Special Case of E-participation[xxv]

III.1. Context of genuine participation

Genuine participation reaches to the individual and puts him or her in the centre of the political process. In his speech in Oslo on 10 December 2001, while receiving the centennial Nobel Peace Prize, Kofi Annan, UN Secretary-General gave this process both historical perspective and a sense of urgency. He stated:

> In the 21st Century I believe the mission of the United Nations will be defined by a new, more profound awareness of the sanctity and dignity of every human life, regardless of race or religion. This will require us to look beyond the framework of States, and beneath the surface of nations or communities. We must focus, as never before, on improving the conditions of the individual men and women who give the state or nation its richness and character. (...) In this new century, we must start from the understanding that peace belongs not only to states or peoples, but also to each and every member of those communities. The sovereignty of States must no longer be used as a shield for gross violations of human rights. Peace must be made real and tangible in the daily existence of every individual in need. Peace must be sought, above all, because it is the condition for every member of the human family to live a life of dignity and security. (...) [T]he lesson of the past century has been that where the dignity of the individual has been trampled or threatened - where citizens have not enjoyed the basic right to choose their government,

Genuine participation reaches to the individual and puts him or her in the centre of the political process.

[xxv] Citizen participation can be defined as voluntary (or coerced) participation in consultations and decision-making about public issues. To some extent, the theory dealing with networks and creation of knowledge can be applied to its analysis. The institutions for political consultations and political decision-making are structured as networks. ICT can raise their effectiveness by offering its networking (communication of many with many), outreach and speed capacities. Political consultation can be described as creation of politically useful (tacit) knowledge. ICT can facilitate several stages of this process, e.g. setting-up virtual shared spaces, moving around old and new information (explicit knowledge).

The dignity of an individual expressed in his/her freedom of choice, also in the context of the political process, may be emerging as a stable foundation of the world order.

The depth of change combined with non-linear behaviour (complexity, chaos, flux, C2X) of the major factors that shape the current societal context of our lives would require that these "hard decisions" and "courageous reforms" would have to be debated, negotiated, agreed and if need be, enforced.

> or the right to change it regularly - conflict has too often followed, with innocent civilians paying the price, in lives cut short and communities destroyed. The obstacles to democracy have little to do with culture or religion, and much more to do with the desire of those in power to maintain their position at any cost. This is neither a new phenomenon nor one confined to any particular part of the world. People of all cultures value their freedom of choice, and feel the need to have a say in decisions affecting their lives.

The world of emancipated individuals may be emerging from lessons of history as a better way of organizing human society. The dignity of an individual expressed in his/her freedom of choice, also in the context of the political process, may be emerging as a stable foundation of the world order.

This is not a totally unfamiliar picture.

We do believe in the logical link between the legitimacy of governments, the public value that they deliver and the preferences about things that people want, as expressed by those people. The Introduction to the Report reminds us though about difficulties with private value substituting for public value, and about the need for clear, unhindered pronouncement of people's preferences.

We accept that lifting developmental unfreedoms has to happen at the individual level of every man, woman and child in the world. We celebrate each occurrence of expansion of human capabilities as developmental success. However, we also appreciate that despite numerous and impressive successes, the situation in this regard is still so imperfect that it requires a major world making effort, as outlined in the UN Millennium Declaration.

In the complex, chaotic and fluid (C2X) world, we have started to discover that knowledge is the most valuable market commodity and the most sought after ingredient of social and political life. We understand that individuals are the only carriers of knowledge. Emerging experience tells us how best to create knowledge. But, apart from the business world, we do not yet see much evidence of the networked society, networked government or an abundance of public shared spaces for knowledge creation.

We understand the potential that the human mind augmented with ICT represents. Individuals can use ICT to network and create with other like-minded individuals, domains of shared interest that may or may not include traditional social, economic and political structures and organizations (a. k .a. the global associational revolution). Individuals can adopt a cause, step into the public space and use ICT to pool resources and orchestrate efforts of other individuals, but also resources of government, business and CSOs to achieve public value by delivering a developmental outcome that corresponds with what people want. However, we do not see much of it happening around us, and if it does happen, as a rule not enough power stands behind such efforts to cause meaningful change.

There is a rift between what has been accepted as desirable and possible and what has been implemented. There is a gap between opportunities that describe the nominal world and the every-day reality. According to the Road Map towards the Implementation of the United Nations Millennium Declaration, closing this gap would require "hard decisions and courageous reforms in all States and in all areas of policy."[98] In other words it would require a major word making effort to restructure the societal context of our lives.

Little of this restructuring can rely on established and socially embedded rules and standards. The depth of change combined with non-linear behaviour (complexity, chaos, flux, C2X) of the major factors that shape the current societal context of our lives would require that these "hard decisions" and "courageous reforms" would have to be debated, negotiated, agreed and if need be, enforced. (The alternative is ordered certainty, i.e. applying power to coerce.) This would politicize our lives, i.e. increase the demand for

If the political process turns out a high quality response to this challenge, people will be able to claim a better future.

Democracy makes sense from the point of view of the obvious necessity to apply a maximum amount of knowledge to cope with the challenge of complexity, chaos and flux.

...while praising democratic politics as a system, it is fair to say that all democratic countries experience grave difficulties with the public sphere (i.e. the institutional arena for discursive interaction.)

political process and for politically active behaviour of people. The kind of political process matters. The willingness of citizens to engage in the political process matters. The capacities of people as citizens matter too. They all matter, as the forthcoming transformation of the societal context will have to accommodate unprecedented waves of change and at the same time, do it in ways that serve human development.

There is no reason to be negative or pessimistic about this challenge. To the contrary, it converts the future into an asset. If the political process turns out a high quality response to this challenge, people will be able to claim a better future. A lot is at stake in terms of human capabilities as well as the economic and political power of states. At the end of this process we will know how the centres of power will have moved on the world map and how inclusive the human society will have become.

There is a belief that we are well equipped to face this challenge. At the end of the turbulent 1980s, an historian wrote, "(...) [T]he century that began full of self-confidence in the ultimate triumph of Western liberal democracy seems at its close to be returning full circle to where it started: (...) to an unabashed victory of economic and political liberalism."[99] This constitutes a proclamation of the triumph of market economics and democratic politics as foundations for a societal context that can best secure human development.[xxvi] As a development analyst has observed, "Famines have occurred in ancient kingdoms and contemporary authoritarian societies, in primitive tribal communities and in modern technocratic dictatorships, in colonial economies run by imperialists and in newly independent countries of the South run by despotic national leaders or by intolerant single parties. But, they have never materialized in any country that is independent, that goes to elections regularly, that has opposition parties to voice criticisms and that permits newspapers to report freely and question the wisdom of government policies without extensive censorship."[100]

Democracy also makes sense from the point of view of the obvious necessity to apply a maximum amount of knowledge to cope with the challenge of complexity, chaos and flux (C2X). As mentioned before, the importance of knowledge also increases in proportion to the growth of the uncertainty of objectives, causes and effects[101] in the political process. Democracy seems like an ideal vehicle for creation of politically useful knowledge. It provides forums and mechanisms for voicing opinion and deliberation. It also provides forums and mechanisms for internalizing knowledge by decision-makers and administrators in public institutions and organizations.

This of course cannot be allowed to stand without a large and important footnote as "democratic politics" means various things in various places.

First, while praising democratic politics as a system, it is fair to say that all democratic countries experience grave difficulties with the public sphere (i.e. the institutional arena for discursive interaction[102]). (See Box 8.) While the power of the "sovereign" has grown over the years, no similar robust development has occurred on the side of institutional structures that support the democratic way of governing. Some have even degenerated. As demonstrated in the Table, all countries suffer to a larger or smaller degree from at least two serious problems: access and collusion. Some countries feature a strong "sovereign", but are at various, less advanced stages of constructing their political system. Some still struggle with putting together the very machinery of the state, defining the responsibility of its building blocks and equipping it with qualified officials and civil servants, dedicated to public service. Some are burdened with bloated public sector

[xxvi] A more expanded formula: Optimal development = (market economics + strategic public investments in public goods + policy setting + arbitration of free competition) + (democratic politics + greater role of public at large in decision making + social responsibility of the private sector)

...electorate apathy looks like the result of disenchantment with the existing political structures. It seems also to have its roots in a severe deficit of deliberative resources among citizens.

administrations that lack efficiency and effectiveness. And, to some degree, all seem to have difficulty with transparency and accountability. In many of them problems start with the lack of voice (access issues) or security (freedom issues). In many, making effective political claims on central government from a poor, remote, unconnected village is simply physically impossible.

An author suggests "radically democratic response to politics"[103] and in this context submits that deliberative democracy can fit this demand. "Radical" and "deliberative" qualify democracy and suggest that pure quantity may not suffice. The UN Millennium Declaration also stresses qualitative aspects of governance (see Introduction). "Genuinely inclusive", "participatory", "democratic" and "good" are some of the adjectives used in this document while describing the desired kind of governance.

One way of defining governance is to speak about it in terms of an ongoing conversation through which a society steers itself - a debate or argument even about how to organize human society in order to secure its development. Democracy could be seen as one of the possible ways of arranging this conversation. Indeed, when a country claims to be democratic, a check of the prevailing state of internal political conversation allows quick verification of that claim. It usually is as good as sound is the public sphere.

Second, it is fair to say that most democratic countries experience "electorate apathy". Voter turnout, party membership and participation in community associations are falling off. This is worrisome, as it reduces social capital and the capacity of citizens to work together to solve common problems.[104] At the same time, recent studies[105] show continued interest in public matters. In the U.S., 27 states have some provision for direct balloting. In Japan, 70 per cent of respondents in an NTT survey believed that citizens should be the ones most directly involved in determining policies at the local level. Eighty per cent believed that citizens rather then elected representatives should make decisions via direct voting. An experience from "deliberative polls" collected in the U.S., the U.K., Denmark, Australia and Bulgaria shows that all socio-economic groups are capable of considering complex issues. From this perspective, "electorate apathy" looks like the result of disenchantment with the existing political structures. It seems also to have its roots in a severe deficit of deliberative resources among citizens.[106]

While the situation varies by country and region, a large part of the problem is the availability of time. We pay with our personal time spent at work for the income that should bring us things that we really desire in life. Economic efficiency tends to raise this price all the time.[107] So, for some citizens, relative lack of time translates into short attention span and lack of attentiveness that sometimes is interpreted as lack of interest.

A more general deficiency is the lack of expertise. It is enough to have a careful look at the nature of changes and the growing complexity of the world around us to appreciate that some, if not most of the issues involved require quite specific knowledge. Democracies assume temporary and limited suspension of judgement by the electorate - otherwise, effective governing would be short of impossible. The time factor combined with the complexity of issues translates, though, into a tendency to make this suspension of judgement more permanent in time and unlimited in scope. Experts in and outside of government take over and most decisions affecting the lives of individuals are made authoritatively, without their active participation. One danger in leaving politics to the experts is the tendency of some of them to make arguments from a position of certainty that is often based on ideological convictions, and then to search for evidence to support them. In such situations, value judgements tend to substitute for the rule of law. Ideological fundamentalism and radicalism can be the next logical step.

Finally, political participation requires skills - to present an issue, to argue, to compromise, to retreat in order to argue another day. These skills are rarely taught and even more rarely practised. Whether or not to engage in politics is not an easy decision. If in

the private decision-making process about engaging in politics, the lack of time and expertise is combined with a self-assessment that tells a person that he/she simply does not know how to do it, then even concerned citizens find an easy escape in acquiescence and wishful thinking.

Third, democracies are mere vehicles for majority rule. As stressed by a scholar[108], they outperform dictatorships as they represent a broader encompassing interest. They bother to organize the societal context for the development of many, not only the ruling elite. However, they are also known to suppress minorities. They are even known to have committed atrocities. If democracies (with their organizing principle of formulating a political response to the challenge of development) were ideal, we would not need constitutions, bills of rights, international conventions of human rights and freedoms, rule of law and independent courts, at the national and international level. How democracies behave depends to a large extent on values that the majority espouses. Most important among them seems to be the value of human solidarity (i.e. a sustained commitment to the common good). This value allows the majority to develop a super-encompassing interest that makes it sacrifice some of its power to take care of the interest of the minority. This has happened in history. However it continues to remain rare.

How democracies behave depends to a large extent on values that the majority espouses. Most important among them seems to be the value of human solidarity (i.e. a sustained commitment to the common good).

Fourth, as observed a decade ago, "(...) [D]ifferences among civilizations are not only real; they are basic. Civilizations are differentiated from each other by history, language, culture, and tradition and, most important, religion. The people of different civilizations have different views on the relations between God and man, the individual and the group, the citizen and the state, parents and children, husband and wife, as well as differing views of the relative importance of rights and responsibilities, liberty and authority, equality and hierarchy. These differences are the product of centuries. They will not soon disappear. They are far more fundamental than differences among political ideologies and political regimes. Differences do not necessarily mean conflict, and conflict does not necessarily mean violence. Over the centuries, however, differences among civilizations have generated the most prolonged and the most violent conflicts."[109]

Indeed, at first glance, we live in a culturally diversified world and many of these differences, especially in the political area seem irreconcilable. However, the UN Millennium Declaration is based on belief in common ground and singular governance-related modalities to achieve the global development objectives. The UN Secretary-General suggests that accentuating the differences constitutes part of the power game waged by those who do not want to accommodate change. Indeed, one can assemble an impressive list of governance-related commonalties across civilizations:

...the UN Millennium Declaration is based on belief in common ground and singular governance-related modalities to achieve the global development objectives.

> We all seem to prefer a limited and responsible government.
>
> We all seem to accept the duty of obedience and the duty of disobedience, tied to the notion of a contract between the ruler and the ruled - between the government and the citizens. As disobedience is justified by breach of contract (i.e. a government becoming less than limited or less than responsible in providing public value), this assumes a degree of transparency and accountability.
>
> We all seem to accept the value of counsel and of the search for consensus. "Inclusive political process" and "genuine participation" - two preferred features of "good governance" described by the UN Millennium Declaration are rooted in this acceptance.
>
> We all have historical experience with fighting to settle differences and with non-violent means to settle them. As observed, "Today, there is much bigger payoff in

The societal context for genuine participation has to be revamped.

'getting others to want what you want', and that has to do with cultural attractiveness of ideology (...). Soft power is particularly important in dealing with issues arising from the bottom chessboard of trans-national relations (other than military or economic)."[110]

The above analysis allows us to conclude that although participation is firmly embedded in democratic politics, imperfections of the public sphere, the deficit of deliberative resources and a lack of appropriate values and inter-cultural differences create a gap between the nominal norms that delineate democratic politics and the reality of practice. Some stress additionally, the lack of democratic experiences, the absence of structured public spaces within which individuals might learn to be comfortable with political dialogue, a political system that makes it very unlikely that dialogue could have any significance and co-option of public dialogue by mass media.[111] Due to this gap, genuine participation still remains by and large an unfulfilled promise. Therefore, while moving towards discussion of ways in which ICT can facilitate genuine participation, one has to be mindful of the necessity to bridge this gap. The societal context for genuine participation has to be revamped. Without this, ICT applied to enhancing participation is bound to be less than effective. The use of ICT to support genuine participation would also require that e-applications help transcend the limited capacities of one person to effectively participate in and have real impact on the political process.

The use of ICT to support genuine participation would also require that e-applications help transcend the limited capacities of one person to effectively participate in and have real impact on the political process.

This translates into looking at ways in which ICT in general and e-government in particular can have a beneficial impact on the public sphere, making it "(...) a site for the production and circulation of discourses that can in principle be critical of the state (...), [a site] distinct from market relations (...), one of discursive relations, a theatre for debating and deliberating rather than for buying and selling."[112]

This translates also into looking at ways in which ICT in general and e-government in particular can have beneficial impact on citizen development, i.e. enlarging the pool of deliberative resources available to citizens. As an author has noted, "deliberative experiences should be extensively empowered and protected by democratic mechanisms and widely dispersed throughout the institutions of state, economy and civil society."[113]

BOX 8

Features of the Public Sphere at Different Levels of ICT Application to Discursive Interaction114x[xvii]

Basic components of the public sphere	No or initial only application of ICT to discursive interaction		Advanced application of ICT to discursive interaction: the probable case of liberal mass democracy in a Knowledge Society[xxviii]
	Technocratic dictatorship (political tyranny plus market economy)	Democratic politics and market economics of the welfare state	
Access to the public sphere	None or very little bracketing of inequalities in political power and status. Discourse tends to be staged and not open to all.	Via transfers, the welfare state eliminates part of economic inequalities or blunts them. Formal political equality qua universal suffrage in place, but status continues to hinder access and many forms are difficult to bracket (e.g. poverty, ethnicity, gender). Level of openness of discourse is high, though elements of staging and less than open access to the public sphere (mainly economic grounds) persist.	ICT and the opportunity for virtual discourse lowers some access barriers, e.g. geographic location, and considerably decreases severity of others. However, ICT and discursive literacy as well as affordability of access to ICT infrastructure may linger on as barriers to access to the public sphere for some time.
Freedoms (speech, assembly and association, also in cyber space)	None is guaranteed by law, or if it is, it is suppressed in practice.	Legal framework that supports it is in place. Only minimal restrictions that protect public interest. Freedom of speech widely practised, though elements of political correctness and manipulation of media exist (e.g. political spin, editorial influence of media conglomerates in an increasingly concentrated market).	Comes natural and would be difficult to suppress, barring minimal restrictions that protect public interest. However, legal framework is needed to eliminate restrictive gatekeeping for political gain (governments) or private gain (private service and search engine providers exercising self-censorship in collusion with governments or to avoid civil liability).
Transparency (i.e. free access to information about state activities)	By definition, very constrained. Available information is not reliable.	Legal framework that supports advanced degree of transparency. Degree of transparency contested by state on the basis of	Secrecy becomes very difficult to maintain by the state. Legal framework needed to outlaw it.

[xxvii] This table has been developed to present general trends. No two societies or countries are alike or embody all or a specific combination of the general trends. Therefore this table or any part of it has not been developed to describe a situation in any specific, existing country or society.
[xxviii] Knowledge tyranny is also possible. It would be built on denial of freedoms.

		"broad public interest". Therefore, the real situation is not ideal, but historically represents the most advanced access.	
Medium of talk	Means of public discourse are in the hands of the state or in the hands of business firms closely linked to the ruling elite. Public discourse is either state-controlled or commodified. Challenge to this status quo is either against the law or very effectively discouraged. Many limited, informal attempts to keep the conversation going.	Most means of public discourse are owned by business firms and as such operated for profit. Thus, most of the public discourse is commodified. Mainly economic barriers to large-scale, non-commercial public discourse, though islands of reputed public service media with a vital role in discourse persist. Multitude of informal, non-commercial attempts to keep the conversation going.	Means of public discourse are ubiquitous. Their cost is consistently falling. Private persons, the government and business own them. Potentially, "chat away" society. Expanding public service remits to the on line environment can help carry a trusted information and discourse infrastructure over to the digital public sphere.
Separation of the public sphere, the government and the markets	Advanced or almost complete merger between the state and the public sphere. Public sub-spheres are few, suppressed or in collusion with the state. Advanced level of collusion between the state and the markets.	Advanced, but incomplete separation. The state is present in the public sphere and exacts some degree of political correctness. Collusion between the markets and the state. Predominant private ownership of the means of public discourse favours access by state (in exchange for favourable treatment) or by culture industry (in exchange for money) over public interest groups. Multitude of public sub-spheres at various degrees of separation from the state and the markets.	Unlimited capacity to create public sub-spheres/domains of shared interest. Deliberation and action-oriented networks - also with state organizations and business firms - are likely, even desirable. Proper management of networks becomes a necessity as reciprocal nature of networks may compromise the purity of separation and formal accountability structures.

BOX 9

The Phenomenon of SimCity[xxix]

SimCity is a computer game that has been released in 1989. Its newest version, SimCity 3000, was released in 1999. Seven million people in the world own it. In 2002 alone, 3.3 million copies were sold worldwide.

SimCity is a system simulator. The game gives players a platform, i.e. set of rules and tools that describe, create and control an imaginary system. The challenge of playing a system simulation game is to figure out how the system works, take control of it and then use the tools to create and control an unlimited number of systems, within the framework and limits provided by the rules.

In the case of SimCity, the system is a city. The player assumes the role of the city's mayor and urban planner. He/she takes control of an area of land and builds a city of his/her dreams: paves roads; lays down power plants and power lines; zones for industrial, commercial and residential development; builds schools, hospitals, stadiums, a seaport, airports and police and fire stations; and sets the tax rate. Sims - Simulated Citizens populate the city. Like their human counterparts, they build houses, churches, stores and factories. And, also like humans, they complain about taxes and city hall. If Sims like what the player has done, they will move in and stay. If they do not like it, they will move out, the city will receive less in tax revenues and deteriorate. The object of the game is to manipulate the system in such a way as to attract the maximum number of Sims.

The platform created for the player comprises rules and tools.

Rules:

- Activities that satisfy the needs of Sims attract them.
- Sims are free to move in and out of SimCity.
- Sector-specific rules (e.g. financial, construction, etc.) must be observed.

Tools:

- Human creativity and imagination
- Free will, i.e. power to choose
- Several advisers available on demand
- Access to petitioners from SimCity and neighbouring communities
- Access to disaster relief from national authorities
- Power to create (e.g. build); destroy; set laws; budget; tax; borrow; spend financial resources; enter into public-private arrangements; conclude business agreements and agreements of co-operation with the neighbouring communities
- Easy to use, abundant, immediately available, truthful information about past and current status of the city and its facilities as well as many social, economic and environmental aspects of life in the city, aided as necessary by maps, charts and graphs
- Flow of news about the life of the community
- Ability to forecast the future aided by the simulator with indicators of demand

[xxix] SimCity is a trademark of ElectronicArts. Its use by this Report does not constitute endorsement of the product, but rather an illustration to help in making an argument. The information in the box has been compiled on the basis of information provided in an official guide to SimCity 3000 and on the website: http://simcity3000unlimited.ea.com/us/guide/about/whatis_simcity/index/phtml

III.2. Constructing e-platform for genuine participation

Rules and tools (capacities) empower, and when individuals are empowered, non-democratic means of dealing with conflicts, i.e. repressing them or coercively imposing solutions are no longer viable.

"Why should I participate in a 'virtual' room when I have not been taken seriously in the 'real' ones?"[115] This question from a young German citizen - and many others - must be answered in any discussion about e-participation.

However, we may observe parenthetically that this question does not seem to worry millions of players of SimCity (see Box 9), a simulation game that allows a player to produce in a city, the public value that he/she wants. If the player does well, the game rewards him/her with an influx of Sims, the simulated inhabitants who make decisions as to whether or not to settle in the city on the basis of the availability and quality of the public value that the player provides. As the game is distributed mainly in North America, Western Europe and Japan, one can estimate that approximately one per cent of the people in the industrialized countries of the North have used their private resources to purchase the game and their private time to play it. Stories of addiction abound. As with any game, escapism must play a role here, but still, this phenomenon should give pause to politicians and researchers alike. No aversion to involvement in public matters of this simulated city can be detected among the players. They are willing to spend hours learning the rules of the game and figuring out how best to produce public value for Sims. In order to play, they use the platform of rules and tools developed by the game's designers. It is a haunting thought that, just perhaps, the SimCity platform makes involvement in public affairs easier and more attractive than the platform for political activism that is offered in real life to the same players, if and when they want to assume the role of active citizens.

Rules and tools (capacities) empower, and when individuals are empowered, non-democratic means of dealing with conflicts, i.e. repressing them or coercively imposing solutions are no longer viable. Contests are more likely to be channelled into public spaces and resolved by democratic means.[116]

III.2.1. E-platform for genuine participation: rules

Basic human rights and freedoms, especially freedom of expression, assembly and association (including by electronic means), as well as the culture of civic engagement are fundamental.

Human rights and freedoms and culture of civic engagement

Basic human rights and freedoms, especially freedom of expression, assembly and association (including by electronic means), as well as the culture of civic engagement are fundamental. The very idea that it is possible to alter social life, that collective political actions could be organized and will be protected, must be culturally and legally available. Assuming a political posture, engaging in politics, arguing a cause in a political debate - in other words becoming an agent who politicizes relationships - is difficult. It is difficult within the family circle, around the water cooler and in society at large. It engages other people and requires that they, too, assume a political posture and get involved in politics. In most societies today, the signals steering human behaviour do not particularly encourage political activism and opportunities to make a difference in the course of everyday life are rare. Therefore, people who mobilize enough civic courage to cross this threshold should feel secure and not fear punishment to themselves or to their families. Democracies based on human rights and freedoms should even protect spaces for moral persuasion, so that moral voice in politics (e.g. mothers of the "disappeared") requires something less than heroism.

...people who mobilize enough civic courage to cross this threshold should feel secure and not fear punishment to themselves or to their families.

If we are looking for the content of world making, the components of "civil" society or elements of public value (see Introduction), the culture of civic engagement, freedom of speech, association and assembly and the support of a strictly independent judiciary are critical. They constitute the sine qua non of genuine participation, with or without the use of ICT.

Access to quality information

If we are looking at political participation as politically useful knowledge creation, as we should (See Chapter II), we must accept that it rests on two pillars.

One is the tacit knowledge of the citizens. It can be mustered in the presence of a culture of civic engagement and freedoms that bring people's experience, context, interpretation and judgement into the process of political participation.

But knowledge creation is always information combined with experience, context, interpretation and judgement. Knowledge without challenge remains hollow. Context without information is ignorance. Context with false information, if applied in a political process, usually is a recipe for disaster. Therefore, proper public information management is crucial too. (See Chapter II) Certification of information provided by the government; rules for release of public information; and adopting a holistic approach to collecting and releasing public information constitute rules in this regard. What is more, if we take the discussion about the rules for "civil" society and the parameters of the public sphere a bit further, rules on the quality of information should extend also to the private sector and the public at large. A society functioning in an environment of high quality information is a public value. It should become a private value too.

...proper public information management is crucial too.

Open channels for electronic communication

In a situation in which responsibility for gatekeeping of electronic channels of communication is split between the public and the private sector, common rules of gatekeeping should be worked out. The report would argue that keeping those gates wide open (i.e. the philosophy and practise of "it is forbidden to forbid") has always worked to the benefit of human development. It is consistent with upholding human freedoms. Yet, political and security considerations can and often do impact government behaviour in this regard. A study concludes, "Many authoritarian regimes translate a long and successful history of control over other information and communication technologies into strong control of Internet development. (...) Through a combination of reactive and proactive strategies, an authoritarian regime can counter the challenges posed by Internet use and even utilize the Internet to extend its reach and authority."[117]

The report would argue that keeping those gates wide open (i.e. the philosophy and practise of "it is forbidden to forbid") has always worked to the benefit of human development.

Protecting private value impacts business behaviour. The situation is complicated in cases in which a public service is based on privately supplied hardware or software; or in situations in which a public service is delivered by a sub-contracted private provider. Firewall technologies applied by governments; filtering of content by the liability or political inconvenience-shy private sector; "walled garden" set-ups to maximize profit - if not faced early on and dealt with in the public interest, these will take the promise of limitless communication through the use of modern ICT and convert it into an illusion in the midst of multiple, difficult to penetrate walls. When John Perry Barlow formulated in February 1996 his " Declaration of Independence of Cyberspace[118] [xxx], quite obviously, he not only underestimated the power of governments but must have forgotten the corporate lawyers too.

[xxx] "Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather. (…) We are creating a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity. (…) We will create a civilization of the Mind in Cyberspace. May it be more humane and fair than the world your governments have made before."

The difference between interest and concern must be defined and observed.

Be this as it may, making these walls (public and private) porous or better yet, eliminating them altogether should constitute another important agreement. The political process may help in dealing with the public walls. Support for open-system ICT platforms and applications may be a way to eliminate part of the problem with the privately erected walls, if no understanding is reached in the framework of the public space.

Separation of public and private value

The difference between interest and concern must be defined and observed.

Both are legitimate in any society, but the former should always be seen as a search for a transaction that supports private value creation. The latter constitutes a search for the common good. This distinction should allow limiting and if possible excluding collusion of all sorts in the public sphere. (See Box 8.) Collusion adopts a perspective of narrow interests and private gains.

Therefore, collusion between the government and the private owners of electronic media should be avoided. In many countries such collusion is already a reality in relations between governments that are interested in specific content and private owners of electronic media that are interested in benefiting from a specific type of public regulation. In some countries, this has happened with television, especially cable television and to some extent with the printed media too. It may also happen with the private owners of Internet servers, browsers and other Internet-based service providers.[xxxi] Somewhere in the middle of all these arrangements the public interest has to start figuring prominently. It again returns us to the notion of public value and to the design of the public sphere. Maximization of private value in exchange for control over content is possible. So is maximization of public value with no or very few exceptions to free content. World making is about taking such decisions and finding proper balances.

Additionally, collusion between the government and the public sphere breeds political correctness. Collusion between the market and the public sphere breeds consumerism. The former eventually takes away freedom. The latter manipulates freedom. Both introduce the out-of-focus element of private interests into the public discourse that should involve concerned citizens only.

Responsiveness of the political and administrative structures

The political and administrative structures must be attentive, i.e. pay attention and respond to politically useful knowledge created through political participation. Otherwise, the full circle of knowledge creation cannot be closed and participation, including e-participation can be characterized only as pointless. The person who asked the question that opens this sub-chapter referred exactly to such a disappointing experience. The public decision-makers and public administrators must internalize the "new" information produced by exposing the "old" information to the context of people's experiences, interpretation and judgement. This produces a tangible impact through participation, the ultimate reward and incentive in this whole process.

The political and administrative structures must be attentive, i.e. pay attention and respond to politically useful knowledge created through political participation.

[xxxi] A Web server is the computer programme (housed in a computer) that serves requested HTML pages or files. A Web client is the requesting programme associated with the user. A browser is an application programme that provides a way to look at and interact with all the information on the World Wide Web. Technically, a Web browser is a client programme that uses the Hypertext Transfer Protocol (HTTP) to make requests of Web servers throughout the Internet on behalf of the browser user. A commercial version of the original browser, Mosaic (1993) is in use. Many of the user interface features in Mosaic went into the first widely used browser, Netscape Navigator. Microsoft followed with its Microsoft Internet Explorer. Today, these two browsers are the only two browsers of which the vast majority of Internet users are aware. Although on-line services, such as America Online, originally had their own browsers, virtually all now offer the Netscape or Microsoft browser. Lynx is a text-only browser for UNIX shell and VMS users. Another recently offered and well-regarded browser is Opera.

III.2.2. E-platform for genuine participation: tools

Tools to make citizens knowledgeable and skilled

Participation must be well informed and skilled. This includes, but goes far beyond transparency.

Education, including literacy, general knowledge and civic knowledge must be present in this process. This comprises a number of skills. If education and those skills are not present, they must be supplied in an easy-to-use, affordable way. Literacy today also means ICT literacy and skills. Participation means networking skills; skills to organize and sustain domains of shared interest and action; debating and negotiating skills etc.

Participation must be well informed and skilled. This includes, but goes far beyond transparency.

Participation also requires expertise. Enough has been said already about the need for quality information. In a situation in which political participation will in the majority of cases be competing for private time that is in very short supply, the challenge will additionally be to convey the maximum amount of politically useful content in the minimum amount of time.

Society can decide to devote public money to educate its citizens and prepare them for genuine participation. This option has always been open, but arguably, with modern ICT, and especially the Internet, it becomes easier. E-government applications can provide on- line tutorials and manuals of all kinds - on subjects ranging from simple basic literacy to ICT literacy and skills development, and from general induction of civil values to development of civic skills like networking or effective organization for political deliberation and action. E-government applications can make networking and establishing domains of shared interest easy. E-government applications can make available on demand, subject-specific briefs about politically important issues that can be read and understood in less than five minutes.

It is not important or possible to name all the possible e-government applications that can be helpful in this regard. It is also useless; collective human imagination is bound to come up with countless ideas. What is important is the acceptance that participation must be well informed and that this is a broad concept including transparency, but stretching far beyond it as well. There must also be an agreement to apply the power of modern ICT to develop citizens as active participants in the political process (using public funds and e-government, as needed).

Education, including literacy, general knowledge and civic knowledge must be present in this process.

The record of e-governments in making their citizens more knowledgeable and skilful in the political process does not match the existing possibilities by far. Accountability information has become a norm, but it rarely shows understanding of the above-mentioned requirements. It often focuses on financial accountability, leaving policies and evaluation of their societal impact aside. Some examples to illustrate the range and type of exiting applications follow[119]:

Society can decide to devote public money to educate its citizens and prepare them for genuine participation.

> The State of Minnesota in the U.S. publishes on-line pie charts on government revenue resources and total spending. It also allows subscribing to a series of documents (e.g. new summary meeting minutes and documents that are updated on a periodic basis, including an e-mail service that notifies users about updates of 160 of them).
>
> The Freedom of Information Law (2001) in Poland requires on-line dissemination of public interest information, including government spending information.
>
> Japan's Prime Minister's M-Magazine reaches over 2 million e-mail subscribers. It highlights new content placed on the government websites over the previous week and features important content that originates from the Cabinet.

Participation must be interactive.

The "About Government" and "About Canada" sections of Canada's main portal's home page provide a comprehensive set of links that help Canadians navigate their government. "About Government" covers the structure and functions of government and "About Canada" covers society, land, economy and government from a general interest perspective.

Tools to make citizens connected and networked

Participation must be interactive.

This is how knowledge is created and politically useful knowledge is no exception to this rule. "Democracy works poorly when individuals hold preferences and make judgements in isolation from one another, as they too often do in today's liberal democracies."[120] The most important part of the process is socialization in the knowledge-creation shared space, a phase in which tacit knowledge is shared horizontally, among peers. Town hall meeting practices in some democracies come to mind here. They add value as "only democratic processes can transform hardened oppositions into other kinds of identities. (...) It makes difference that losers are heard. And winning and losing are never as complete (and therefore never as polarizing) as they are when politics evokes non-democratic responses."[121]

Democracy works poorly when individuals hold preferences and make judgements in isolation from one another, as they too often do in today's liberal democracies.

However, right now, with new communication capacities introduced by ICT, in the political process, who should share the knowledge with whom and how has been open to debate. Should the citizens interact among themselves, in a one-on-one relationship with the public administration, or with an elected official only? Should the citizens interact among themselves, but afterwards inform an intermediary (an elected official), or should they reach public administrators directly with new information? "Whatever brings more public value" should be the correct answer. However, deciding this is not easy.

The one-on-one relationship has already existed via various analogue means of communication. E-mailing introduces volume (for instance 85.5 million e-mail messages were sent to the U.S. Congress in 2001[122]), but does not alter the basic premise. It is a way of political consultation, though arguably, not rich in opportunities to create knowledge.

The issues related to direct versus representative democracy and to the fate of political intermediaries (elected officials) offer a bigger problem. Public policy-making is a two-step process. It involves consultations and decision-making. E-participation is often interpreted as various forms of enhancing consultations (among citizens, between citizens and elected officials) and preparing citizens for well-informed voting. A more radical approach would see it also extended to direct decision making via on-line referendums, plebiscites, and public forums.[123] This would eliminate the intermediaries.

E-participation is often interpreted as various forms of enhancing consultations (among citizens, between citizens and elected officials) and preparing citizens for well-informed voting. A more radical approach would see it also extended to direct decision making via on-line referendums, plebiscites, and public forums.

Those who support eliminating political intermediaries point to gains from avoiding elitism and corruption, i.e. the possibility of collusion between the elected officials and private interests. For instance, one author suggests[124] that in many democracies of the industrialized countries a vicious circle has been created. Production of an image that elects a politician costs money; money corrupts and establishes a market for denouncing corruption; negative advertising avoids real issues and focuses on scandals and shortcomings of corrupt politicians; this creates the need for a better image that would elect a politician no matter what the negative advertising says; which creates a demand for more money. Supporters of eliminating intermediaries also highlight that "representative" democracy is a solution that originates not in political wisdom, but in geography and technology. The distance from the capital city and the communication technology that existed at the time when modern national states were born necessitated electing and sending members of the decision-making body from provinces to the capital city.

Those who oppose eliminating political intermediaries point to dangers of populism, i.e. exaggerated trust in "common wisdom" that is not likely to keep up with the complexity and pace of modern governance. Some warn about instant judgement that can easily take the form of high-tech lynching. For them, the opportunity of speed that ICT brings seems to be the main disadvantage: debate and consideration of policy trade-offs take time and are distinct from just collecting and passing on information.

Avoidance of direct democracy can be contested though. How come voters who "have no expertise", are prone to "snap judgements" and are "vulnerable to manipulation" are smart enough to elect politicians?[125]

Two additional observations are unavoidable.

If the society moves in the direction of the networked society in which nodes in public administration, business and the public at large network and interact, public administrators would become part of the initial socialization in the process, creating politically useful knowledge. They, too, would be sharing information and tacit knowledge in the process of political participation. A network takes its power from abolishing divides. In the networked society, shared spaces for political participation must include objects and subjects of the political process, or rather, should allow all to play the role of concerned citizens. This may make intermediates redundant.

Also, if the world of business can provide any clues, one of the effects of ICT is that intermediaries tend to disappear, unless they reinvent themselves by offering new or better value. This may also be true for the political process.

Also, if the world of business can provide any clues, one of the effects of ICT is that intermediaries tend to disappear, unless they reinvent themselves by offering new or better value. This may also be true for the political process.

A Canadian study follows the logic of reinventing the intermediaries. It suggests, "The challenge of renewing governance (...) is to involve citizens more directly in the debate stage in ways that will increase their influence, but that do not compromise representative democracy. (...) [T]he public must view [consultations] as a discussion in which government is both a participant and a facilitator. (...) Elected officials have a critical role to play in such processes as facilitators of public discussion and debate, and in helping citizens to consider and achieve trade-offs around complex policy options."[126]

Some examples of e-government applications illustrating the range of approaches follow:

"Today I Decide" in Estonia (see "In their own words..." section of the Report) constitutes a discussion forum with a direct link to the public administration. Its 4,000 registered participants submit ideas, discuss them with other participants, edit them, put them to a vote of the group and submit them to the government for implementation. By law, the government has one month to start implementing the idea or to explain why it does not merit implementation. The answers are published on the "Today I Decide" portal.

Armenia's National Academy of Sciences has launched Forum, a new website that 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 communities concerned with 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, post results of discussions in newsletters and publish documents on line.

The State of Queensland (Australia) adopted the E-Democracy Policy Framework in November 2001. It clearly places e-democracy within its system of representative democracy. It states, *inter alia*,: "E-democracy is at the convergence of tradi-

tional democratic processes and Internet technology. It refers to how the Internet can be used to enhance our democratic processes and provide increased opportunities for individuals and communities to interact with government. (...) Some of the ways in which this can be delivered include:

- Providing accessible information resources on line;
- Conducting policy consultations on line;
- Facilitating electronic input to policy development."

The Office of the E-Envoy in the United Kingdom launched "In the service of democracy" consultation. It was based on several findings, *inter alia*: "We live in the age characterized by a multiplicity of channels of communication, yet many people feel cut off from public life. There are more ways than ever to speak, but still there is a widespread feeling that people's voices are not being heard. The health of a representative democracy depends on people being prepared to vote. Channels through which people can participate and make their voices heard between elections are also important." It went on to say, "The challenge for democracy is, therefore, to:

- Enable citizens' expertise and experience to play a part in policy-making and decision-making to give individuals a greater stake in the democratic process; and
- Use people's energy and interest in politics to support and enhance the traditional institutions of democracy."

In 2003, the Greek Presidency of the European Union (EU) launched *e-Vote: Vote for the EU YOU Want* initiative. Anyone in Europe (eventually 150,000 Europeans participated) could visit the e-vote website and share his or her ideas, opinions and suggestions about the present and future EU. The options included online voting on a set of predetermined questions; invitation to the public to raise their own questions; possibility to make comments and offer ideas. All results were made public. The concerns and recommendations of the citizens were included in the EU meetings and debates, shared with the EU Council of Ministers, the Commission and the European Parliament.

A government-hosted open forum in Fujisuwa, Japan features two columns. One column is devoted to government-led topics, on which the government seeks comments from the public. The second column is devoted to citizen-led discussions, in which the government participates, as time permits.

The above analysis can be summarized in the following table:

Table 8:

Parameters of the Platform for Participation with the Use of E-government Applications

	Rules	Tools
Public sphere * * * * *	• Culture of civic engagement • Freedoms • Information management • Gatekeeping of electronic communication channels • Separation of public and private value • Attentiveness of public officials/public administration	• Use of ICT for information management • ICT applications for implementation of Internet gate-keeping policy
Deliberative resources		• E-government applications for making citizens knowledgeable and skilled • E-government applications for mmaking citizens connected and networked

Table 8 confirms a familiar theme of this Report. The context matters most. If it does not support the process, it must be adjusted. Only then, would e-government applications make sense and stand a chance of producing public value. Otherwise, ICT will produce "politics as usual" by reinforcing the power of established institutions, such as major political parties, interest groups and media corporations that are already well entrenched players in the policy process.[127]

One of the contributors to this Report concludes, "The issue of e-governance remains a process under development, with innovations being tried in many countries as part of broader reforms of the public sector. The early optimism that Internet would transform the relationship between citizens and the state has been tempered in more recent years by greater scepticism about the power of technology to alter bureaucratic government organizations, deep-rooted patterns of civic engagement, and the structure of the state."[128]

...the currently exiting platform for citizen participation as a rule does not allow ICT to demonstrate its usefulness in encouraging and enabling genuine participation.

Indeed, the currently exiting platform for citizen participation as a rule does not allow ICT to demonstrate its usefulness in encouraging and enabling genuine participation. The platform that is suggested by this Report is not complete. It will evolve with experience. But it is developed enough to imagine the reality that it would present to a citizen who wanted to become politically active.

> First would come the realization and then confirmation that the society supports his/her decision to devote part of his private time to political participation. Similarly, his/her absolute freedom to do so would be confirmed by experience guarded by law and the judicial system. On line, s/he will have an open, easily accessible and affordable learning channel to upgrade ICT and deliberative skills. On line, s/he could request a brief on a subject of interest and get it in no time with government certification as to its quality and a plethora of links to sources of related information. On-line, s/he could review the list of politically engaged domains of shared interest to find out if they deal with the subject of his interest and review their membership and history of activities. S/he could sign up with any of them or use simple tools available on line to create his/her own domain if none suited his/her needs and enter it on the public list available to all. S/he could do all of this while being sure that s/he could disengage from the networked domain at any time and that never during the life of the domain, will the gatekeepers of the Internet interfere (e.g. close it down, monitor or log his activities). S/he could be sure that others in the domain are participating in the capacity of concerned citizens, and not as representatives of private interests. During no time would s/he feel pressure from the government or from the market that would require him/her to adjust his views or behaviour. S/he could voice opinions and debate them, eventually coming to actionable suggestions, ready to be shared directly, or through the intermediary, with the public administrators. S/he could be assured that law guarantees their attentiveness and that the feedback mechanism would provide him/her with proof of impact or an explanation of rejection or modified implementation.

Such story lines are usually naïve. This one no doubt is no different. But somewhere inside it there are ingredients of a situation that is technically possible. Joining this technological capacity with political will to change is the essence of world making in the ICT age. Some of it is already happening in the small university town of Tampere, Finland:

> A resident of the city can participate in local decision-making via the Internet. All agenda and plans by the local authorities are available on the Internet, and it is

...with the political will to change, e-participation can constitute the most important act of emancipation in the history of human society.

possible to comment about them, officially or unofficially, by contacting the planners and decision-makers digitally. For four years now, Tampere has launched the plan for the municipal budget by surveying the citizens' priorities. The results of the surveys are taken into account in determining the priorities of the budget. For the sake of equality, the same survey has even been conducted in paper form, but the Internet survey has clearly been more popular and its results are easier to analyse. A survey with authentication has been tried, so that it could be established that the participants live in Tampere and thus are the right persons to respond. In two residential areas a "zoning game" has been carried out. It helped the residents to roughly check out how different construction solutions would influence their neighbourhood (real-life SimCity). For the local authorities, this has been an opportunity to gather suggestions and opinions from present and maybe even future residents, and incorporate them into their plans. Discussion platforms have been opened for topical issues and opinions gathered in this way have been appended to the preparation process for decision making. Feedback and debate opportunities are complemented by the question and answer booth that aims at finding answers to questions received from the public, within a few days. The most enthusiastic virtual citizens may join a neighbourhood community and utilize instruction and server space provided by the local authorities and the university for local content production and group communication. Such services are also available and specially designed to meet the needs and capacities of immigrants and ethnic minorities. All this is accompanied by extensive, persistent and imaginative ICT education and an ICT skills development campaign that uses public money and targets all residents of Tampere, irrespective of age, income or ethic status. (See "In their own words..." section of Chapter II above.) [129]

A lot of political will has been mobilized to introduce such changes to the operation of the government in Tampere. The people, elected officials and public administrators wanted to change and to experiment. Without such determination, e-participation would have remained an unfulfilled promise. It would have meant waiting for the miracle of technology to impact and adjust the nature and operation of the existing political system. This would have promised a long process of incremental adjustments, leading to an uncertain outcome. The revolutionary option of bridging the nominal-real gap and putting the emancipated individuals in the centre of the political system would have had to wait.

At the same time, one thing remains certain: with the political will to change, e-participation can constitute the most important act of emancipation in the history of human society.

"No one should be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks on his honor or reputation. Everyone has the right to the protection of the law against such interferences or attacks."[xxxii]

Article 12, Universal Declaration of Human Rights, United Nations, 10 December 1948

"Those who would give up essential liberty to purchase a little temporary safety deserve neither liberty nor safety."

Attributed to Benjamin Franklin

Chapter IV: Special Concern with Privacy[130]

"What kind of world are we making?"
"What kind of people do we become?"

Despite the widely supported view that privacy is valuable and should be protected by law, perhaps no other issue related to the use of ICT raises in a more blatant way these two fundamental questions.

IV.1. Review of the main issues

These days, personal identification data is digitally collected millions of times per day.

These days, personal identification data is digitally collected millions of times per day. For example, in a society that has agreed to consider as a public end, regulation of the legal age for drinking alcoholic beverages, a system for checking whether persons entering bars are of that age is considered a public value. As having this check performed quickly is convenient for bar patrons, ID cards showing a picture and date of birth are ideal. The ID card says, "Adam is 21 so he can enter the bar." Sitting in the bar, as a rule, Adam is not worried that he could not have been admitted on the basis of more restricted identification, e.g. "This person is 21, so this person can enter the bar." Yet, in the process of checking his age, a lot of information not needed to gain him admission to the bar has been revealed, including as a minimum, his name and gender, and perhaps

[xxxii] In some respects, the first modern privacy law was adopted in 1766, when the Swedish Parliament enacted the Freedom of Press Act, requiring that all government-held information be used for legitimate purposes and granting citizens the right to access government data held about themselves.
Regional confirmations of the right to privacy include:

"Every person has the right to the protection of the law against abusive attacks upon (…) his private (…) life." *Article 5, American Declaration of the Rights and Duties of Man, Organization of American States, Bogotá, Columbia, 1948*

"Everyone has the right to respect for his private and family life, his home and his correspondence." *Article 8, Convention for the Protection of Fundamental Rights and Freedoms, Council of Europe, Rome, 4 November 1950*

"Privacy shall be inviolable and any infringement thereof shall constitute an offence. This privacy includes private family affairs, the inviolability of the home and the confidentiality of correspondence and other private means of communication." *Article 17, Arab Charter on Human Rights, League of Arab States, Cairo, 15 September 1994*

The problem is not that we identify ourselves. The problem is with the secondary use of our personal identification data.

his address too. All our lives we have been accustomed to identifying ourselves. If nothing else, our face does it for us. As long as the social, market and public environments and settings have operated on the basis of analogue information and communication technologies, the issue of privacy as it relates to the release of information that identifies us has been important, but perceived as manageable. When these technologies became digital, the situation changed.

Had Adam used an ID swipe card, it would have been even more convenient for him. At the same time, all his personal identification data - the age needed to admit him plus all the other data stored on his card could have been collected digitally. This would have opened up the possibility of applying to his personal identification data all the capacities that ICT has brought to processing and transmitting information: speed, precision, outreach, networking. In no time at all, his personal identification data could be added to databases, processed according to pre-designed models and transmitted around the globe. By the time Adam was finishing his first drink, a manufacturer of shirts located several thousand miles away might have adjusted his production plans. A computer in the local bank could have sent Adam an application for a new credit card. And at a local police station, in the community watch unit, an officer could have observed an increase in local bar attendance. In the crime unit, they may have started to wonder how Adam, on his current salary, can afford frequent visits to local bars.

The problem is not that we identify ourselves. The problem is with the secondary use of our personal identification data.

Computers and markets function well in an environment that is precise and exact in identifying people. They have been designed with the assumption of capacity for precise identification.[131]

In the case of computers, this assumption is part of the mathematical basis of logical design and programming. The guiding philosophy of computing is to apply order to chaos in a situation in which elements of chaos can be clearly identified. Even in the Internet environment, where somewhat less than precise identification can be arranged, identification enables forgery, personalization of spam and other intrusive, anti-social practices.

In the case of markets, the same philosophy ("order out of chaos") underpins functioning of the "invisible hand". Human beings are interpreted through one dimension, that of seeking personal gain. Additionally, access to information is factored into the classical model of markets as practically free and occurring at a very high level of transparency. This also concerns consumers. Any withholding of information, including information about consumers, is considered as harmful to markets.

Privacy can be described as a precondition for the development of the coherent self.

Although reality brings adjustments to these models (e.g. information is not free; human beings are multi-dimensional and capable of unselfish behaviour; cryptography allows a high degree of privacy in cyberspace), the merger of computers and markets has created a very powerful alliance. In an economic setting, governments must also support clear identification of the contracting parties. Otherwise governments' ability to create public value via support to enforcement of contracts is diminished. But information, especially digitized information, can be used repeatedly and for different purposes. Therefore, information collected for commercial purposes can be used for the provision of public services or for public security protection and vice versa. This converts the "computer-market" alliance into a strong three-way coalition that includes the government as well.

Matters become much more complicated when this philosophy and this approach are applied to the world of human beings in their rich cultural and social settings.

Privacy can be described as a precondition for the development of the coherent self.[132]

Detailed, cross-cultural studies are not available, but quite obviously, the menu of things that are expected of privacy and that privacy allows differs by culture and society. Arguably, in small, tightly knit communities whose members have strong tribal or religious links, the expectations and reality connected with privacy differ from those in large cities in countries of the industrialized North.[133] But it is important to realize at the same time, that privacy does not belong to and should be taken out of "the right to be alone" versus "the desire to belong" dichotomy. It is not a privilege that can be given as a reward for good behaviour. It is not a commodity that can be sold. Its utility in various cultural and social settings can differ, but privacy is a human right.

Privacy has been elevated to this status in appreciation of the value that it can deliver. It constitutes the basis of human diversity. It is a space in which information and knowledge are best internalized and in which values are best assessed and accepted. It is a space for reflection on one's own experience and that of others. It is a space where human imagination and creativity can enjoy the opportunity for self-assessment and safe self-adjustment. Some see it as a source of "independence, free will, secure autonomy, dignity and resolve against the world."[134] Others stress that "privacy may simply be necessary to mental survival, just as the body needs sleep."[135] If loss of privacy would endanger all or any of this, human nature and human relationships would be impoverished.

Privacy is not a commodity that can be sold. Its utility in various cultural and social settings can differ, but privacy is a human right.

Persons live and act within formal and informal institutions (e.g. a circle of family and friends, a classroom, a place of worship, a political process, the market etc.). These are the playing fields on which human relationships are conducted in a society. People's daily lives consist of acts performed in a particular institutional capacity (role) in relation to other individuals who are performing complementary roles. But while institutions do define us, every moment, with our actions we either reproduce or transform them. In this sense, every moment of our lives we are busy reproducing or transforming the world.

Privacy can be viewed also from the institutional perspective as the institutionally organized ability of individuals to negotiate a certain type of relationship with others.[136] This type of relationship demarcates and leaves free from intrusion, space for development of the coherent self. As mentioned above, with our actions we can reproduce this institutional arrangement or we can transform it. It is also important to understand that the very fact that collection of personal identification data occurs, and the secondary use of such data that may happen, can in itself alter behaviour. It can also change the negotiating posture in human relationships and transform an institution by individual inaction or the altered action that results from fear. This would have the effect of a "societal panopticon[xxxiii] of the all-seeing state."[137] Over time, a "voluntary panopticon" can develop in relations with the government and the market when people realize that their behaviour is altered by constant surveillance, but they would not leave these relationships, for psychological, emotional or financial reasons.[138] This is how human nature changes.

Over time, a "voluntary panopticon" can develop in relations with the government and the market when people realize that their behaviour is altered by constant surveillance, but they would not leave these relationships, for psychological, emotional or financial reasons.This is how human nature changes.

[xxxiii] Jeremy Bentham's original notion of the Panopticon (Bentham, Jeremy. The Panopticon Writings. London and NY: Verso, 1995): This type of building was to house prisons, schools, hospitals or mad houses. Bentham's Panopticon was in the form of a circular building with a central guard tower. The prisoners occupied the outer rim of the building and inhabited individual cells. The overseer, when in the central tower, was able to see all of the cells at once, but due to the lighting situation, the inmates were unable to detect when they were or were not being observed. This physical construction highlights the aspects of visibility and unverifiability of the Panopticon, which were key to its functioning properly. Foucault (Foucault, Michel. Discipline and Punish: The Birth of the Prison. New York: Vintage, 1979) describes these characteristics in the following way: Visible: the inmate will constantly have before his eyes the tall outline of the central tower from which he is spied upon. Unverifiable: the inmate must never know whether he is being looked at any one moment; but he must be sure that he may always be so. This "power of mind over mind" should in turn lead to good behaviour on the part of the inmates due to self-surveillance. In other words, since the inmates were unaware of when they actually were being watched, they would interiorize the gaze and behave well, only because of the fear of being punished for misbehaving.

The difficulty is that the protection of privacy is not high on the global or even national political agendas (yet).

The institutional approach to privacy also helps to sort out the complex relationship between the individual and society, and the one between privacy and freedom. These are not identical. While privacy is concerned with the ability to withhold information or impact ways in which information is released, freedom is concerned with the ability to do what one wishes. Seeing them in the institutional context allows us to take into consideration the interest of others and the interest of a society as a whole. Both can function in a society to a degree that has been negotiated in an institutional context of human relationships.

ICT is about communication, the quintessence of human society. As such it is a pervasive technology for mediating human relationships. Private individuals, human institutions and ICT in its many applications must find a modus vivendi that, through human actions, reproduces the existing institutional arrangements or transforms them, but eventually allows all the things that privacy enables. Neither the protection of private value and markets nor the administrative conveniences of public hierarchies are worth shutting down for people, the time-tested arrangements for personal development. Politicians, experts and scientists who would claim otherwise have against them countless generations that by their actions have transformed social institutions to expand the negotiated private space as an attribute of human emancipation.

All this does not mean that identification is not or should not be recognized as central to social and institutional life. It is rightly observed that "without some data collection there is no accountability for payment, no accountability for promises of merchandise delivery, and no accountability for fraud."[139] But at the same time, it must be appreciated that in most settings, knowing in a sufficient way who someone is does not require a complete personal dossier. Although the ability to identify and locate someone is crucial to many market and government activities, most societies exist and function with very imperfect systems for the identification of its citizens. Citizenship in the Information Age cannot be reduced to "registering consumer preferences."[140]

Continued unchecked, the digital creation of personally identifiable records at one extreme end of the spectrum of possibilities, and technologies of anonymity at the other, can accommodate quite a number of intermediary solutions. The task facing the world community is first to realize that extremes are unacceptably dangerous and that the intermediary solutions are possible, and then to find and apply those solutions.

The difficulty is that the protection of privacy is not high on the global or even national political agendas (yet). It is also a concept that is difficult to promote in the abstract. Encroachments on privacy occur in a bit-by-bit way, in exchange for small conveniences; to eliminate a current security-related threat; as an alleged price for modernization; as a result of acquiescence; and out of deeply rooted respect for technology-led growth and development. At the same time, privacy is anchored as a human right in the United Nations Universal Declaration of Human Rights and in many other regional documents of the same character. As such, it deserves to be high among the priorities in the world-making efforts. To the extent to which human development is about protecting human dignity, human development is unlikely to obtain in a society that has given up privacy. As such, privacy qualifies among the fundamental rules delineating "civil" society and guiding the construction of public space (see Chapter II).

A new kind of society is emerging in countries with a high level of ICT saturation. It can be described as a "surveillance society".

IV.2. Review of the main trends

IV.2.1. Privacy exposure

A new kind of society is emerging in countries with a high level of ICT saturation. It can be described as a "surveillance society". Any transaction requiring digital means of communication has the potential to put on a digital record, a host of personal identification data. Transactions conducted in the analogue environment also have this potential via conversion of analogue data into digital data. With the development of bio-identification technologies, bio-data that identify can be collected digitally by bio-sensors and image recording equipment, with or without the prior agreement of individuals.

In some parts of the world this trend has a strong ideological and political backing. It is based on the wish to protect the markets. In situations in which maximization of private value dominates the political agenda, any adjustment of this state of affairs is opposed as harmful. At the same time, an asymmetrical environment is created in relation to transparency in the marketplace. While total consumer transparency is being upheld, rules of disclosure for corporations and intellectual property rights create vast pockets of less than ideal transparency. This creates a double-edged disadvantage for the people: a potential and, most often, real threat to their privacy, and a very immediate disadvantage to them as consumers, investors or small entrepreneurs.

Additionally, governments are increasingly using the Internet as a means for the delivery of services and information. This development allows users to register for government services; obtain and file government forms; apply for employment; comment on public policy issues; and engage in a growing number of other functions - all on line. The trend towards e-government and the electronic delivery of services has further expanded government collection of personally identifiable data. In providing services to the public and carrying out various functions, governments collect and use a wide range of personal information about the people (e.g. health, education, employment and property ownership records, tax returns, law enforcement records, driver's license and other data). Governments' practices in collecting, retaining, and managing personal data pose a wide range of privacy concerns. With this increasing use of technology in government-to-consumer/citizen interactions,G2C, it is important to ensure that government agencies that collect personal information adopt and maintain adequate privacy practices.

Many details of an individual's life, activities and personal characteristics can be found scattered throughout the files of government agencies. Many of these records are, by law or tradition, open to public inspection. This transparency serves important democratic values. But in the Internet Age it also poses privacy risks. It is now increasingly possible to construct a detailed profile of an individual using only publicly available, individually identifiable information from government records. While the types of government records that are publicly available vary from jurisdiction to jurisdiction, publicly accessible government records with personal information may include property ownership and tax records (name, address, value of property); driver's license (name, address, data on birth, physical characteristics, ID number); voter registration files; and occupational licenses. Information may also be publicly available about individuals who are required to file information on stock ownership with the stock exchange regulators; political candidates and government employees required to file ethics disclosure forms with state or federal offices; and recipients of government contracts.[141]

Court records in particular often contain a very large amount of personal information. There may be information available in public records about an individual who has interacted with the courts as a criminal defendant, as a plaintiff or defendant in civil litigation, as a juror, through divorce proceedings, in bankruptcy proceedings, as a beneficiary of a will or in other ways.

In the U.S., for example, most court files have been open to anyone willing to come down to the courthouse and examine them. The reason that court files are open is to allow the public to monitor the functioning of the judiciary - to find out the status of cases and how they are resolved in order to ensure fairness and impartiality through transparency.

In the Information Age, personal information has become a highly valued commodity that is collected, aggregated, shared and sold in ways never before imagined.

However, the courts are finding themselves faced with some unexpected consequences of such an open access system as they become increasingly reliant upon the Internet. With caseloads growing each year, the Internet has become a valuable tool for court officials in managing cases in an efficient and timely manner and in streamlining document processing. At the same time, courts are using the Internet to give the public electronic access to court records, making judicial proceedings more transparent but also making widely available, personally identifiable and sometimes sensitive information that, while legally a matter of public record, used to be practically obscure.

As a result of technological innovations, more court records are in electronic form and thereby more easily and widely accessible. Information in court records can now be made available through the Internet. Information in court records can also be easily compiled in new ways. An entire database can be copied and distributed to others. These new circumstances require new access policies to address the concern that there be proper balances among public access, personal privacy and public safety, while maintaining the integrity of the judicial process.

In the Information Age, personal information has become a highly valued commodity that is collected, aggregated, shared and sold in ways never before imagined. Whole industries have formed solely to collect and distribute sensitive information that individuals once viewed as under their control: medical records, personal shopping habits and financial data. As public institutions move services on line, there is a growing risk of compromise and abuse.

If personal identification data is used in the context of a given transaction, privacy concerns occur but seem manageable. However, privacy concerns become more serious when these data (or more often, additional personal identification data not needed for a given transaction but collected digitally in connection with it) are the subject of secondary use by business and/or government. They arise because such use often means activities that do not reproduce social institutions in ways that allow continuation of the formally achieved, privacy-related status quo, but rather, transform social institutions in ways that force individuals to renegotiate arrangements for privacy protection in ways that diminish private space.

Identifiable personal data in centralized databases is being swapped and sold by organizations (and also in transactions between the public and the private sector). It can be transferred illegally or subpoenaed. A somewhat separate, but potentially grave issue may stem from the fate of databases developed in e-applications (private and public) that eventually fail. It is more than likely that in the rush to recover losses, personal identification data will be treated as an asset to be sold to the highest bidder, with little concern for the regulatory environment that the bidder can guarantee.

Secondary use of personal identification data does not stop at the boundary of the digital divide. The demand of markets for consumer-related information has been globalized. The demand of governments for information on the people may be local, but it is increasingly supported by ICT applications on both sides of the digital divide.

The growing experience of people adversely affected by the secondary use of personal identification data limits the element of trust in transactions that require revealing such data. Within the context of e-government applications in particular, the willingness of many to reveal personal information may be marred by the lack of concern on the part of the authorities for protecting it or clearly indicating all other purposes for which it may be used. As a result, such information is given if the ends to be achieved are worth the price of potentially diminished privacy, e.g. in the context of welfare programmes. As mentioned above (Chapter II), this explains the low levels of public support for the Internet government. A case in point is the fate of *Juki Net,* a government identification system in Japan:

In August 2002, Japanese citizens took to the streets to protest a new government identification system called *Juki Net.* The system's promises of convenience and enhanced security were apparently insufficient to overcome worries about the centralization of personal data. *Juki Net* is a national ID and information system, based on a database in Tokyo, intended to link personal information consisting of the national 11-digit ID number already assigned to all Japanese citizens, name, date of birth, sex and address. The stated short-term goal of the network is to make it easier for individuals to apply for residency cards from anywhere in the country. But identity theft is a fast growing crime in Japan. Opponents of *Juki Net* warned that concentrating sensitive information in a single network or location creates a target for identity thieves. There were concerns that civil service workers were not adequately trained to register and protect the information in the database. Furthermore, Japan has no comprehensive privacy law for the commercial sector. Therefore, there was concern that if the ID number became more centralized and more commonly used, it would be employed by commercial entities to collect, store, sell and combine other information with no notice, consent, access or correction rights afforded the individual. Polls indicated that three out of four Japanese opposed the system. Several major cities backed away from involvement in the project. Yokahama, a city of 3.4 million people, decided to let each resident choose whether to include personal information in the database. The Mayor of a small town held an official "disconnecting" ceremony to show the residents of his city that they would not be included in the database at all.

At the same time, there are examples of e-government applications that are successful because they have taken privacy concerns into consideration at the design stage of the application.

An example of the successful consideration of privacy issues may be Australia's experience in creating a Public Key Infrastructure (PKI) framework to provide authentication and confidentiality for on-line transactions involving health records. In 2001, the Australian federal government launched a project to give doctors and hospitals Internet access to patient health records. The project was first introduced to Queensland and Victoria, as a step towards a national electronic patient record. The system electronically linked general practitioners with other health service providers (hospitals, specialists, pharmacies etc.) and equipped each of the service providers and authorized users with a smartcard. These tools enable the participants to safely communicate with other members of the service network but ensure that only authenticated users are able to access confidential messages (e.g. patient electronic referrals, discharge notices, pathology test results). The project includes a range of security measures, enabling users to know who sent a message (authentication), that the message content has not been altered in any way en route from the sender to the receiver (integrity) and that the sender at some stage cannot dispute that he or she created and sent the message (non-repudiation). It also provides confidentiality by ensuring that only the person to whom the message is directed can open it. The system incorporated the Information Privacy Principles set out in the Privacy Act. Overall, the system was designed to ensure the security and confidentiality of any personal information passed among participating health professionals.

A side issue, but one that can become important in an individual context is that of wrong entries to digital databases. Though not common, once errors occur they are dif-

ficult to trace and correct. In a networked environment that intensively uses personal identification data for individualized profiling, an entry mistake can become meaningful in many institutional environments (e.g. employment, credit). In case of a wrong entry, redressing the situation requires alertness, pro-activity and as a rule, time and money.

It is gradually being accepted that privacy is an important right that the state has some obligation to protect through regulatory policy.

IV.2.2. Privacy protection

Legal measures

It is gradually being accepted that "privacy is an important right that the state has some obligation to protect through regulatory policy."[142]

Technological innovations often move ahead of the ability of society and its various groups to adapt or properly grasp the future implications of creating "policy vacuums" and "conceptual vacuums".[143] As observed by a contributor to the Report, "This may cause problems for society, which may create reactive legislation that may be ill-conceived or inadequate. This may be due to the lack of sufficient frameworks to enable decision makers to understand ethical problems that may arise from computing and ICT technologies, or a lack of knowledge about technology and its potential."

On a sociological or philosophical level, there is support for the proposition that some basic concept of privacy is nearly universal.

Across the emerging body of global privacy law, general patterns are beginning to emerge. On a sociological or philosophical level, there is support for the proposition that some basic concept of privacy is nearly universal. One factor contributing to the emergence of a global conception of privacy may be the impact of cyberspace itself. The Internet is not merely a technological innovation facilitating global communication but also a cultural sphere characterized by distinct social values and rules. As the Internet culture spreads to developing countries, it brings with it a certain set of values that include user control over information. Additionally, privacy seems to be a component of democracy. The development of democracy concerns how much power the government has and whether it exercises that power arbitrarily or subject to rules that respect the control of the individual. Concern with information privacy, especially in the context of government databases, grows with the progress of democratization. There seems to be evidence that the legal protection of privacy accompanies the development of democracy across otherwise diverse cultures. The defining characteristic of countries that do not respect privacy may therefore not be cultural, but political. One of the more powerful drivers of the development of privacy law has been the desire of countries with developed and developing economies to engage in global e-commerce and the recognition that trust is a fundamental component of e-commerce. Accompanying this has been the impact of the EU Data Protection Directive, which prohibits disclosure of data from EU Member States to countries that do not provide adequate privacy protection.

There seems to be evidence that the legal protection of privacy accompanies the development of democracy across otherwise diverse cultures. The defining characteristic of countries that do not respect privacy may therefore not be cultural, but political.

In some ways, the privacy obligations of government information managers are similar to those of businesses that collect customer information. However, governments have special privacy obligations arising from the concept of democracy, which includes the establishment of rules mediating the power relationship between governments and the people. Knowledge is power, and therefore privacy rules are an essential part of the framework for democracy, for they limit the government's power vis-à-vis the individual in terms of the control of personal information. In addition, the government's responsibility is heightened because in many respects the state is a monopoly service provider - people cannot refuse to deal with the government in the way that they can refuse to deal with merchants who do not respect their privacy.

At the beginning of the computer revolution, governments developed a set of Principles of Fair Information Practices. These principles are intended to foster individuals' control over their personal information, limit data collection and place responsibilities on data collectors. They are the basis for most modern data protection and on-line privacy laws and policies.

The Principles of Fair Information Practices are embodied in two highly influential international instruments, both adopted in 1981: the Council of Europe (COE) Convention for the Protection of Individuals with Regard to the Automatic Processing of Personal Data (COE Convention) and the Organization for Economic Cooperation and Development (OECD) Guidelines Governing the Protection of Privacy and Transborder Data Flows of Personal Data (OECD Guidelines).[xxxiv] Both instruments articulate a similar set of principles regarding the handling of personal data - principles that represent basic guidelines for responsible information practices that respect the interests of individuals. They form the foundation for many national and local privacy laws, international agreements on data protection and various industry codes of best practices.[xxxv]

No more information should be collected than is necessary to complete the transaction...

As expressed by the OECD and other international bodies, fair information practices include:

- **Collection Limitation** - No more information should be collected than is necessary to complete the transaction, and any such data collected should be obtained by lawful and fair means and, where appropriate, with the knowledge or consent of the data subject.
- **Data quality** - Personal data should be relevant to the purposes for which they are to be used, accurate and complete, and kept up-to-date.
- **Purpose specification** - When personal data are collected, the purpose for the collection should be specified and the subsequent use limited to the fulfilment of that purpose or such others as are not incompatible with the original one.
- **Use limitation** - Personal data should not be disclosed, made available or otherwise used for purposes other than those specified in accordance with the "purpose specification" except: (a) with the consent of the data subject; or (b) by the authority of law.
- **Security** - Personal data should be protected by reasonable security safeguards against loss or unauthorized access, destruction, use, modification or disclosure.
- **Openness** - In general, there should be no secret collection of data. As a matter of general policy, there should be openness about data practices and policies. Means should be readily available to individuals to establish the existence and nature of databases, the main purposes of their use and the identity of the entity responsible for the database.

Personal data should be protected by reasonable security safeguards against loss or unauthorized access, destruction, use, modification or disclosure.

[xxxiv] OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data, 1980, http://www.oecd.org/EN/document/0,EN-document-0-nodirectorate-no-24-10255-0,00.html. The COE/OECD principles were in turn based on the Code of Fair Information Practices developed in the 1970s by the U.S. Department of Health, Education and Welfare. See U.S. Dept. of Health, Education and Welfare, Secretary's Advisory Comm. on Automated Personal Data Systems, *Records, Computers, and the Rights of Citizens,* July 1973. The basic principles of the 1973 U.S. Department of Health, Education & Welfare (HEW) Code are as follows:

- There must be no personal data record-keeping systems whose very existence is secret;
- There must be a way for an individual to find out what information is in his or her file and how the information is being used;
- There must be a way for an individual to correct information in his or her records;
- Any organization creating, maintaining, using, or disseminating records of personally identifiable information must assure the reliability of the data for its intended use and must take precautions to prevent misuse; and
- There must be a way for an individual to prevent personal information obtained for one purpose from being used for another purpose without his or her consent.

[xxxv] To date, over 20 countries have adopted the COE Convention and another six have signed it but not adopted it into law. In addition to being relied upon by OECD nations to create data protection laws, the OECD Guidelines have been relied upon by other nations that are not OECD members. For example, Estonia, and Lithuania seem to have based their privacy laws, in part, on the OECD Guidelines. Brazil and Malaysia are currently considering passage of privacy laws based on the OECD Guidelines. (Ritter, Jeffrey B., Hayes, Benjamin S. & Judy, Henry L., "Emerging Trends in International Privacy Law", Emory International Law Review, vol. 15, p. 87, 92). See also, UN Guidelines for the Regulation of Computerized Personal Data Files (1990). An excellent summary of these principles is found in "National Privacy Principles", issued by the Office of the Federal Privacy Commissioner, Australia: http://www.privacy.gov.au/publications/npps01.html.

An individual should have the right to obtain access to any data about him/her held by a data controller.

- Access (Individual participation) - An individual should have the right to obtain access to any data about him/her held by a data controller. This includes the right to: (a) get confirmation of whether or not an entity has data relating to him/her; (b) obtain copies of data relating to him/her within a reasonable time, at a charge, if any, that is not excessive, in a reasonable manner and in a form that is readily intelligible; (c) be given reasons if a request made under subparagraphs (a) and (b) is denied and be able to challenge such denial; and (d) challenge data relating to him/her and, if the challenge is successful, have the data erased, corrected or completed.
- Accountability - Entities collecting data should be subject to enforcement measures that give effect to the principles stated above.

There are obvious exceptions to some of these principles in specific applications. For example, in the context of law enforcement investigations, it is not always possible to give notice to a suspect or to give him/her access to the information that the police are collecting. Nevertheless, these principles provide a framework for thinking through the privacy issues raised by any government collection of personal information. [xxxvi]

Many countries have adopted national privacy or data protection laws.144 Such laws may apply to data about individuals collected by the government, to personal data in the hands of private sector businesses, or to both. For our purposes here, we focus on laws applicable to government databases, but the privacy principles are actually the same for both commercial and governmental data.

In the Asia/Pacific region, the following have data protection and privacy laws: Australia, China, Hong Kong, Republic of Korea, Singapore, Taiwan and Thailand. To some extent, the activity in Asia is prompted by a desire to improve electronic commerce and ensure that data flows with Europe will not be interrupted by the EU Directive, but there are also laws specifically focusing on the privacy of government databases. The OECD guidelines have also played an important role in the development of Asian privacy laws. Hong Kong and New Zealand have comprehensive acts in force. Taiwan's act covers the public sector and eight areas of the private sector. Japan's law protects information held in government computers. The Republic of Korea's law is limited to the public sector (except for a separate law on credit reports).

In Central and South America, data protection laws have been adopted in Argentina, Chile, Brazil and Peru. A number of Latin American countries (including Argentina, Brazil, Dominican Republic, Paraguay, Peru and Venezuela) have incorporated the right of habeas data (access to data) into their constitutions. Several countries have moved towards adopting data protection laws to give force to this right. Recently, a comprehensive data protection law was adopted in Argentina based on the EU Directive. Several other countries, including Paraguay and Chile, have more limited habeas data laws allowing access and correction rights. In March 2002, Peru created a Commission to draft a more comprehensive law.

In Central and Eastern Europe, rights of privacy have been enshrined in a number of countries' constitutions. Examples include Hungary and Lithuania. In Bulgaria, a new Personal Data Protection Act came into effect in January 2002. In Estonia, the government drafted amendments to the Data Protection Act to bring it into full compliance with the EU Data Protection Directive. Poland ratified the Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data (ETS No. 108) in May 2002. In 2001, Slovenia amended its Data Protection Act in order to establish an independent supervisory authority.

Countries in the Middle East have not implemented extensive privacy or data protection laws. Only Israel has adopted comprehensive legislation protecting privacy. Some data protection legislation exists in Jordan. There is also little advancement towards privacy laws in Africa. Only in South Africa has there been an effort to provide for data protection. Other countries, including Namibia and Uganda, have recently debated adopting freedom of information acts, which would presumably allow individuals access to their own records held by government agencies.

Examples of national legislation follow:

> Canada's federal Privacy Act of 1982 regulates the government's collection, retention and dissemination of personal information. The Act provides access for individuals and the private sector to government records and outlines fair information practices intended to protect personal information. Information requests are made to the particular government agency with which the information resides. The general protection provisions can be overruled by any other federal legislation that explicitly allows access to that personal information. The Privacy Act states that personal information held by the government cannot be used by the government except for the purpose for which the information was obtained, or for a use consistent with that purpose. The two main exceptions to the Act are disclosures allowed (1) under any other act of Parliament or regulations created to carry out those Acts; and (2) by consent of the individual to whom the information pertains. For example, disclosures are allowed when information is subpoenaed for law enforcement agencies, required for research purposes, or needed for any purpose that the head of the agency holding the information deems will be of more benefit to the public than the harm caused by invasion of the individual's privacy.145 Until May 2000, the Human Resources Development office maintained a central database with personal information about all Canadians called the Longitudinal Labour Force File. The database contained information from tax returns, benefits and welfare files, and social insurance files. The database was dismantled after a report filed by Canada's Privacy Commissioner.[146]

India's Freedom of Information Act of 2002 limits access to personal information held by the government when the request for information: (1) is too general; (2) relates to information that is going to be published pursuant to a law within 30 days of receipt of the request or has been published in a public document previously; or (3) relates to information that would cause unwarranted invasion of an individual's privacy.147 The law's provisions apply exclusively to government bodies and any organizations directly or indirectly funded by the government. Section 16 of the Act exempts national intelligence agencies, citing security concerns. When the government discloses personal information, written notice is sent to the individual whose information is to be disclosed within 25 days of the date when the request for the information was received. The law has been criticized for its broad exemptions, which insulate government communications from disclosure. It has also been criticized because when an information disclosure request is denied, all appeals are handled within the government. There is no access to an independent authority for appeal.

[xxxvi] "Personal (or personally-identifiable) information" is data that can be associated with an individual. Notably, a person's name need not be attached to the information for it to qualify as "personal information". For example, data categorized by a unique numeric identifier is considered personal information even where no name is attached to it, since the numeric identifier can be used to determine the name. The same relates to face-recognition and other bio-identification methods.

An essential aspect of any privacy protection regime is oversight and enforcement.

The South African Promotion of Access to Information Act of 2000 is intended to give people access to information in the hands of the government. Several provisions in the law touch on the tension between openness and privacy protection. In general, the Act sets the rule that disclosure of personally identifiable information is to be refused when it would represent an unreasonable disclosure of personal information of a third party. The Act explains that disclosure is acceptable when: (1) an individual has given permission that the information be disclosed to the requester; (2) the individual to whom the information pertains was made aware that it would be made public; (3) the information is already publicly available; (4) the information concerns the physical or mental well being of an individual under 18 years old or incapable of understanding the request, and the requester is a care giver; (5) the information is about a deceased individual and the requester is the next of kin, or the request is made with the consent of the next of kin; or (6) the information is about a public official and the information requested relates to his or her public role. Another exception provides that a public officer must disclose personal information held by the government agency, even if the disclosure violates another provision of the Act, when (i) such disclosure would reveal evidence of law-breaking or an imminent and serious public safety or environmental threat, and (ii) the public interest served clearly outweighs the invasion of personal privacy. The Act also contains special protections for the records of the South African Revenue Service, mandating that no records from that agency be released if the records contain information obtained for the purposes of revenue collection.[148]

In Argentina, the Personal Data Protection Act, based on the European Union Data Protection Directive, applies to both public and private databases. Journalistic information sources or databases are exempted. All databases must be registered. Chapter one, section four requires that data only be used for the purposes for which it was collected and must be destroyed once those purposes no longer apply. Individuals must give express consent in writing for their personal information to be collected, stored or transferred. Consent is not necessary when the data is collected from a public-access database or by the state in "performance of duties inherent in the powers of the state, or consists only of name, national identity card number, taxing or social security identification, occupation, date of birth, domicile and telephone number.[149] Individuals are afforded special protection regarding "sensitive data" relating to racial or ethnic background. No individual can be compelled to provide such information and any information that is collected must be for scientific studies and cannot be identifiable. Although consent is required before personal data can be transferred, government agencies are permitted to share personal data without consent or notification of the subject.

An essential aspect of any privacy protection regime is oversight and enforcement. A number of countries have created an office or agency to oversee privacy protection. Several countries, including Australia, Canada and Germany, also have officials or offices on a state or provincial level. The powers of these officials vary widely by country. Many have authority over both private sector and governmental databases.[150] Privacy audits are conducted.

Countries also use the tool of the privacy impact assessment (PIA), which can be defined as "an assessment of any actual or potential effects that an activity or proposal may have on individual privacy and the ways in which any adverse effects may be mitigated."[151] Thus, PIAs are used to evaluate the privacy impact of computerization or data collection projects proposed by government entities, in the same way that environmental impact assessments are used to identify and evaluate the environmental impact of projects like dams or highways.

PIAs evaluate the privacy issues (i.e. the fair information practices) related to personal data collection or usage in new or revised government activities and recommend protections to mitigate any negative impact on privacy. PIAs also can identify privacy concerns related to proposed law enforcement or security programmes involving government surveillance, such as the monitoring of individuals' activities or communications.

The PIA process seeks to ensure that privacy issues are identified and addressed by policy makers at the initial stages of a new project or policy - at the conceptual stage, the design approval stage and the funding stage. The premise of the PIA is that considering and addressing privacy issues at the early stages of a project cycle will reduce the potential that the project will be found to have had an adverse impact on privacy after it has been implemented, at which point it may be difficult to mitigate that impact. Thus, PIAs help avoid costly project re-designs or cancellations.

A number of countries have gone through a series of steps in addressing the cyber-security issue...

The Canadian government was the first national government to make PIAs mandatory. Canada requires all federal departments and agencies to perform PIAs for all programmes and services where privacy issues may be implicated.152 Canada has adopted a PIA policy that provides a consistent framework for identifying and resolving privacy issues during the design or re-design of government programmes and services. For example, Canada has been developing a Government On-Line project that will permit the delivery of government programmes and services over the Internet. Recognizing the importance of fostering public trust and confidence in these planned on-line delivery systems, the Canadian Government is using the PIA process to design policies to protect the personal information of its people in connection with this initiative. PIAs are made available on public websites.

Security measures

A number of countries have gone through a series of steps in addressing the cyber-security issue: (1) study by a high-profile board, thereby conceptualizing and drawing attention to the problem; (2) presidential designation of leadership within the executive branch to push the development of policy; (3) drafting of a national plan based on dialogue with all affected sectors; (4) adoption of legislation strengthening duties and authorities within the federal government. [153]

Cyber-security is a process that establishes baselines of operations and inventories of systems, processes, technologies, networks and software; identifies threats, vulnerabilities and risks; forms a strategy to weigh and manage the risks; implements the strategy; tests the implementation continuously; and monitors the environment to control the risks or improve upon protections. Security is not just about installing the latest security devices and deploying the most modern security technologies. Information security is a combination of business, management and technical measures on an ongoing basis. It is a process, not an end result. Creation of a cyber-security programme[154] should include the following basic tasks:

- Compile an inventory of the information assets of the organization.
- Ascertain what vulnerabilities and threats (internal and external) affect those assets.
- Assess the damage that would be caused to the institution if the vulnerabilities were successfully exploited by those threats.
- Determine what measures are appropriate to protect information assets.
- Implement risk management processes and security measures to safeguard the confidentiality, integrity and availability of computer-based assets, including but not necessarily limited to the following:
  - Δ Install firewalls, anti-virus software and intrusion detection systems;

Authentication is a procedure used in the on-line environment to prove that a credential (such as a name, an IP address or another identifier) is accurate, trustworthy and genuine.

- Δ Deploy strong cryptographic protection of sensitive data;
- Δ Develop and implement adequate policies;
- Δ Undertake constant training of personnel;
- Δ Maintain network surveillance and security monitoring;
- Δ Conduct testing;
- Δ Establish an incident response and recovery capability, including back-ups and alternate site operations if appropriate.[155]

Various standards and best practices are available to guide organizations seeking to cope with their potential legal liability for cyber-security.

> In January 2001, the European Commission issued a communication entitled Creating a Safer Information Society by Improving the Security of Information Infrastructures and Combating Computer-Related Crime[156], in which it surveyed the problems cyber crime poses for national law enforcement authorities. The communication also reviewed the substantive and procedural laws in EU member states as they apply to cyber crime investigations and prosecutions. In light of its findings, the Commission made several recommendations, both legislative and non-legislative, aimed at improving security in cyberspace, including the harmonization of criminal prohibitions against hacking, denial of service attacks and child pornography. The recommendations in the communication also address procedural matters, such as increasing mutual recognition of pre-trial orders in order to facilitate cyber-crime investigations. In June 2001, the Commission issued a second communication related to cyberspace security, entitled Network and Information Security: Proposal for a European Policy Approach[157] This communication articulated a common European approach to policy development on network and information security issues, and proposed several initiatives, such as affirming support for the free circulation of encryption products and the further harmonization of national criminal laws relating to attacks against computer systems.

Authentication and relationship management

Authentication is a procedure used in the on-line environment to prove that a credential (such as a name, an IP address or another identifier) is accurate, trustworthy and genuine. Authentication can be anonymous, such that data cannot be associated with a particular individual, either from the data itself, or by combining the transaction with other data. Or authentication can be focused on identity - an authentication process can be designed to make an association with a particular individual. Authentication can also be "pseudonymous," meaning that the process cannot, in the normal course of events, be associated with a particular individual.

Interest in authentication systems has increased dramatically over the last two years, both in e-commerce applications and for e-government. The development of e-government services has begun to focus partly on plans to develop authentication systems to enhance citizen-centred government. However, ongoing discussions about government use of authentication systems raise concerns about government use of personal information and the creation of a centralized identity system or card. Widespread adoption of the technologies will only occur if individuals trust that strong privacy and security protections have been built into authentication systems.

New technologies for authentication make possible greater realization of the Internet's potential by making on-line transactions more seamless, tying together information on multiple devices, enabling yet unimagined services and taking us a few steps closer to a pervasive computing society. However, many authentication systems will collect and share personally identifiable information, creating privacy and security risks. To mitigate these risks, it is essential that authentication systems be designed to support fair information practices and offer individuals greater control over their personal information.

The Centre for Democracy and Technology, through a consultative process involving a working group comprised of companies and public interest groups, has drafted basic privacy principles that should be considered in the design and implementation of authentication systems. These principles could be used by companies developing authentication systems for guidance in building privacy and security protections into authentication technologies for use in consumer initiated transactions and government services. The principles also serve as a guide for governments in deciding which authentication system to implement or adopt. The principles are

1) **Provide User Control** - *The informed consent of the individual should be obtained before information is used for enrolment, authentication and any subsequent uses.*

Consent controls are vital to building trust in authentication systems. Authentication systems should offer individuals meaningful control over disclosure of their information. Under this principle, individuals may choose to use a single form of authentication that always discloses the same information or credential for all interactions, or choose to employ a variety of authentication tools for different transactions. This principle is particularly important in data sharing and transfer systems, which will be successful only if they balance added convenience with trust in the system. Individuals should not be forced to accept the sharing of information for secondary uses as a condition of utilizing the authentication or data transfer system.

2) **Support a Diversity of Services** - *Individuals should have a choice of authentication tools and providers in the marketplace. While convenient authentication mechanisms should be available, privacy is put at risk if individuals are forced to use one single identifier for various purposes.*

Concerns persist that one or a very few implementations will be used for multiple purposes, coercing individuals and diminishing the ability of authentication systems to enhance privacy. This need not be the case. Authentication systems should be designed to support development of a marketplace offering multiple services that deliver varying degrees and kinds of authentication. A marketplace with a diversity of services also helps to support the principle of user control. Rather than attempt to serve as the perfect single key, authentication services for individuals should function like keys on a key ring, allowing individuals to choose the appropriate key to satisfy a specific authentication need. Different government agencies, companies and organizations will likely need different types of authentication.

3) **Use Identity Authentication Only When Appropriate** - *Authentication systems should be designed to authorize individuals by use of identity when needed to complete the transaction. Identity need not and should not be a part of all forms of authentication.*

Not all transactions need be tied to identity. In fact, different kinds of authentication happen all the time. For example, a store may need only to verify that an individual can pay for a service without collecting personal information, as is done today with cash transactions. Or, in another example, a membership organization may need to verify that an individual is authorized to partake in an activity without gaining access to detailed personal information. Different types of transactions require different levels of confirmation.

Authentication systems that use identity create greater privacy concerns as they can become ripe for abuse and targets for identity fraud and theft. Identity-based authentication should only be used when necessary. Providing anonymous and pseudonymous authentication will be important to enabling user control, supporting a diversity of services and protecting privacy.

Identity credentials are particularly sensitive pieces of information. Secondary use and sharing of identity credentials for purposes such as marketing will compromise privacy and security. In particular, entities should be aware of the fact that identification numbers become open to greater privacy misuses if they are often used for secondary purposes. Therefore, multiple uses of these numbers should be discouraged.

4) **Provide Notice** - *Individuals should be provided with a clear statement about the collection and use of information upon which to make informed decisions.*

Notice should be given in a manner consistent with the technology and be provided before information is used for enrolment, authentication and any subsequent use. Notice should not occur several links removed from the enrolment and authentication processes. The notice should in no way be a burden to read or understand.

5) **Minimize Collection and Storage** - *Institutions deploying or using authentication systems should collect and store only the information necessary to complete the intended authentication function.*

Authentication systems can collect and share information in several ways. They may collect sensitive information for enrolment, vetting and verification of an individual; they may use a subset of a user profile as the primary purpose of any intended authentication; and they may facilitate the onward transfer of information for secondary purposes. It may be necessary to store some information to provide ongoing services. Information on retention practices should be available. In every instance, the information collected and stored should be limited to the minimum necessary to provide the intended authentication and service.

6) **Provide Accountability** - *Authentication providers should be able to verify that they are complying with applicable privacy practices.*

Privacy practices must serve as the cornerstone in building a trust relationship in authentication.[xxxvii] Training and regular audits are necessary to ensure that reasonable technical, administrative and physical privacy and security safeguards are in place. New privacy technologies can aid in tracking data flows for these purposes. Individuals, with appropriate authentication, should be able to access the information they use in the ordinary course of business and correct any inaccuracies

Technical measures

Technology itself can be designed in such ways as to better protect privacy.

One of the technological innovations is the Platform for Privacy Preferences (P3P). P3P is essentially a common language for expressing website privacy policies in machine-readable form. It allows users to set their Web browsers to automatically read website privacy policies and match them against a user's own preferences. P3P is designed to provide Internet users with a clear understanding of how personal information will be used by a particular website, up front, without having to read small-print legalese. These tools can display information about a site's privacy policy to end users and take actions based on a user's preferences. Such tools can notify users when the sites they visit have privacy policies matching their preferences and provide warnings when a mismatch occurs. Website operators can use the P3P language to explain their privacy practices to visitors. Users can configure their browsers or other software tools to provide notifications about whether website privacy policies match their preferences. Parents can set privacy rules that govern their children's activities on line. Consumers can make better judgements about which websites respect their privacy concerns. P3P is not a panacea for privacy, but it does represent an important opportunity to make progress in building greater privacy protections into the web experience of the average user.[158]

Privacy Notice is the act of informing individuals that personal information about them is being collected; how it will be used, stored and disclosed; and how long the information will be retained. Posting privacy policies is essential in building trust between websites and their users and these policies are created to inform users of a site's data collection, use and disclosure practices. A good policy should be based on the fair information practices set forth in the OECD Guidelines and other compilations of privacy principles. Once created, the policy should be posted on line with prominent links to pages where data is collected. While privacy notices do not in and of themselves guarantee privacy protection, they offer a basis for public and legislative scrutiny of agency practices.[159] An notice gives website visitors sufficient information to decide if they want to: proceed with providing their personal information on line; use another method for submitting their personal information (such as the phone or in person); or opt out entirely.

Posting privacy policies is essential in building trust between websites and their users and these policies are created to inform users of a site's data collection, use and disclosure practices.

Extreme measures[160]

Measures exist that can assure privacy in the digital environment, but at the cost of interference with the institutions in which a person functions, or of contradicting the nature of privacy as a human right.

Such measures include smartcards purchased with cash, from which it is nearly impossible to infer a user's identity. Digital cash makes tracing identity difficult. Cryptography can be applied as a sign of total disbelief that society is capable of organizing itself around the issue of privacy in a way that protects the public interest.

Privacy can also be bought in other ways (e.g. by paying a company a fee to keep the personal information to itself). This approach relieves the government of an obligation to invest in general privacy protection as a public end. If applied, it deepens income inequity in privacy protection. It also may prove ineffective, as one cannot possibly trace and buy out all the potential owners of personal information on the World Wide Web.

Finally, measures can be taken to interfere with the inter-operability of systems. This would be possible by abandoning the idea of issuing one single identifier to each person (an idea behind national ID cards) and instead arranging for every organization with which a person interacts to issue him or her a single unique identifier.

There are not many optimistic answers to the two questions put forward at the beginning of this chapter. For various reasons both the market and governments can support asymmetrical transparency in society and demonstrate a high degree of ingenuity in imposing it. People will always be late in legislating the necessary regulations and courts can keep up with neither the fast pace of the challenge nor the ingenuity with which markets or government organizations devise ways to by-pass laws. As already mentioned, world making, new social contracts and comfortable public space may provide the positive answers that are needed here. However, with the introduction of modern ICT, the misconstrued logic behind protecting the absolute right of the markets to know,

[xxxvii] All organizations collecting, maintaining or using personally identifiable information should develop internal practices that address applicable regulatory and self-regulatory guidelines, such as the OECD Fair Information Practices Principles and the EU Directive on Data Protection.

If indeed, privacy is to the mind what sleep is to the body, people should pay attention...over time, we may...start slipping into the "voluntary panopticon" situation. We had better watch for the moment when we also start to understand, accept and even like it. We will be different people then.

as well as the absolute obligation of governments to know, require mitigation through re-negotiation of the fundamental assumptions of the current institutional context of our lives. This does not promise to be easy. It would require a high level of awareness, political leadership, political will, and most of all, genuine participation. In the meantime, the imbalance of power that exists right now in the relationships that shape the reality of privacy in the world will always tend to put real-life solutions closer to the "continued unchecked, digital creation of personally identifiable records" end of the spectrum of options that are possible in this area. If indeed, privacy is to the mind what sleep is to the body, people should pay attention. There is a panopticon in the making. As pointed out earlier, over time, we may even start slipping into the "voluntary panopticon" situation. We had better watch for the moment when we also start to understand, accept and even like it. We will be different people then.

Conclusions

Public administrations in the world have moved with e-government development from theoretical assumptions and enthusiastic forecasts to a fairly comprehensive body of accumulated experience. The future of e-government development will depend on what we do with this experience - how good we will be in reading what it tells us. It will also depend on the pace of tackling some basic developmental issues: the need for education, skills and infrastructure that cannot be wished away.

It is time for thoughtful creation. It is time for serious world making.

That is why this report is called "E-government at the Crossroads".

E-government is bound to move forward, but we have a chance right now to build on its accumulated experience - both success stories and failures - and to continue developing it in ways and directions that have proven useful. While doing this we cannot forget about the original promise that e-government has brought to the discussion about the future role of public administrations. Some of this promise may today seem more realistic than ever, with experience gathered in imaginative e-government applications all over the world. There is no doubt though, that the time for quiet reassessment of e-government development has come. It should be used to good advantage by the member states, but also by donors, multilateral development organizations and the private sector. We should all be engaged in building partnerships and in bringing technology to development, keeping in mind a long-term perspective. What kind of perspective we adopt will be crucial.

It is time for thoughtful creation. It is time for serious world making. No one is exempt from this effort, though the contributions to a global action plan would no doubt differ.

The member states are at different levels of implementation of the vision of the world in the 21st century as outlined by the UN Millennium Declaration. Each of them may usefully assess this level and the role that their respective government, through the creation of public value, plays in it. They may usefully engage in evaluative review of the role that the e-government programmes exiting in their countries (if any) play in supporting the creation of public value and keeping it aligned with the human development goal of the UN Millennium Declaration. This would constitute a good basis for re-assessing their e-government development strategies and programmes.

The member states - in the case of countries with developing economies and economies in transition, with their many development partners - may also want to analyse in a constructive way the messages of the UN Global E-government Survey 2003. This should be done in order to draw conclusions as to the feasibility and thrust of e-government development in their respective countries. The Survey points to the need for a multi-pronged policy approach. While it is important to understand early on the developmental promise of ICT and its many applications, ICT applications in public administrations, issues connected with mass education and skills development and the development of ICT infrastructure must all find their way into developmental thinking, planning and action.

The member states may want to look in a knowledgeable way at the deployment of ICT in their societies and its impact on the ways people live and work. On the public administration side this raises the issue of the future structure of the government (hierarchical vs. networked). It also raises issues of public information management and the role of public administrations in knowledge creation. Restructuring the public sphere for political deliberation and strengthening the people in their roles as citizens is another important issue. As is finding a balance between the public and the private sectors in the delivery of public value and the construction of a public space where their roles can be interchangeable and the public ethos is preserved. Last but not least, the role of the gov-

ernments in protecting the human right to privacy should also be clarified. While administrative efficiency and effectiveness should retain their place on the e-government political agenda, this review should add new items to it.

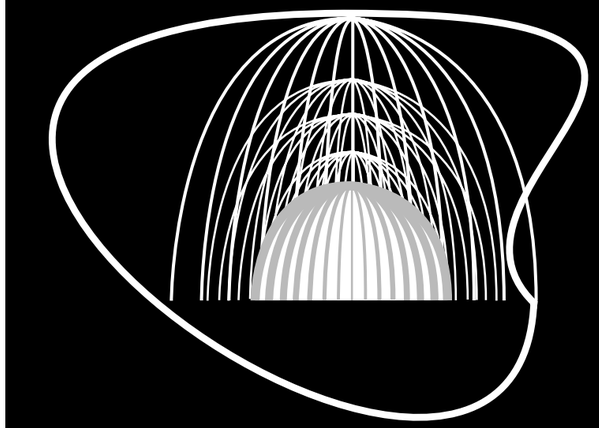
The global academic community also carries very distinct responsibility. Academicians may think about ways in which to pull together the on-going research about e-government. This research cuts across many disciplines of science, but this should not exempt the academic community from its primary role of giving knowledgeable answers to complex developmental questions. It may start by just introducing uniformity to the nomenclature that is being used all over the world by e-government practitioners. It should go further and start answering in a well-researched way the profound questions that are raised by the growing use of ICT in public administrations. Journalists may consider bringing this emerging knowledge and discussion closer to the public at large. These are all serious matters meriting serious interest by the media as well as by the publics that they serve.

The private sector, at the local and at the global level, may also want to join in this strategic reassessment of the evolving environment for growth and development in which e-government development plays an important and growing role. The balance between the public ends and the private ends, especially in the process of public value creation; sorting out the public sphere for political deliberation; the treatment of privacy-related issues; the structures and capabilities of the public administrations; the "if", "who" and "where" questions related to e-government applications as well as the success rate of these applications - all theses are questions of vital importance to the market as a social institution and to individual business firms. It is important to discover the many areas in which the private interest is identical to the public interest and to some extent depends upon it.

Last, but not least, the international organizations, including the United Nations and the many agencies, funds and programmes of the UN system, as well as the broad donor community face a unique challenge and opportunity that deserves at least a serious debate, if not restructuring of some of their work and funding programmes. They are capable of projecting ideas and supporting them with resources. They are capable of advocacy, awareness raising and the provision of high quality expertise. They are capable of funding replicable, low-cost ICT solutions, including open source solutions. They can play the vital catalytic role that in this case can align much more closely their engagement in e-government initiatives in the world with the creation of public value and the vision of human development outlined in the UN Millennium Declaration.

E-government should never be developed because it can be done.

It should be developed because it is meaningful to do so.



Part Two

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[161]; around 20 per cent do not have access to safe water and sanitation[162]; and 57 out of 191 member states of the UN have populations where one in five can neither read nor write.[163]

Furthermore, roughly half of the world's population of six billion has never made a telephone call[164] while, in 2003, only 9.5 per cent of the population had on-line access.[165]

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..."[166] 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.[167] 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: an 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...."[168] 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.[169] An U.K. government endeavour has made it possible for teachers to access all curricula on line.[170] 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.[171] 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.[172] 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.[173]

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.[174] 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.[175] 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.[176]

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." [177]

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.[178] 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...."[179]

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...."[180] 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...."[181] One commitment they made was to "ensure that the benefits of new technologies, especially information and communication technologies, are available to all."[182]

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...." [183]

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

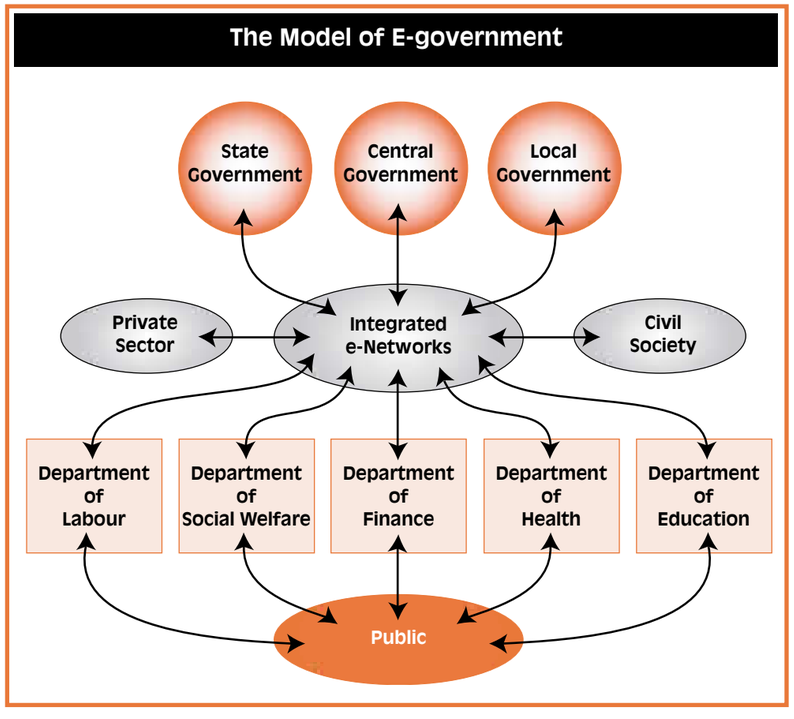
Government-to-Government (G2G) involves sharing data and conducting electronic exchanges between governmental actors. This involves both intra- and inter-agency exchanges at the national level, as well as exchanges among the national, provincial and local levels.

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)[184] 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

Stage I: Emerging Presence	**Stage I: Emerging Presence** Web presence through an official website, a national portal or an official home page; links to government ministries, regional/local government, non-executive branch of the government; information is limited, basic and static.
Stage II: Enhanced Presence	**Stage II: Enhanced Presence** On line services are enhanced to include databases and sources of current and archived information, such as policies, laws and regulation, reports, newsletters and downloadable databases. The user can search for a document and there is a help feature and a site map provided
Stage III: Interactive Presence	**Stage III: Interactive Presence** Government's provision of on-line services enters the interactive mode; facilities for on-line downloading; security link; electronic signature facility; audio and video capability for relevant public information. The government officials can be contacted via e-mail, fax, telephone and post. The site is updated with greater regularity.
Stage IV: Transactional Presence	**Stage IV: Transactional Presence** Users are able to conduct on-line transactions, such as paying fines for motor vehicle violations, taxes and fees for postal services through their credit, bank or debit card. There are some facilities for on-line bidding for public contracts via secure links.
Stage V: Networked Presence	**Stage V: Networked Presence** A G2C framework based on an integrated network of public agencies for the provision of information, knowledge and services. The emphasis is on feedback to the government. A web comment form is provided. A calendar of upcoming government events exists with a government invitation to participate. Government solicits feedback through on-line polling mechanism; discussion forums; and on-line consultation facilities.

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

ii. Telecommunications Infrastructure Index

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

iii. Human Capital Index

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

B. The extent of e-participation

i. The E-participation conceptual framework

Included in the vision of the UN General Assembly Millennium Declaration is the reaffirmation by the member states that they "...resolve to work collectively for more inclusive political processes, allowing genuine participation by all citizens in all (our) countries... and the right of the public to have access to information...."[185]

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.[186] 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. [187]

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. [188]

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.

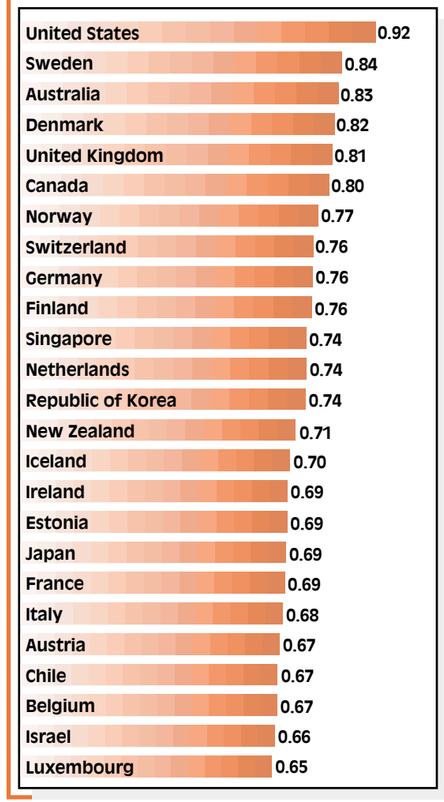
Table 3.1

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

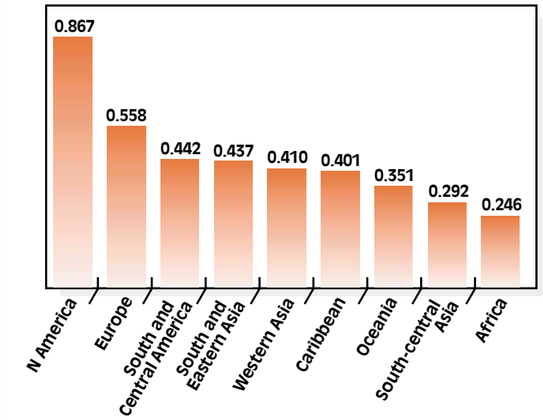
Graph 3.1.

E-government Readiness Rankings 2003, top 25 countries



Graph 3.2.

E-government Readiness Index by region



Graph 3.2 above presents the e-government readiness of the various regions of the world. As can be seen, North America and Europe lead, followed by South and Central America, South and Eastern Asia; Western Asia, the Caribbean and Oceania. South-central Asia and Africa have the lowest average e-government readiness. The results reflect the picture of the top 25 countries. Underpinning this aggregate snapshot in time is the level of economic, social and political development of these countries.

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

The regional averages in the table do not only point out the low levels of infrastructure and human capital resources in several regions of the world. They also highlight the fact that the indicators for North America and Europe for these are around 5-10 times higher in the case of the human resource base and around 4-20 times higher in the case of infrastructure development. For example, if the U.S. is taken as the comparator, even though 40 per cent[189] 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.

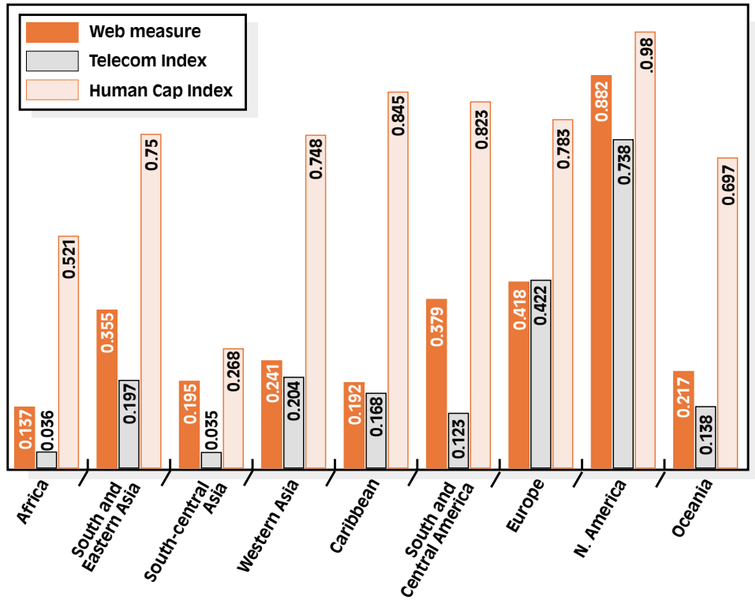
Table 3.2

Regional Indices, 2003[xxxviii]

	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



xxxviii 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.[190]

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

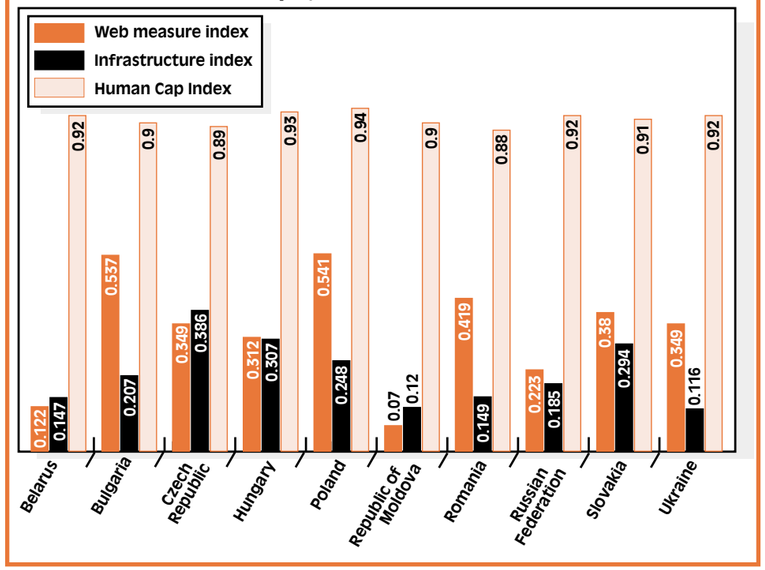
Enabling Environment for E-government, Selected European Countries

	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.[191] 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.[192]

Graph 3.4.

Enabling Environment for E-government, Europe, Selected Countries



The **United Kingdom (0.814)** is decidedly among the innovative leaders in the provision of one-stop e-government initiatives. Most notable are its consultation features, found in the top-level "Citizen Space" section of the national site. An index of ongoing consultations, direct access to consultation documents, and directly related policy discussion forums make this citizen participation section a model to emulate. This is only the beginning of a gigantic wealth of resources that offer everything from a one-stop-shop for goods and services, including e-procurement, http://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

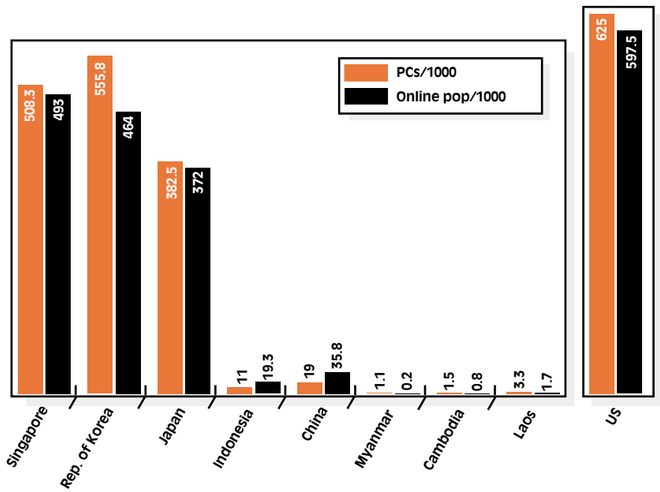
A graphic representation of the on-line population and availability of PCs/persons in selected South and Eastern Asian countries is presented in Table 3.7. As can be seen, deficient infrastructure is a very serious constraint on the potential of e-government programmes to reach all. Whereas **Japan (0.626)** 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 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.[193] 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.

Graph 3.5.

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



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.

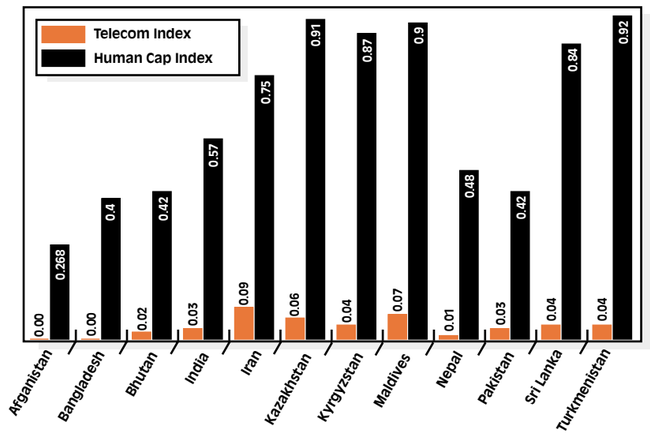
Table 3.8

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**

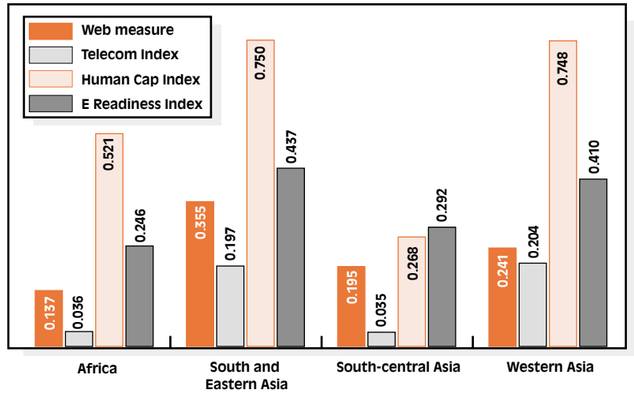
Graph 3.6

Telecommunication and human capital indices for South and Central Asia



Graph 3.7

Enabling environment endowment, selected region



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

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

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.

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.[194]

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
		Burkina Faso	0.135
Cameroon	0.270	Guinea	0.132
Morocco	0.265	Ethiopia	0.128
Congo	0.265	Sierra Leone	0.126
United Republic of Tanzania	0.253	Niger	0.060
Rwanda	0.244	Somalia	0.049
Ghana	0.241	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.[195]

Table 3.11

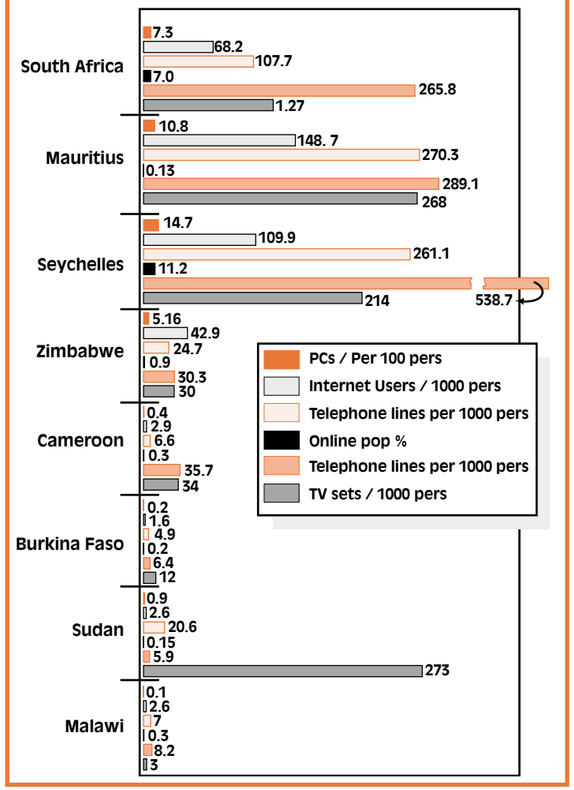
Telecommunication Measures in Africa, Selected Countries

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).196

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

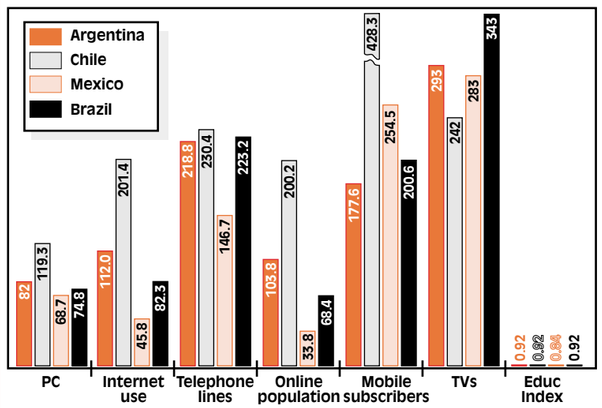
Telecommunication Indicators in Latin America, Selected Countries

	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. [197]

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

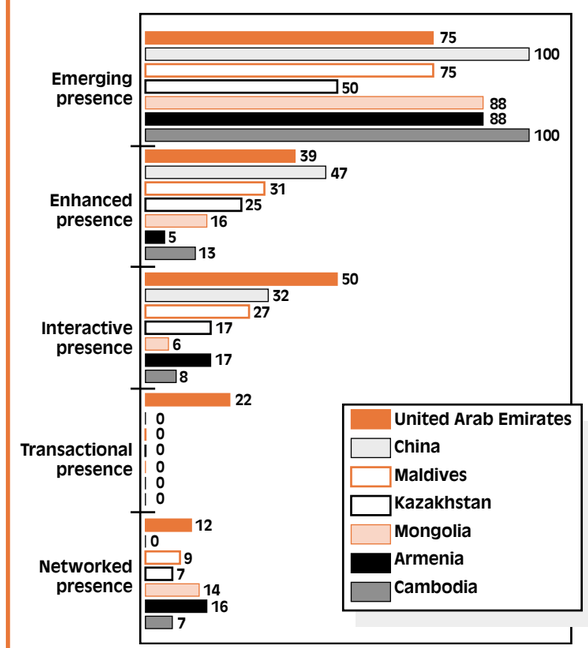
On-line Profile of UN Member States

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."[198]

Graph 4.2

Stages in e government, selected developing countries



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

Table 4.4

Selected Common Characteristics of Country Websites

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

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

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

There is wide dispersion among countries in other income categories too in their provision of information and services. Whereas the upper and lower middle-income countries score relatively well in the first three stages, like the high-income countries, their average scores drop considerably when it comes to the transactional services they offer. Upper and lower middle- income countries offer only about four per cent and one per cent of the transactional services, respectively. (See table 4.5).

Table 4.5

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

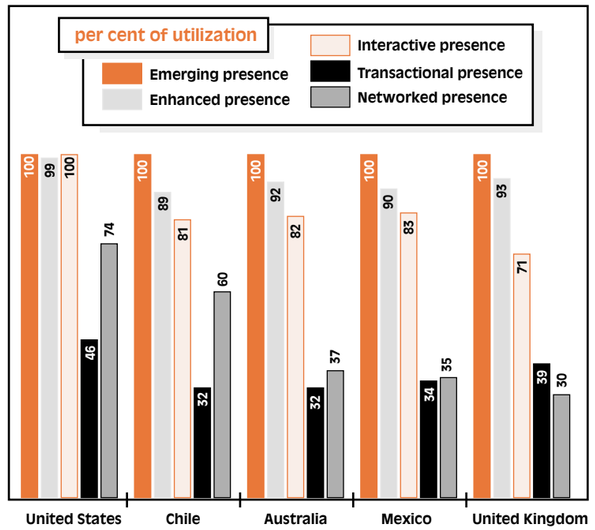
Table 4.6 presents a stages of delivery analysis for selected countries.

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

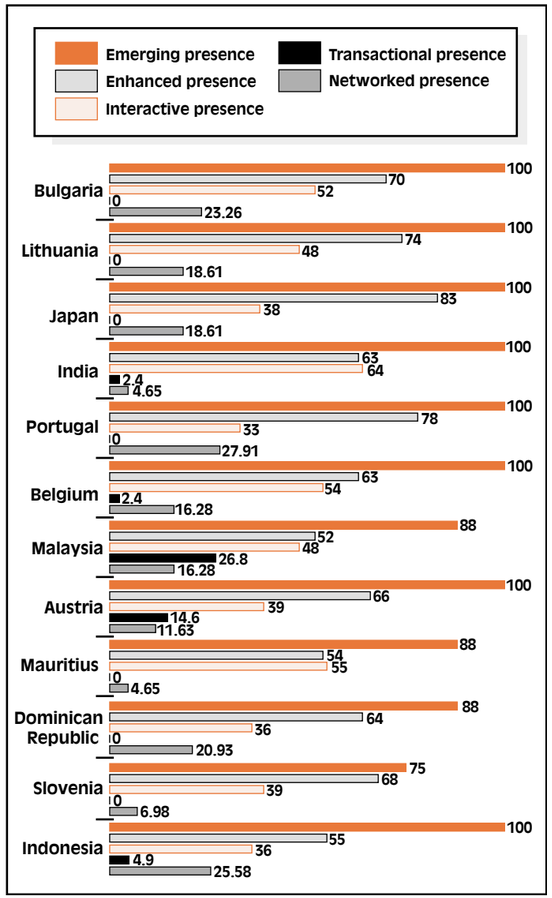
Service delivery by stage, selected developed countries



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

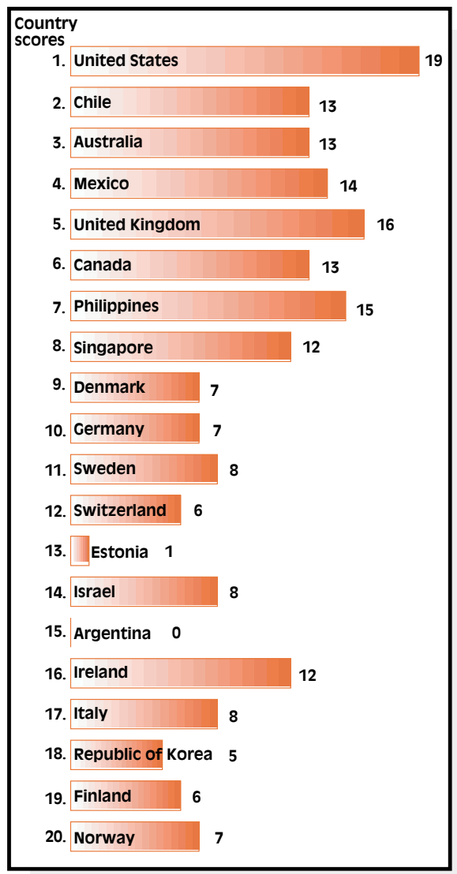
Australian interactive job listing

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://job-search.gov.au) offers anything and everything a job seeker requires. It includes career advice, wage information, labour-related documents, quizzes and the most advanced employment search system around. In fact, the search-engine is extremely powerful with all sorts of advanced search techniques. The most impressive thing is the range of jobs available. With more than 30,000 jobs to search from one can find employment in every sector, from information technology to government.

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

Graph 4.5

Transactional Presence, Top 20 E-government Ready Countries



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

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

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

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

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

Box 4.3

Cambodia: It is all about the focus

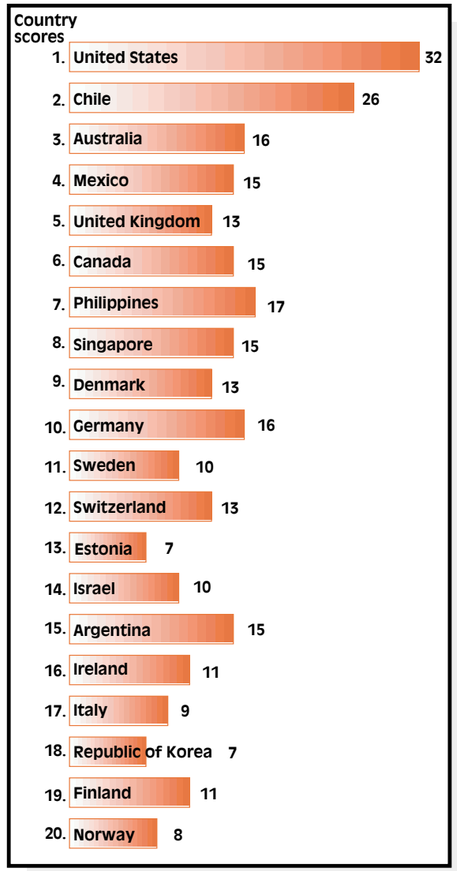
http://www.cambodia.gov.kh

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

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

Graph 4.6

Networked Presence, Top 20 E-government Ready Countries



Box 4.4

Armenia's on-line forum promotes democratic participation-
http://www.undp.org/dpa/frontpagearchive/2002/january/8jan02/index.html

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

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

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

Box 4.5

Mongolia: listening to citizens
http://open-government.mn

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

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

How is it that a developing country such as Mongolia can create such a sophisticated and useful web portal? It implemented, evaluated and refined, as should every government considering e-government implementation. As the site indicates, the government initially launched the site in response to a demand from investors and businesses for input on new legislation. The government states that it learned from this initial project and, seeing its broader potential, recently re-launched the site as a full government portal aimed at servicing the general citizenry in addition to the business sector. The site is proof positive that you don't have to be big, or rich, or a fully industrialized country to effectively implement e-government for the benefit of citizens.

Box 4.6

Open Sweden
http://www.oppnasverige.nu/html/www.oppnasverige.gov.se/page1/42.html

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

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

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

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

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

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

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

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

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

V. The Extent of E-participation

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

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

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

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

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

However, the most revealing is the pace of decrease in the relative country index. The index drops from 100 per cent to 50 per cent of its value over the span of 15 top countries, and it drops to 25 per cent of its value some further 20 countries down the ranking table. This means 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 5.1 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.

Table 5.2 E-participation by Functional Classification

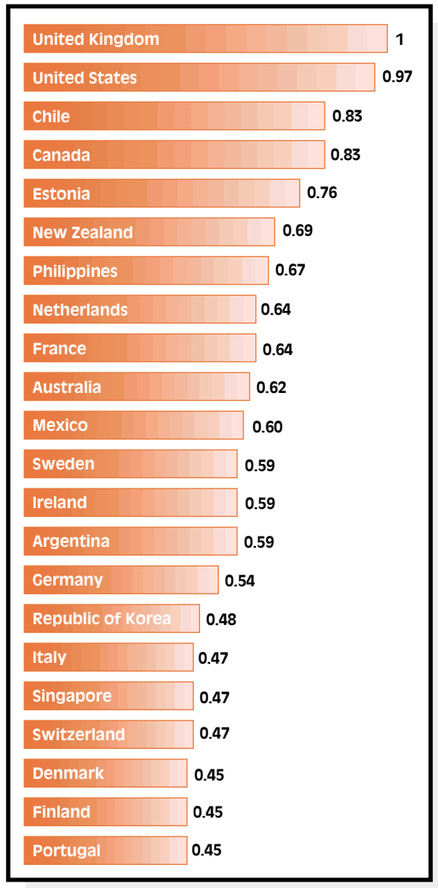
Top 20 countries	e-information	e-consultation	e-decision making	total
Average score	12.45	16.55	8.3	37.3
Max score	20	40	24	84
Per cent of utilization	62.3	41.4	34.6	44.4

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

E-Participation Index, Top 22 Countries



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

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

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

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."[199]

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

Table 2

Components of E-government Readiness Index

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

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

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

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

		Web Measure	Telecom Index	Human Cap Index
	Column	1	2	3
	Weight	1/3	1/3	1/3
145	Togo	0.070	0.034	0.59
146	Republic of Moldova	0.070	0.120	0.900
147	Zimbabwe	0.061	0.042	0.81
148	Mauritania	0.057	0.027	0.40
149	Vanuatu	0.052	0.023	0.35
150	Saint Vincent and the Grenadines	0.052	0.136	0.79
151	Somalia	0.048	0.002	0.096
152	Lao People's Democratic Republic	0.048	0.007	0.52
153	Georgia	0.048	0.115	0.89
154	Yemen	0.044	0.039	0.48
155	Turkmenistan	0.044	0.042	0.92
156	Syrian Arab Republic	0.044	0.038	0.71
157	Sierra Leone	0.044	0.005	0.33
158	Mali	0.044	0.005	0.37
159	Malawi	0.044	0.005	0.65
160	Antigua and Barbuda	0.039	0.244	0.81
161	Nauru	0.035	0.035	0.810
162	Egypt	0.035	0.060	0.62
163	Congo	0.035	0.011	0.75
164	Bhutan	0.035	0.015	0.42
165	Ethiopia	0.031	0.003	0.35
166	Comoros	0.031	0.007	0.49
167	Palau	0.026	0.000	0.000
168	Guinea	0.017	0.009	0.37
169	Djibouti	0.017	0.019	0.50
170	Sao Tome and Principe	0.013	0.054	0.75
171	Niger	0.013	0.005	0.16
172	Gabon	0.013	0.077	0.76
173	Grenada	0.004	0.190	0.85
●	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	169	Madagascar [a)]		0.007
	Republic of Macedonia [a)]	0.111			
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] *2002 World Public Sector Report*, United Nations, New York, 2001

[2] Compare: C. Osorio, "Public Ends by Digital Means: Some Thoughts for Creating Public Value", National Science Foundation Digital Government Workshop, White Paper, 2002

[3] http://sts.scu.edu/nexus/Issue1-1/Castells-DimensionsOfTheNetworkedSociety.asp, Manuel Castells, "Dimensions of the Networked Society", STS Nexus, Santa Clara University, California

[4] Langdon Winner, *The Whale and the Reactor: A Search for Limits in an Age of Technology*, The University of Chicago Press, 1986

[5] See: Marilee S. Grindle, "The Social Agenda and Politics of Reform in Latin America", page 40

[6] See: Jerzy Szeremeta, "Enabling Effective Participation in Decision-making", Global Knowledge II Conference, Kuala Lumpur, March 7, 2000 (not published)

[7] Rheingold, ibid.

[8] *United Nations Millennium Declaration*, A/RES/55/2, 18 September 2000; http://www.un.org/millennium/

[9] http://www.developmentgoals.org/About_the_goals.htm

[10] UN, 2000, *Millennium Report*, A/54/2000, para. 15

[11] A/56/326, para. 15

[12] 2002 *World Public Sector Report*, United Nations, New York, 2001, page 31

[13] Robin Van Koert, "The Impact of Democratic Deficits on Electronic Media in Rural Development", *First Monday*, Volume 7, Number 4, April 2002, page 1

[14] S. Zuboff, *In the Age of the Smart Machine: The Future of Work and Power*, Oxford, 1988, page 392

[15] Tunku Abdul Aziz, speech at the World Bank Workshop "E-government: Impact on Transparency and Anti-Corruption", 28 January 2002, Washington, D.C. (unpublished)

[16] Amartya Sen, *Development as Freedom*, Knopf, NY, 1999, page 3

[17] On the concept of human capabilities, compare UNDP, Human Development Report, 1990: "The functionings of a person refer to the valuable things the person can do or be. (...) The capability of a person stands for the different combinations of functionings the person can achieve; it reflects freedom to achieve functionings. (...) Human capabilities can be achieved through the development of human resources (...) however, capabilities cannot be used unless opportunities exist to use them (...)"; and Amartya Sen, *Development as Freedom*, 1999: "Expansion of freedom is viewed both as the primary end and as the principal means of development. Development consists of the removal of various types of unfreedoms that leave people with little choice and little opportunity (...)"

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

[19] See: Part II, UN *Global-E government Survey 2003*

[20] See: Part II, UN *Global-E government Survey 2003*

[21] See: The Pew Internet and American Life Project reports on http://www.pewinternet.org :

"The Ever-shifting Internet Population" (April 16, 2003), "Digital Town Hall", (October 2, 2002), "The Rise of E-citizen" (April 3, 2002)

[22] Ibid. This bracket includes population that researched public policy issues (15), sent comments to public officials about policy choices (8), gathered information to decide how to cast vote during election time (5), and participated in on-line lobbying campaigns (5). Therefore, the question mark within the bracket shows hesitancy, as none of the above types of e-government applications for which this data was collected related directly to citizens' interaction with the government for the purpose of political deliberation or decision-making.

[23] See: "Global Reach" at http://www.glreach.com/globstats/index.php3

[24] Ibid. "CyberAtlas" at http://cyberatlas.internet.com/ and www.whatis.com

[25] See: "Ending the Digital Divide", by F.T. Dynamo, special to search EBusiness, 27 Jun 2001, http://searchcio.techtarget.com/originalContent/0,289142,sid19_gci751604,00.html

[26] Compare also: Information Technology as an Instrument of Public Management Reform: A Study of Five OECD Countries, PUMA (98) 14, December 4, 1998

[27] See: Michael Marks, *Learning Too Well from Private Industry: Could the Race to Deploy Lead E-government Services to Dotcom Collapse?,* Concord Comminations, Inc., Matlboto, Mass., April 2003, page 2

[28] Marks, ibid.

[29] Compare also: Richard Heeks, *E-Government in Africa: Promise and Practice*, Institute for Development Policy and Management, University of Manchester, United Kingdom, 2002

[30] Carlos A. Osorio, "The Promise and Reality of E-government", WPSR Background Paper

[31] See: Heeks, ibid.

[32] Heeks, ibid, page 3

[33] Christian Sorbye Friis, "Knowledge in Public Administration", University of Roskilde, Denmark, page 4

[34] Kim Chan-Gon, "OPEN System: The Standard for Transparent Administration", contribution to the "In their own words..." part of the Report

[35] See: The E-government Handbook for Developing Countries, InfoDev and Center for Democracy and Technology, November 2002

[36] Based on: Sunhash Bhatnagar, "The Economic and Social Impact of E-government", 2003 (contribution to the Report)

[37] "Finding our Digital Voice: Governing in the Information Age", Crossing Boundaries, Political Advisory Committee, Final Report and Recommendations, Centre for Collaborative Government, Volume 11, April 2003, page 9

[38] A Broadband World: *The Promise of Advanced Services*, Alliance for Public Technology and the Benton Foundation, February 2003, page 13, http://www.benton.org/Library/broadband/broadband-world.htlm

[39] *Information Technology as an Instrument of Public Management Reform: A Study of Five OECD Countries*, PUMA (98) 14, December 4, 1998, page 29

[40] "A broadband world...", ibid, page 11

[41] Bruce Sterling, "Peace Is War. Get ready for the new frontier of missile defense, where peacekeeping space lasers battle a storm of rogue nukes". *Wired Magazine*, April 2002

[42] See: Carlos Pullen Parente, "Integrated Financial System: Upgrading the Pioneer Brazilian System", speech during The Impact of E-government on Financial Management: Corruption Risks and Control Rewards Conference, The International Consortium on Governmental Financial Management, Miami, Florida, April 2001 (unpublished)

[43] Muliawan Sjafudin and Justina Seet, contributors to the Report

[44] Terence H. Lutes, "The United States Internal Revenue Service: Electronic Tax Administration Program", contribution to the "In their own words..." part of the Report

[45] Marks, ibid, page 1

[46] *Information Technology as an Instrument of Public Management Reform: A Study of Five OECD Countries*, PUMA (98) 14, December 4, 1998, page 14

[47] *Management of Large Public IT Projects: Case Studies*, OECD, 2001, PUMA/SBO/RD (2001)1, page 12

[48] "The Hidden Threat to E-Government: Avoiding Large Government IT Failures", OECD, PUMA, Policy Brief No. 8, March 2001

[49] Richard Heeks, "Failure, Success and Improvisation of Information Systems Projects in Developing Countries", Institute for Development Policy and Management, January 2002, http://www.man.ac.ik/idpm_dp.htm#devinf_wp; Heeks, Africa, ibid.

[50] Heeks, Africa, ibid.

[51] "GarnerEXP says a majority of e-government initiatives fail or fall short of expectations", Symposium ITExpo 2002, http://symposium.garner.com/story.php.id.1367.s.5.html

[52] OECD, Policy brief No. 8, ibid, page 1

[53] Accenture (2003b): "Outsourcing in Government: Pathways to Value"

[54] OECD, Policy Brief No. 8, ibid.; Heeks, "Failure...", ibid; Marks, ibid.

[55] Heeks, Africa, ibid, page 5

[56] Geoffrey A. Moore, "Crossing the Chasm", *Harper Business*, 1999

[57] Marks, ibid, page 2

[58] Bob Sullivan, "The Darkest Side of ID Theft", MSNBC, March 12, 2003

[59] BBC article, views of Ken D'Rosario, as quoted in Osorio, ibid.

[60] B. Shadrach, "E-conference on the Knowledge Information Systems of the Urban Poor", A summary report, Loughborough University, United Kingdom, May 2001, page 17

[61] Pew..., ibid.

[62] Pew..., ibid.

[63] Pew Internet & American Life Project, report of May 2002

[64] Phillipe Soutier, Agence pour les technologies de l'information et de la communication dans l'administration, presentation at the eGov Summit, Belfy, U.K., 3-4 December 2002 (unpublished)

[65] "Government Online Study", TNS, www.tnsofres.com/gostudy2002; "The Changing Nature of E-government", June 2002, www.rileys.com/report/june02/htm

[66] See: "The World's Most Effective Policies for the E-economy", Booze/Allen/Hamilton, 2002, http://www.e-envoy.gov.uk/oee/oee.nsf/sections/reportsbenchmarking2002/$file/whole_report.pdf

[67] See: OECD, 2001, ibid.

[68] See: Booze/Allen/Hamilton, 2002, ibid., table 107

[69] See: "Progress in Achieving Government on the Web", Committee of Public Accounts, Sixty-sixth Session, 2001-2002, London, House of Commons, 2002

[70] OECD, 2001, ibid.

[71] Booz/Allen/Hamilton, 2002, ibid.

[72] "Surveys of Federal and State CIOs Show E-government a Challenge, Priority", *Journal of Government Financial Management*, Summer 2001, page 8-9

[73] Economic Planning Unit (2001), Eighth Malaysia Plan, Kuala Lumpur

[74] Heeks, R. (2001): "Building e-Governance for Development: A Framework for National and Donor Action", I-Government Working Paper Series, Institute for Development Policy and Management, University of Manchester (http://www.man.ac.uk/idpm/idpm_dp.htm#ig)

[75] NAO (National Audit Office) (2002): "Better Public Services Through E-Government: Case Studies in Support to Better Public Services Through E-Government.

[76] NAO, ibid.

[77] Harvard Policy Group on Networked-Enabled Services and Government (2001): "Imperative 4: Improve Budgeting and Financing for Promising IT Initiatives", Series: Eight Imperatives for Leaders in a Networked World, Kennedy School of Government, Harvard.

[78] GAO (Government Accounting Office) (2003): "Electronic Government, Success of the Office of Management and Budget's 25 Initiatives Depends on Effective Management and Oversight", GAO-03-495T.

[79] OECD, 2001, ibid.

[80] Ibid.

[81] NAO, 2002, ibid.

[82] Marks, ibid, page 1

[83] "Visions and Road Maps for Sustainable Development in a Networked Knowledge Society", Report of a Workshop, Brussles-EU Chapter of the Club of Rome and the "Factor 10 Institute", February 2002

[84] Discussion of hierarchies and networks based on quotes from Manuel Castells, *The Rise of the Network Society*, Blackwell Publishers, 2000 (2nd edition), and Manuel Castells, *Dimensions of the Networked Society*, STS Nexus, Santa Clara University, California http://sts.scu.edu/nexus/Issue1-1/Castells-DimensionsOfTheNetworkedSociety.asp, as well as "The Networked Organisation" (Insight No. 1), "The Learning Organisation" (Insight No. 3) and "Knowledge Networking" (Insight No. 10), David Skyrme Associates, http://www.skyrme.com/insights/

[85] See: J. Fountain, "Information, Institutions and Governance: Advancing a Basic Social Science Research Program for Digital Government", National Science Foundation and National Centre for Digital Government, Harvard University, 2002

[86] "Finding our Digital Voice: Governing in the Information age", Crossing Boundaries Political Advisory Committee, Final Report and Recommendations, Centre for Collaborative Government, Volume 11, April 2003, page 5

[87] See also: T. H. Davenport and L. Prusak, *Information Ecology: Mastering the Information and Knowledge Environment*, New York, Oxford University Press, 1997

[88] Partly based on "Finding our Digital Voice...", ibid; and "Treating Public Information as a Public Resource", contribution to the Report by Donald G. Lenihan

[89] See: *The Handbook of Economic Sociology*, eds. Neil J. Smelster and Richard Swedenberg

[90] See: *Contemporary Capitalism: The Embeddedness of Institutions*, e.g. J. Rogers Hollingsworth and Robert Boyer, Cambridge University Press, 2001; and, Dieter Ernst and Linsu Kim, "Global Production Networks, Knowledge Diffusion and Local Capability Formation: A Conceptual Framework", East-West Center Working Papers, 2001

[91] See: J. Bradford DeLong and A. Michael Froomkin, "Speculative Microeconomics for Tomorrow's Economy", a revised version of "The Next Economy", 1997, http://www.law.miami.edu/~froomkin/articles/newecon.htm and http://econ.161.berkeley.edu?Econ_Articles?newecon.htm

[92] See: Jon Gross, "We Know Who You Are and We Know Where You Live: The Instrumental Rationality of Geo-demographic Systems", *Economic Geography*, Volume 71, Issue 2, April 1995

[93] Ziauddin Sardar and Iwona Abrams, *Introducing Chaos*, Icon Books, 2002

[94] Mary Maureen Brown and Jeffrey L. Brudney, *Learning Organization in the Public Sector*, page 33

[95] H.T. Davenport and L. Prusak, *Working Knowledge: How Organisations Manage What They Know*, Boston, Harvard University, 1988, page 125

[96] See: Christian Sorbye Friis, ibid, page 6

[97] See: Ikujiro Nonaka and Noboru Konno, "The Concept of 'Ba': Building a Foundation for Knowledge Creation", *California Management Review*, Vol. 40, No. 3

[98] A/56/326, para. 8

[99] Francis Fukuyama, "The End of History?", *The National Interest*, Summer 1989

[100] Amartya Sen, *Development as Freedom*, Knopf, NY, 1999, page 152

[101] See: Ikujiro Nonaka and Noboru Konno "The Concept of 'Ba': Building a Foundation for Knowledge Creation", *California Management Review*, Vo. 40, No. 3, 1998; David Snowden, "A Framework for Creating a Sustainable Knowledge Management Program", *Knowledge Management*, London, 1998; and T. H. Davenport and L. Prusak, Information Ecology: Mastering the *Information and Knowledge Environment*, New York, Oxford University Press, 1997

[102] See: Jurgen Habermans, "The Structural Transformation of the Public Sphere", 1962

[103] Mark E. Warren, "What Should We Expect from More Democracy? Radically Democratic Responses to Politics", *Political Theory*, Volume 24, Issue 2, May, 1996, pages 241 - 270

[104] See: Robert D. Putnam, *Bowling Alone: The Collapse and Revival of American Community*, N.Y., Simon and Schuster, 2000

[105] "Digital Dilemmas", *The Economist*, January 25, 2003; "Individual Survey on E-democracy in Japan", NTT Corporation, May 2002

[106] See: Mark E. Warren, "Deliberative Democracy and Authority", The American Political Science Review, Volume 90, Issue 1, March 1996, pages 46 - 60

[107] Compare: Charles Hamdy, *The Age of Paradox*, Harvard Business School Press, 1995: "We are not destined to be empty raincoats, nameless numbers on a payroll, role occupants, the raw material for economics and sociology, statistics in government report. If that is to be its price, economic progress is an empty promise. (...) personal fulfilment (...) complicated by pressures of efficiency (...) new freedoms [that] mean less equality and more misery (...) success that might carry a disproportionate price."

[108] Mancur Olson, *Power and Prosperity: Outgrowing Communist and Capitalist Dictatorships*, Basic Books, 2000

[109] Samuel Huntington, "The Clash of Civilizations", *Foreign Affairs*, Summer 1993 http://www.lander.edu/atannenbaum/Tannenbaum%20courses%20folder/POLS%20103%20World%20Politics/103_huntington_clash_of_civilizations_full_text.htm

[110] Joseph Nye, "The New Rome Meets New Barbarians", *The Economist*, March 23, 2002

[111] Mark E. Warren, "What Do We Expect from More Democracy? Radically Democratic Responses to Politics" *Political Theory*, Vol. 24, Issue 2, May 1996

[112] Nancy Fraser, "Rethinking the Public Sphere: A Contribution to the Critique of Actually Existing Democracy", from *Habermans and the Public Sphere*, ed. Craig Calhoun, MIT Press, 1992

[113] Mark E. Warren, ibid.

[114] Based on material developed by Jerzy Szeremeta and Dieter Zinnbauer on the basis of Jerzy Szeremeta, ibid.

[115] See: Klaus Selle, "Was? Wer? Wie? Warum?", as quoted in Oliver Marker, Hans Hagedorn, Bernd Morgenstern, Matthais Trenel, "Integrating Public Knolwedge into Decision Making. Case Study: Internet Public Hearing in the City of Esslingen"

[116] Mark E. Warren, ibid.

[117] Shanthi Kalathil, Taylor C. Boas, "The Internet and State Control in Authoritarian Regimes", Carnegie Endowment for International Peace, Global Policy Program, No. 21, July 2001

[118] http://www.eff.org/~barlow/Declaration-Final.htm/

[119] Unless stated differently, all examples in this sub-chapter are based on Steven L. Clift, "E-government and Democracy: Representation and Citizen Engagement in the Information Age", 2003, contribution to the Report

[120] See: Mark E. Warren, ibid.

[121] Ibid.

[122] See: "Digital Town Hall", Pew Internet and American Life Project, October 2, 2002

[123] Ian Budge, *The New Challenge of Direct Democracy*, Oxford, 1996

[124] Manuel Castells, "Dimensions..." ibid.

[125] Compare: "Digital dilemmas", ibid.

[126] "Finding Our Digital voice...", ibid, page 14

[127] Compare: Michael Margolis, David Resnick, *Politics as Usual: The Cyberspace "revolution"* , Thousand Oaks, CA, Sage, 2000

[128] Pippa Norris, "Deepening Democracy via E-governance", 2003, contribution to the Report

[129] Based on presentation of the e-government applications by Jari Sappala of the City of Tampere

[130] This chapter reflects the methodological approach of the Report Team. At the same time it is based on ideas and direct quotes from papers contributed by the Centre for Democracy and Technology, Washington, D.C. (James X. Dempsey, Paige Anderson, Ari Schwartz) and by Sara Wilford of Harvard University

[131] The issues are derived from ideas contained in: Philip E. Agre, "The Architecture of Identity: Embedding Privacy in Market Institutions", *Information, Communication and Society*, 2(1), 1999, pages 1-25

[132] Ibid.

[133] See: Sara Wilford, contribution to the Report

[134] Rossiter (1958) *Constitutional Dictatorship: Crisis Government in the Modern Democracies*, Transaction Publishers, Somerset N.J., page 24

[135] S. L. Edgar (1997), *Morality and Machines: Perspectives on Computer Ethic*, Jones & Bartlett, Publishers, London

[136] Agre, ibid.

[137] C. Bellamy and J. A. Taylor (1998) *Governing in the Information Age*, .Open University Press, Buckingham

[138] See: Dorota Z. Szeremeta, "eBay: Voluntary Panopticon", Georgetown University, December 2001, (unpublished)

[139] L. Jean Camp, Trust & Risk in *Internet Commerce*, 2000, MIT Press

[140] C. Bellamy and J.A. Taylor (1998), *Governing in the Information Age*,.Open University Press, Buckingham, page 98

[141] "Five Strategies for Addressing Public Register Privacy Problems", Blair Stewart. Assistant Commissioner, Office of the Privacy Commissioner, New Zealand http://www.pco.org.hk/english/infocentre/files/stewart-paper.doc. See also http://europa.eu.int/information_society/topics/telecoms/internet/public/index_en.htm

[142] C. Bennett (1995), *The Political Economy of Privacy*. www.cous.uvic.ca/poli/bennett/research/gnom.htm, page 31

[143] J. Moore (1979), "Are There Decisions Computers Should Never Make?" *Nature and System 1* (1979) pages 217-229

[144] For an international survey of privacy law, including country-by-country reports, see Privacy and Human Rights 2002, EPIC and Privacy International, http://www.privacyinternational.org/survey/phr2002/

[145] Canadian Privacy Act of 1982, Section 7- 8, http://www.privcom.gc.ca/legislation/02_07_01_e.asp#005

[146] Minister of Human Resources Development, Canada, "HRDC Dismantles Longitudinal Labour Force", File Databank, May 29, 2000, www.hrdc-drhc.gc.ca/common/news/dept/00-39.shtml

[147] Indian Legislature, Freedom of Information Act of 2002, Section 9, http://indiacode.nic.in/cgi/nph-bwcgi/BASIS/indweb/all/iw2/DDW?W%3DSECTEXT%20%20PH%20IS%20%27privacy%27%26M%3D7%26K%3D39466%26U%3D1.

[148] Promotion of Access to Information Act of 2000, Government of South Africa, http://www.gov.za/gazette/acts/2000/a2-00.pdf.

[149] <http://www.ulpiano.com/Dataprotection_argentina.htm>

[150] For a listing of the web sites of Privacy Commissioners, go to http://www.gilc.org/privacy/commissions.html. The Privacy Commissioner of Canada has also compiled links to Privacy Commissioners and privacy oversight officers around the world. http://www.privcom.gc.ca/information/02_03_05_e.asp.

[151] Blair Stewart, "Privacy Impact Assessments", *Privacy Law and Policy Reporter* (1996) http://www.austlii.edu.au/au/journals/PLPR/1996/39.html. Blair Stewart, Assistant Privacy Commissioner for New Zealand, is one of the main originators of the concept of the PIA.

[152] General background information on Canada's policies with respect to PIAs is available at: http://www.tbs-sct.gc.ca/pubs_pol/ciopubs/pia-pefr/paip-pefr1_e.asp#Preface

[153] See: *International Critical Information Infrastructure Protection Handbook*, edited by Andreas Wenger, Jan Metzger and Myriam Dunn, Center for Security Studies and Conflict Research, Swiss Federal Institute of Technology (2002) http://www.isn.ethz.ch/crn.

[154] The Computer Security Resource Center (CSRC) at the U.S. government's National Institute of Standards and Technology (NIST) provides a public guide to creating information security policies. This technical guide to Internet security policies identifies various types of policies ranging from general direction-setting policies to particular procedure/technology-related policies to system-specific policies.

[155] Monetary Authority of Singapore, "Technology Risk Management Guidelines for Financial Institutions", version as of 3 December 2002, at 3.

[156] European Commission, Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions, "Creating a Safer Information Society by Improving the Security of Information Infrastructures and Combating Computer-related Crime", (COM(2000) 890 final, Brussels, 26.1.2001), online at: http://europa.eu.int/ISPO/eif/InternetPoliciesSite/Crime/CrimeComEN.pdf (date accessed; 23 March 2003).

[157] European Commission, Communication from the Commission to the Council, the European Parliament, the European Economic And Social Committee and the Committee of the Regions, "Network and Information Security: Proposal for a European Policy Approach" (6 June 2001), online at: http://europa.eu.int/information_society/eeurope/news_library/new_documents/index_en.htm (date accessed: 24 March 2003).

[158] The P3P Specification, the W3C announcement and a wealth of other information may be viewed at http://www.w3c.org/P3P/#news. For more information on P3P, see "P3P and Privacy: An Update for the Privacy Community," by CDT and the Ontario

[159] OMB Memorandum M-99-18, Privacy Policies on Government Web Sites, http://www.whitehouse.gov/omb/memorandum/m99-18.html

[160] Agre, ibid.

[161] 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

[162] UN Millennium Development Indicators.

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

[164] "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

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

[166] 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.

[167] "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

[168] "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

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

[170] See www.teachnet.gov.uk

[171] See www.curriculum.edu.au

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

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

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

[175] Ibid.

[176] Ibid.

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

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

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

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

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

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

[183] 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

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

[185] See also Introduction.

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

[187] 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.

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

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

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

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

192 Ibid.

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

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

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

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

[197] 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.

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

[199] "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.