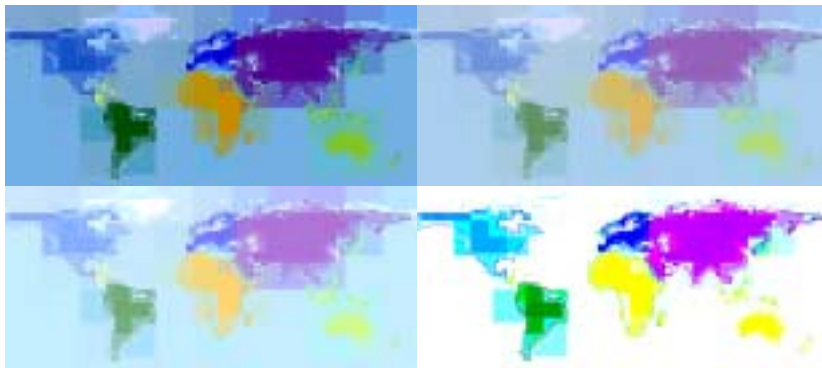


Benchmarking E-government: A Global Perspective



Assessing the Progress of the UN Member States



United Nations
Division for Public Economics and
Public Administration



American Society for
Public Administration

Table of Contents

Acknowledgements	iv
About the Project	v
Section	page number
Section 1: The 2001 Global E-government Landscape	1
1.1 Executive Summary	1
1.2 E-government Profile of the UN Member States	1
1.3 The E-government Index	2
1.4 Important Global Trends in 2001	3
1.5 The Information Decade	4
Section 2: Benchmarking E-government	8
2.1 Services are the Public Face of Government	8
2.2 Current Benchmarking Practices	10
2.3 The Stages of E-government	11
2.4 Country Progress	13
Section 3: Analysis of Stages	15
3.1 Overview	15
3.2 Emerging Presence	16
3.3 Enhanced Presence	17
3.4 Interactive Presence	17
3.5 Transactional Presence	19
3.6 Website Evaluation as a Benchmarking Tool	21
Section 4: The E-government Index	22
4.1 Ensuring an Enabling Environment	22
4.2 Compiling the E-gov Index	24
4.3 Global Overview	27
4.4 Change: The Essential Process of the E-gov Universe	28
Section 5: Geographic Regional Analysis	34
5.1 North America	35
5.2 Europe	37
5.3 South America	40
5.4 The Middle East	41
5.5 Asia / Oceania	42
5.6 Central America	44
5.7 The Caribbean	45
5.8 Africa	45
Section 6: Public Administration and E-government	48
6.1 E-administration:	48
Challenges of Governing in the Information Age	
6.2 Administrative Issues in 2001	50
6.3 E-Governance	53

Conclusion	56
Appendix 1: Member States' E-government Index By Region	57
Appendix 2: Best Practices Developed by Firstgov.gov	63
Appendix 3: Sample Questionnaire	64
Appendix 4: Website Evaluation Form	67
Selected Online Resources	69
References	71
Endnotes	74
Boxes	
Box 1: Online Profile of UN Member States	1
Box 2: The Stages of E-Government	2
Box 3: National governments roles in an information society	4
Box 4: The Principles of E-Government	6
Box 5: The Stages of e-Government	10
Box 6: Single Entry Portals Are Standard	18
Box 7: Single Entry Portals: Several Excellent Examples	18
Box 8: Online Tax Transactions	19
Box 9: September 11, 2001	21
Box 10: Factors Impeding an Enabling E-gov Environment in Developing Countries	22
Box 11: Global Online Population	23
Box 12: Indexing South America	26
Box 13: E-Government Program Development	50
Box 14: The Framework of E-Governance	54
Charts	
Chart 1: Country Stages for 2001	12
Chart 2: E-Gov Index by Geographic Regions	34
Chart 3: Percentage of Population Online By Region in 2001	40
Chart 4: Information Access Measure by regions	42
Chart 5: Telephone lines and mobile phones / 100 inhabitants by region in 2001	47

Tables

Table 1: 2001 Global E-gov Leaders	3
Table 2: The 2001 E-Government Index	7
Table 3: Global Online Population	23
Table 4: Global Leaders	24
Table 5: Indices for South America	26
Table 6: 2001 Global E-Government Indexes	30
Table 7: Geographical Regional Comparison of Indicators	34
Table 8: Index – North America	35
Table 9: Index – Europe	37
Table 10: Index – South America	40
Table 11: Index – Middle East	41
Table 12: Index – Asia / Oceania	43
Table 13: Index – Central America	44
Table 14: Index – Caribbean	45
Table 15: Index – Africa	46
Table 16: Barriers to E-government	49

ACKNOWLEDGEMENTS

Benchmarking E-government: Assessing the United Nations Member States was made possible through a collaboration between the American Society for Public Administration (ASPA) and the United Nations Division for Public Economics and Public Administration (UNDPEPA) of the UN Department of Economic and Social Affairs (UNDESA).

There are several individuals we wish to acknowledge for their cooperation, assistance and guidance in the research and preparation of this report. We would like to thank Ms. Mary Hamilton, Ph.d, Executive Director, ASPA, who made available the organization's membership and staff. We would also like to thank Prof. Marc Holzer, Rutgers University, Newark, New Jersey, Director, Ph. D. Program in Public Administration and founder of the E-Governance Institute at Rutgers University --- Newark whose expertise in the area of performance measurement proved of great value.

We would also like to express our deepest appreciation to the members of the Office of the E-Envoy of the United Kingdom; the E-government Project Team, Department of the Taoiseach, Government of the Republic of Ireland and the members of the United States Government's Firstgov.gov team and the United States General Services Administration, in allowing access to their respective units and who were extremely generous with their knowledge, ideas and time.

We would further like to thank the following individuals who provided an invaluable service in conducting research: Dr. Jafar M. Jafarov, UNDP; Laura Forlano, Ph.d candidate, Columbia University, Sylvie Angelou, New York University, and especially Dana Curran of Columbia U. for her country analysis and Jesse Catral of Rutgers University for his insightful assistance and statistical analysis in developing the e-government index.

Finally, we would like to express our deepest appreciation and heart felt thanks to Mr. Guido Bertucci, Director, UN Division for Public Economics and Public Administration, for without his vision and support, this study would have remained a proposal.

ABOUT THE PROJECT

In an effort to gain an appreciation of the global e-government landscape in 2001, the United Nations Division for Public Economics and Public Administration (UNDPEPA) and the American Society for Public Administration (ASPA) undertook a research study analyzing the approach, progress and commitment on the part of the **190 UN Member States**.

The study's primary goal was to objectively present facts and conclusions that define a country's e-government environment and demonstrate its capacity to sustain online development. This was accomplished by a comparative analysis of fundamental **information and communication technology (ICT) indicators and critical human capital measures** for each UN Member State. The final measure or **E-government Index** could be useful tool for policy-planners as an annual benchmark.

In determining what defines an enabling environment, this report analyzed critical factors by benchmarking the core areas endemic to national e-government programs. The final measure or E-government Index attempts to objectively quantify these factors, and establish a "reference point" for which a country can measure future progress. The E-government Index presents a more inclusive and less subjective measure of a country's e-government environment. It incorporates a country's official online presence, evaluates its telecommunications infrastructure and assesses its human development capacity.

The website research was conducted during two intervals from May to July and October to December, 2001 in order to measure progress and ensure accuracy. Each Member State was examined using sites available on the world wide web *during these periods*. E-government development can be swift and continuous, yet inchoate. Change and improvement must be a permanent part of the process if a country is to achieve the stated goals within its strategic framework and to offer the most inclusive citizen-centric approach. Unquestionably, many of the UN Member States will have a different look six, even three months from the release of this report.

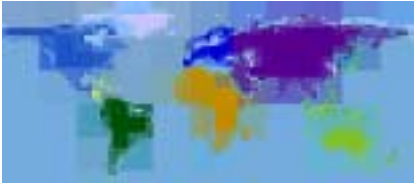
Progressive governments are upgrading their sites regularly; expanding the types and quality of their online services and improving their content daily in an effort to achieve the highest measure of user satisfaction, administrative efficiency and cost effectiveness. The research and analysis conducted for this research is an appraisal taken at a particular period in time --- a digital photo of the global e-gov landscape during 2001.

Stephen A. Ronaghan
Project Coordinator and
author of the final report

New York
May, 2002

Stephen A. Ronaghan has been employed by the United Nations as a policy analyst and project coordinator since 1994. He has worked on several information and communications technology (ICT), public sector management and governance projects and has contributed to numerous research studies and policy analyses. Mr. Ronaghan has also worked in the area of UN project and program evaluation and performance measurement. He received an M.P.A. from New York University's Robert F. Wagner Graduate School of Public Service in 1993.

SECTION 1: THE 2001 GLOBAL E-GOVERNMENT LANDSCAPE



1.1. Executive Summary

Since the mid -1990s governments around the world have been executing major initiatives in order to tap the vast potential of the internet for the distinct purpose of improving and perfecting the governing process. Like the personal computer, the internet has become an indispensable tool in the day-to-day administration of government. In an effort to gain an appreciation of the global e-government landscape in 2001, the American Society for Public Administration (ASPA) and the United Nations Division for Public Economics and Public Administration (UNDPEPA) undertook a research study analyzing the approach, progress and commitment on the part of the 190 UN Member States.

Broadly defined, e-government can include virtually all information and communication technology (ICT) platforms and applications in use by the public sector. For the purpose of this report however, e-government is defined as: *utilizing the internet and the world-wide-web for delivering government information and services to citizens.*

In order to maximize e-government's effectiveness and realize its vast potential, several fundamental conditions must exist in order to facilitate an enabling environment. The study's primary goal was to objectively present facts and conclusions that

define a country's e-government environment and demonstrate its capacity (or lack of) to sustain online development. This was accomplished by a comparative analysis of fundamental information technology (IT) indicators and critical human capital measures for each UN Member State.

Box 1: Online Profile of UN Member States

UN Member States:	190
with a government website presence:	169
with a National Government Website:	84
with single entry portals:	36
with sub-national govt websites:	84
with online transaction capacity:	17

Two methodologies were used in the research. First, national government websites were analyzed for the content and services available that the average citizen would most likely use. The presence, or absence of specific features contributed to determining a country's level of progress. The stages present a straightforward benchmark which objectively assesses a country's online sophistication. Second, a statistical analysis was done comparing the information and communication technology infrastructure and human capital capacity for 144 UN Member States. The final measure or **E-Government Index** could be useful tool for policy-planners as an annual benchmark.

1.2. E-government Profile of the UN Member States

National e-government program development among the UN Member States advanced dramatically in 2001.

Countries whose web presence in previous years consisted of one or two static government web pages began offering content rich, well-designed, citizen-centric sites. But despite creative initiatives, national e-government program development remains overwhelmingly at the information provision stage. The level of sophistication in which countries are using the internet to deliver quality information does, however, vary considerably.

Box 2: The Stages of E-Government

- Emerging:** An official government online presence is established.
- Enhanced:** Government sites increase; information becomes more dynamic.
- Interactive:** Users can download forms, e-mail officials and interact through the web.
- Transactional:** Users can actually pay for services and other transactions online.
- Seamless:** Full integration of e-services across administrative boundaries.

Full-fledged commitment to e-government implies that a country's leadership recognizes the fact information has become a social and economic asset just as important and valuable as traditional commodities and natural resources. Information benefits the most the individuals and industries which have unimpeded access to its acquisition, and the self-determination to convert essential data into knowledge. The theme of this report, therefore, is "facilitating information access for enhanced citizen participation through e-government".

In 2001, of the 190 UN Member States, 169 (88.9%), of their national governments used the internet in some capacity to deliver information and services. For 16.8% of these governments, their presence on the

internet was just emerging. The official information offered in these countries was often static in content and limited to only a few independent websites. Countries with an enhanced internet presence --- where users can access an increasing number of official websites that provide advanced features and dynamic information ---- represented 34.2%, the highest number among the Member States. Thirty percent of the countries surveyed offered interactive online services where users have access to regularly updated content and, among other things, can download documents and e-mail government officials. The capacity to conduct transactions online, where citizens can actually use the internet to pay for a national government service, fee or tax obligation, was offered by 17 national governments, or only nine percent of the UN Member States.

A country's social, political and economic composition most definitely correlates closely with its e-government program development. However there were exceptions, as evidenced by several developing and transitioning economies. Key factors such as the state of a country's telecommunications infrastructure, the strength of its human capital, the political will and commitment of the national leadership and shifting policy and administrative priorities play important roles. Each of these factors influence how decision makers, policy planners and public sector managers elect to approach, develop and implement e-government programs.

1.3. The E-government Index

In determining what defines an enabling environment, this report analyses the above issues by benchmarking the core areas endemic to national e-government programs. The final measure or **E-government Index** attempts to: 1) objectively quantify

these critical factors and 2) establish a “reference point” for which a country can measure future progress. The E-gov Index presents a more inclusive and less subjective measure of a country's e-government environment. It incorporates a country's official online presence, evaluates its telecommunications infrastructure and assesses its human development capacity.

The Index identifies, underscores and weighs the importance of the requisite conditions which enable a country to sustain an e-government environment which ensures that every segment of its population has unconstrained access to timely, useful and relevant information and services.

Not surprisingly, the results of the E-gov Index tend to reflect a country's economic, social and democratic level of development. Industrialized nations, whose citizens enjoy the benefits of abundant resources, superior access to information and a more participatory relationship with their governments, rank well above the mean E-Gov Global Index of 1.62.

Geographically by region, North America (2.60), Europe (2.01), South America (1.79) and the Middle East (1.76) all registered an index above the global mean. Asia (1.38), the Caribbean (1.34) Central America (1.28) and Africa (0.84) fell below the global index.

Among individual countries, the *United States* (3.11) is the current global leader and was the only country to register an index above 3.00. By geographic region the leaders in 2001 were: North America: *United States*; Europe: *Norway* (2.55); South America: *Brazil* (2.24); Middle East: *Israel* (2.26); Asia / Oceania: *Australia* (2.60); Africa: *South Africa* (1.56); Caribbean: *the Bahamas* (1.79); Central America: *Costa Rica* (1.42).

1.4. Important Global Trends in 2001

E-government can offer numerous possibilities for improving how a nation's public sector responds to the basic needs of its citizens. There is however a wide variance as to the process in which governments choose to realize such potential.

Throughout the course of researching this report, we were able to gain access to a considerable number of high level policy and decision makers, dedicated public sector managers, administrators and civil servants working on their country's national e-government

programs. Onsite visits were made to several countries, while in-depth interviews were conducted by telephone and e-mail. A questionnaire (see appendix 3) was also sent to selected individuals. Many generously shared their expertise, knowledge and thoughts with us. Below are some of their most important insights.

**Table 1:
2001 Global E-gov Leaders**

USA	3.11
Australia	2.60
New Zealand	2.59
Singapore	2.58
Norway	2.55
Canada	2.52
UK	2.52
Netherlands	2.51
Denmark	2.47
Germany	2.46

- ▶ **A country's overall progress in e-government closely correlates with its social, political or economic composition. The more effective programs prioritize development to reflect ICT, human resources and user capacities.**
- ▶ **National E-government program development remains desultory and unsynchronized. A compelling lack of coordination exists across administrative and policy boundaries. Ultimately this may compromise program effectiveness and performance efficiency.**

- ▶ **Online service delivery should be thought of as complementary rather than accepting the more popular view that it will ultimately replace many traditional channels for service delivery.**
- ▶ **Increased access to the world wide web does not automatically transform into increased use of e-government as user interest has been low and indifferent.**
- ▶ **There exists a significant digital divide within national public administrations.**
- ▶ **Single Entry Portals are an accepted and important standard.**
- ▶ **Prioritizing online service delivery to the business community is a implementation strategy in several emerging economies at the expense of citizen-centric service delivery.**
- ▶ **National E-gov management teams in 2001 were the exception rather than the rule.**
- ▶ **There is a considerable lack of public awareness campaigns informing citizens that national governments are offering online service delivery.**
- ▶ **Cost Effectiveness: The belief that online service delivery is less costly than other channels is not wholly unfounded. However there exists little empirical evidence to support this assertion.**
- ▶ **With few exceptions funding e-government is tied directly to the level of commitment on the part of the political leadership.**

Perhaps the most compelling finding of the survey, however is: for a large majority of countries, national e-government program development is occurring in a swift and dynamic manner and for now change is the only constant.

1.5. The Information Decade

Over the past ten years the dramatic advances made in information and communications technology (ICT) have transformed much of the world into a digitally interconnected community that is increasingly functioning on a "365 / 24 / 7" basis. Throughout this period, especially the past five years, the predominant drivers of change have been the internet and the world wide web. Both have added a new, and arguably indispensable "e" dimension to academia, commerce, and now government.

Box 3: National governments play four distinct roles in an information society

- ▶ **Determine the policies and regulatory structures**
- ▶ **Deliver the programs and services of government to the citizen**
- ▶ **Use the information infrastructures to enhance the internal administrative practices**
- ▶ **Interface with citizens in the democratic process of government.**

Considerable resources, both human and financial, are being committed to launching and perfecting programs which deliver government information and services online. Such initiatives are intended to improve administrative operations and enhance government efficiency while realizing the residual effect of deeper citizen involvement in the governing process. From *Armenia* to

Zambia the concept of e-government is being openly embraced.

For most of the UN Member States, electronic service delivery, or e-government, is still a new and challenging medium. To be precise, e-government encompasses many applications and incorporates virtually all ICT platforms. However, it is the internet that is the most widely recognized and identifiable component driving e-government. A major indicator of a society's openness is access to the information available on the internet. Restrictive states have sought ways to contain or manage information and access, ultimately compromising an enabling e-government environment¹.

The year 2001 saw a greater expansion in government online presence than the previous five years combined. Website content and online applications progressed from static, public affairs "e-brochures" to virtual information centers where the interaction between citizen users and the public sector is continuous. Last year also saw an increase in the online transaction of business with government.

In 2001, it was estimated that globally there were well over 50,000 official government web-sites (22,000 sites in the US Federal government alone) with more coming online daily.* In 1996 less than 50 official government homepages could be found on the world-wide-web. Of the 190 UN Member States, 169 were providing some degree of information and services online. Based on the available resources, policy priorities and political commitment, however, the scope and content of national

* See Worldwide Governments on the World Wide Web: <http://www.gksoft.com/govt/en/world.html>

e-government programs contrast substantially. Namibia's Ministry of Health and Social Services (www.healthforall.net/grnmhss/) for example, maintains an effective information gateway despite extremely inadequate resources, while the Republic of Korea's National Tax Service (www.nta.go.kr/) is indicative of what can be done with unabridged commitment and support.

E-government development is constant and conspicuous. It has received considerable attention through a steady stream of events at the national and international levels. In March 2001, for example, the Third Global Forum on Reinventing Government (www.globalforum.org) chose for its theme: "Fostering Development through E-government". Participants from 122 nations, which far exceeded the combined official representation of the first two Global Forums, met in Naples, Italy to share best practices, information and ideas.

The Third Global Forum articulated the following key points:

- ▶ E-government can consistently improve the quality of life for citizens and can create a sharp reduction of costs and time.
- ▶ E-government will eventually transform the processes and structures of government to create a public administration less hierarchical, empowering civil servants to serve citizens better and to be more responsive to their needs.
- ▶ E-government must be given serious consideration also in the developing countries not only for its potential for stronger institutional capacity building, for better service delivery to citizens and business (thus increasing local social and economic development), for reducing corruption

by increasing transparency and social control, but also for “showing the way” to the civil society and business community.

Wide-ranging e-government programs remain at, or near, the top of most countries' policy agendas. For many nations, digitizing service deliveries like filing personal income taxes online or paying VATs electronically represents a marked departure from the traditional paper-based way of doing business. For some countries, such departures have culminated in success. For others the challenge is formidable, but not insurmountable.

Box 4: The Principles of E-Government

- ▶ **Build services around citizens' choices**
- ▶ **Make government and its services more accessible**
- ▶ **Facilitate social inclusion**
- ▶ **Provide information responsibly**
- ▶ **Use government resources effectively and efficiently**

UK Government White Paper

When asked to describe the ultimate benefit of e-government, the most consistent response given by decision-makers and public sector professionals interviewed for this report was that it transforms governance like no previous reform or reinvention imitative. E-government potentially empowers individual citizens' by providing them with an alternative channel for accessing information and services and interacting with government.

It also gives the individual citizen another choice: whether to become an active participant in the governing process or

remain a passive observer.

Providing citizens with new choices is a goal that resonates throughout many of the national e-government strategic plans. Both the intended and the residual outcomes of this objective are considerable: open communication, enhanced transparency, increased social inclusion and citizen participation, democratic enrichment and superior governance. These outcomes however, tend to be more potential than extant, and objectively quantifying a potentiality is in itself a test. This study --- the first global effort at benchmarking e-government --- is in itself a challenge as it attempts to balance both the abstract and the tangible in order to enlighten.

But perhaps what e-government is ultimately about is opportunity. Opportunity to transform a public sector organization's commitment so it can function as truly citizen-centric. Opportunity to provide cost effective services to the private sector contributing to the development of business and promoting long-term economic growth. Opportunity to enhance governance through improved access to accurate information and transparent, responsive and democratic institutions. The types of services that can be delivered over the internet are still being conceived, developed and improved by both the public and private sectors. Over the next few years expect to see an increased experimentation, innovation and organizational learning in an effort to perfect e-government.

Table 2: The 2001 E-Government Index

Global Index: 1.62

High E-gov Capacity 2.00 - 3.25		Medium E-gov Capacity 1.60 - 1.99		Minimal E-gov Capacity 1.00 - 1.59		Deficient E-gov Capacity Below 1.00	
USA	3.11	Poland	1.96	Armenia	1.59	Cameroon	0.99
Australia	2.60	Venezuela	1.92	Brunei	1.59	Cent African Rep.	0.98
New Zealand	2.59	Russian Fed.	1.89	South Africa	1.56	Ghana	0.98
Singapore	2.58	Colombia	1.88	Paraguay	1.50	Nepal	0.94
Norway	2.55	Latvia	1.88	Cuba	1.49	Thailand	0.94
Canada	2.52	Saudi Arabia	1.86	Philippines	1.44	Congo	0.94
UK	2.52	Turkey	1.83	Costa Rica	1.42	Maldives	0.93
Netherlands	2.51	Qatar	1.81	Panama	1.38	Sri Lanka	0.92
Denmark	2.47	Lithuania	1.81	Nicaragua	1.35	Mauritania	0.91
Germany	2.46	Ukraine	1.80	Djibouti	1.35	Bangladesh	0.90
Sweden	2.45	Bahamas	1.79	Dominican Rep.	1.34	Kenya	0.90
Belgium	2.39	Hungary	1.79	Trinidad & Tobago	1.34	Laos	0.88
Finland	2.33	Greece	1.77	Indonesia	1.34	Angola	0.85
France	2.33	Jordan	1.75	Jamaica	1.31	Haiti	0.84
Rep of Korea	2.30	Bolivia	1.73	Iran	1.31	Mauritius	0.84
Spain	2.30	Egypt	1.73	Azerbaijan	1.30	Tanzania	0.83
Israel	2.26	Slovakia	1.71	India	1.29	Senegal	0.80
Brazil	2.24	Slovenia	1.66	Kazakhstan	1.28	Madagascar	0.79
Italy	2.21	Mongolia	1.64	Belize	1.26	Zimbabwe	0.76
Luxembourg	2.20	Oman	1.64	Barbados	1.25	Burkina Faso	0.75
Unit. Arab Emir.	2.17	Ecuador	1.63	Guyana	1.22	Zambia	0.75
Mexico	2.16	Suriname	1.63	Honduras	1.20	Mozambique	0.71
Ireland	2.16	Malaysia	1.63	El Salvador	1.19	Sierra Leone	0.68
Portugal	2.15	Romania	1.63	Guatemala	1.17	Cambodia	0.67
Austria	2.14	Belarus	1.62	Gabon	1.17	Comoros	0.65
Kuwait	2.12	Peru	1.60	Turkmenistan	1.15	Guinea	0.65
Japan	2.12			Uzbekistan	1.10	Namibia	0.65
Malta	2.11			Vietnam	1.10	Togo	0.65
Iceland	2.10			Samoa (Western)	1.09	Gambia	0.64
Czech Republic	2.09			Cote d'Ivoire	1.05	Malawi	0.64
Argentina	2.09			China	1.04	Mali	0.62
Estonia	2.05			Pakistan	1.04	Ethiopia	0.57
Bahrain	2.04			Nigeria	1.02	Chad	0.55
Uruguay	2.03			Kyrgyzstan	1.01	Niger	0.53
Chile	2.03			Botswana	1.01	Uganda	0.46
Lebanon	2.00			Tajikistan	1.00		

SECTION 2: BENCHMARKING E-GOVERNMENT



2.1. Services are the Public Face of Government

Virtually all government services can be classified under one of three fundamental categories: informational, interactive and transactional. The first, informational, is by far the most significant. Information is at the heart of every policy decision, response, activity, initiative, interaction and transaction between government and citizens, government and businesses and among governments themselves. How information is collected, processed, analyzed, packaged and disseminated is in itself a specialized industry. ²

Successful citizen-centric e-government programs emphasize the indispensable nature of information while balancing its often limited shelf-life and considerable inflationary component. In the information and knowledge age, there is no institution that produces raw data and new information with more regularity than government.

Since services are the public face of government, the primary objective of all e-government initiatives is to provide the citizen user with an efficient alternative medium for interacting with public sector service providers. This is generally accomplished by improving the flow of information both externally and internally. Information is government's most fundamental output³ and consequently, transforming ministries, departments, agencies, units and staff to make them "e"-ready is an intense and challenging process.

Eighty-eight percent of the UN Member States have made a legitimate effort to commit to some form of e-government; that is 169 countries have an established online presence with official government websites. However, in 2001, for over 25% of the countries, the content of official websites consisted of static and insufficient information often of a public relations nature and consistently with strong political overtones. Such sites can hardly be described as service delivery or considered citizen-centric since they are not a medium to elicit useful feedback. This trend is predominant in a several emerging countries in Asia, the Caribbean and throughout Sub-Sahara Africa where countries like Zimbabwe (www.gta.gov.zw/) exploit the web for very singular purposes.

The industrialized countries have taken a less desultory approach in developing their programs and the types of services they are providing. This is particularly evident throughout Europe, North and South America as nearly all the countries in both regions have highly dynamic and interactive official government websites, where content is accurate, specialized and regularly updated.

The capacity to conduct transactions online at the national government level in 2001 was available in 17 countries. There was also considerable activity at the sub-national level, which would suggest that in countries where e-government is evolving autonomously or without a coordinated national strategic program, transactional service delivery will occur irregularly with, in many cases, local governments demonstrating such a capacity before the national government.

Although online transactions are one of the primary features that justify a wide-ranging e-government initiative, it is worth noting, that despite the benefits of

technological and the impact of globalization, the national economies of over 75% of the countries indexed are substantially cashed based.⁴ In the majority of these societies, credit-card use is still reserved for a select and privileged minority. Consequently, the necessity for online transactions in such countries may not be as great as the need for reliable information.

Credible information is sine qua non for maintaining a balanced and open dialogue between decision-makers and the civil society. The policy participation process is one example.

A higher level of participation that goes beyond just providing feedback and comment is the participation of citizens in the processes of policy development and decision making of government. Traditionally this has been practiced through the use of voting and referenda and again mostly at community and local levels. It goes beyond simply providing feedback; rather it is a process of discussions and negotiations which often involves personal interaction.⁵ E-government potentially increases citizen involvement in the process of governance at all levels by introducing new voices to the dialogue through online discussion groups, thus expanding outreach and influence while enhancing the rapid development and effectiveness of interest groups.⁶

In the United States for example, there is concern among academics, activists, and elected officials that government websites might focus more on providing services, and less on facilitating civic involvement. This type of service orientation, they argue, treats citizens as consumers rather than partners in government, and thus inhibits public engagement with the nation's political environment.⁷

While users are certainly taking advantage of all the services and

information made available on government sites, a smaller portion are active in using the Internet to monitor public affairs. In 2001, an estimated 42 million Americans (24% of those with access) used government Web sites to research public policy issues; 23 million (13% with access) used the Internet to send comments to public officials about policy choices; and 13 million (7.5% with access) participated in online lobbying campaigns.*

Despite the incredible advances made in information technology, digitizing government is, and will continue to be into the foreseeable future, a complex and constant process. Countries vary radically in their approach, level of development and overall commitment to e-government. Critical endemic factors like available resources, political leadership, economic capacity and the character of the civil society deeply impact on the scope and breadth of a government's e-gov policy. How a nation ultimately shapes its e-government commitment ideally should consider these factors and respect the citizen-centric approach rather than being influenced by short-lived trends or what outcomes may be politically expedient.

For countries, like the United Kingdom (www.ukonline.uk.gov) launching an e-government program is an extensive, meticulously planned exercise with ambitious goals and targets. The UK also enjoys the advantages of unabridged political support. For other nations, especially those in Sub-Sahara Africa, just going online can be a frenetic leap from the past into the future with little time to absorb the present. E-government is a new and for the most part a nascent activity. Program success

* Source: Pew Internet & American Life Project Government Web Sites Survey, September 5-27, 2001 N=815. Margin of error is ±4%.

is not necessarily measured by the increase in the number of government websites, the number of daily "hits" or user visits to each site, or by the number of officials who can be accessed by e-mail. (Though for many countries producing a fully interactive, service oriented website is a task not to be taken lightly.) Successes are kept in perspective, and setbacks are to be expected. Despite the highly visible and multi-functional sites, many governments continue to "flight test" their programs in an attempt to find the right combination of services, features, content and entry points that are efficient, cost-effective and truly citizen-centric. However, time in cyberspace does not allow governments to celebrate very long their accomplishments, nor mull over their setbacks.

Box 5: The Stages of e-Government

Emerging:	A government web presence is established through a few independent official sites. Information is limited, basic and static.
Enhanced:	Content and information is updated with greater regularity.
Interactive:	Users can download forms, contact officials, and make appointments and requests.
Transactional:	Users can actually pay for services or conduct financial transactions online.
Seamless:	Total integration of e-functions and services across administrative and departmental boundaries.

2.2. Current Benchmarking Practices

Benchmarking is an essential and valuable exercise since the practice allows individuals to mark a specific policy or program's progress and chronicle successes and setbacks over a given period of time. This provides policy developers, decision makers and public sector managers with vital information in order to make mid-course adjustments, improve program efficiency and ensure that the tax-payers are getting a return on their 'investment'. Several countries, international organizations and private sector consulting firms have developed useful tools in an attempt to measure e-government progress through a series of targets that mark a specific stage of development.

The primary research conducted for this report was gathered for two purposes: first, to gain an appreciation and understanding of the global e-government landscape and; second, to quantify data so to develop and test a new and impartial benchmarking practice. The research sought to assess how governments have approached, developed and implemented online service delivery. The research also sought to maintain objectivity, yet to be as inclusive as possible in determining all UN Members' level of development based on the available data.

A practice currently in use by governments, international organizations and private sector firms charts progress through a series of levels or stages marked by the presence (or absence) of fundamental online applications and basic features. The primary research for this report has benchmarked a country's progress using the tools and methods being practiced by the European Union (www.eu.org), the United Kingdom's Office of E-Envoy; the United States Government's General Services Administration; and Ireland's national e-government program.

Using the world wide web, all 190 UN Member States were accessed and over 1900 *national government websites* examined in order to analyze and chart each country's level of progress. The citizen-centric approach was the basis for our analysis. That is sites (predominately cabinet ministries and departments) and sectors considered to be most representative of services that the majority of citizens were likely to seek were evaluated. The primary or target sectors were: health, education, labor or employment; social welfare and services, and finance. Countries were also evaluated for a capacity to conduct transactions online.* Countries were assessed by the following criteria:

- ▶ An official government web presence must exist.
- ▶ The type of service delivery available: basic or informational, interactive, transactional.
- ▶ The presence and of services in five critical sectors: education, health, labor/employment, welfare/social services and financial services.
- ▶ Use of single entry portals; and de facto portals (official national government websites).
- ▶ To a lesser degree, fidelity to strategic plans, use of e-gov teams.

2.3. The Stages of E-government Development

National (and for that matter, regional and local) government strategic planning, characterizes e-government

* Here we took a broader approach to the research, not restricting the transactional capacity to the targeted sectors.

development as a linear progression, with service providers moving through four, five or even six levels or stages before achieving the stated program objectives.⁸ This type of benchmarking is based primarily on analyzing website content; any interactive features (e-mail), quality and timeliness of information and the capacity to conduct online transactions. It provides a convenient reference point for developed and emerging nations, but it presupposes a definitive level of technical sophistication.

Prior to this study, developing countries were omitted from much of the research completed using this practice. We have included a stage that reflects the progress of developing countries.

In order to quantify the results, a numerical scale ranging from 1 – 5 with one representing an Emerging Presence and five, Seamless or fully integrated, was used. Each stage was further analyzed for the presence of specific features and content and measured by intervals of .25.

The stages are a method for quantifying progress. They are representative of the government's level of development based primarily on the content and deliverable services available through official websites. This is not to suggest, however, that in order to achieve immediate success, a country must follow this linear path, but rather reflects the type of analysis and standards used in 2001.

E-government programs are subjected to a number of internal and external factors. Technology and trained staff obviously play a vital role in e-gov development and influence how a government will implement its program. But it is the availability of resources that dictate the goals of a particular government. Ramping up from level one to level two, level three, etc is, for now, a

consequence of the patterns of contemporary program evolution. This does allow policy planners a degree of flexibility and creativity in program development while still following the game plan. Based on the availability of a governments' resources, an effective program can be designed and launched with the intent of being fully transactional before ever going online. Ramping up also allows the luxury of utilizing a cost-effective practice of testing through pilot programs.

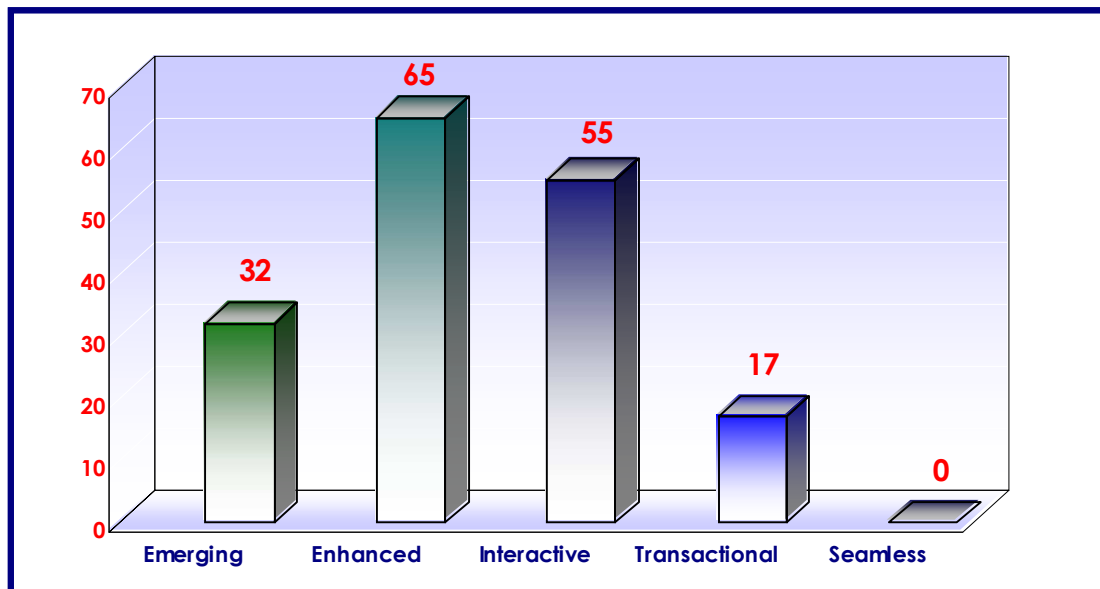
The website research was conducted during a three month period from May to July and repeated from October to December, 2001 in order to measure progress and ensure accuracy. Each Member State was examined using sites available on the world wide web *during these periods*. As stated earlier, e-government development can be swift and continuous, yet inchoate. Change and improvement must be a permanent part of the process if a country is to achieve the stated goals within its strategic framework and to

offer the most inclusive citizen-centric approach. Unquestionably, many of the UN Member States will have a different look six, even three months from the release of this report.

Progressive governments are upgrading their sites regularly. Expanding the types and quality of their online services and improving their content daily in an attempt to achieve the highest measure of user satisfaction, administrative efficiency and cost effectiveness. The website analysis conducted as part of this research is an appraisal taken at a particular period in time --- a digital photo of the global e-gov landscape during 2001. (The stages of development are however an important variable in compiling the E-gov Index: Section 4)

For the purpose of the UN/ASPA survey, a country's online presence can be categorized by one of five stages: **emerging; enhanced, interactive; transactional; and fully integrated or seamless.**

Chart 1: Country Stages for 2001



2.4. Country Progress

Emerging Presence: *A country commits to becoming an e-gov player. A formal but limited web presence is established through a few independent government websites which provide users with static organizational or political information. Sites may include contact information (i.e telephone numbers and addresses of public officials). In rare cases, special features like FAQs may be found.*

Angola
Antigua & Barbuda
Botswana
Burundi
Cape Verde
Central African Rep.
Cyprus
Ethiopia
Fiji
Gabon
Gambia

Grenada
Guinea
Haiti
Lao PDR
Lesotho
Liberia
Madagascar
Malawi
Mali
Marshall Islands
Moldova

Myanmar
Niger
Qatar
St. Vincent & Gren.
Seychelles
Solomon Islands
Syria
Togo
Tonga
Yemen

Enhanced Presence: *A country's online presence begins to expand as its number of official websites increase. Content will consist more of dynamic and specialized information that is frequently updated; sites will link to other official pages. Government publications, legislation, newsletters are available. Search features, and e-mail addresses are available. A site for the national or ruling government may also be present that links the user to ministries or departments.*

Albania
Algeria
Andora
Armenia
Azerbaijan
Bahamas
Bangladesh
Barbados
Belarus
Belize
Benin
Bosnia / Herz.
Burhino Faso
Cambodia
Cameroon
Cote d'Ivoire
Croatia
Cuba
Dominica
Dominican Rep.
Ecuador

El Salvador
Georgia
Ghana
Guatemala
Guyana
Honduras
Indonesia
Iran
Iraq
Kazakhstan
Kenya
Kyrgystan
Liechtenstein
Macedonia
Maldives
Mauratania
Micronesia
Monaco
Mongolia
Mozambique
Namibia
Nepal

Nigeria
Oman
Papaua New Guinea
Rwanda
St. Kitts & Nevis
St. Lucia
Samoa
San Marino
Senegal
Sierre Leone
Swaziland
Tajikistan
Tanzania
Trinidad & Tobago
Turkmenistan
Uganda
Uzbekistan
Vanuatu
Viet Nam
Zambia
Zimbabwe

Interactive Presence: *A country's presence on the internet expands dramatically with access to a wide range of government institutions and services. More sophisticated level of formal interactions between citizens and service providers is present like e-mail and post comments area. The capacity to search specialized databases and download forms and applications or submit them is also available. The content and information is regularly updated.*

Argentina	Israel	Peru
Austria	Italy	Phillippines
Belgium	Jamicia	Poland
Bahrain	Japan	Portugal
Bolivia	Jordan	Romania
Brunei	Kuwait	Russian Federation
Bulgaria	Latvia	Saudi Arabia
Chile	Lebanon	Slovakia
China	Lithuania	Slovenia
Colombia	Luxembourg	South Africa
Costa Rica	Malaysia	Sri Lanka
Czech Rep.	Malta	Sweden
Denmark	Mauritius	Thailand
Egypt	Morocco	Turkey
Estonia	Netherlands	Ukraine
Greece	Nicaragua	United Arab Emirates
Hungary	Pakistan	Uruguay
Iceland	Panama	Venezuela
India	Paraguay	Yugoslavia

Transactional Presence: *Complete and secure transactions like obtaining visas, passports, birth and death records, licenses, permits where a user can actually pay online for a services pay parking fines, automobile registration fees, utility bills and taxes. Digital signatures may be recognized in an effort to facilitate procurement and doing business with the government. Secure sites and user passwords are also present.*

Australia	Ireland	Rep. Of Korea
Brazil	Italy	Singapore
Canada	Mexico	Spain
Finland	New Zealand	United Kingdom
France	Norway	United States
Germany	Portugal	

Seamless or fully integrated: *Capacity to instantly access any service in a "unified package". Ministerial/departmental/agency lines of demarcation are removed in cyberspace. Services will be clustered along common needs.*

No country surveyed has achieved this stage.

SECTION 3: ANALYSIS OF STAGES



3.1. Overview

Much of the current performance analysis recognizes e-government development as a linear progression, with countries moving through four, five or even six levels or stages of advancement. This form of benchmarking is based primarily on analyzing website content, special features, the quality and type of information offered and the capacity to conduct online transactions. It provides a convenient reference point for developed and emerging nations, but it presupposes a certain level of sophistication.

Developing countries have, for the most part, been omitted from many of the studies completed using such a benchmark. Our research recognizes the efforts of least developed countries as well. Therefore a stage that reflects their efforts and progress was included. However in practice, there exists three functional levels of online service delivery --- basic or publish, interactive and transactional.

For most countries, gradually ramping up to a more advanced level or stage of development is a sound strategic approach. Factors like technological improvements, financial and human resources, political commitment and citizen participation, all contribute to how quickly an e-government program progresses.

There are, however, other factors that should be noted as well. In certain developing and emerging nations current cultural and economic conditions may

justify e-gov programs that reflect the immediate needs and technical capacity of these societies. In such cases, attaining level three or even level two may be a realistic strategic development goal and a sufficient online response. Consequently, some programs may seem modest in comparison to progressive or industrial nations. It should be emphasized that the primary objective of any e-government program is to address the needs of citizens. For a number of countries attaining the enhanced or interactive level may successfully fulfill this objective.

There are a finite number of services that citizens and businesses can transact online with national governments. Transactional services vary depending upon the type of political system. Highly centralized governments will retain jurisdiction over many transactions that decentralized and federal systems will devolve to sub-national levels. Driver's license is one example.

As noted in Section 2, the research procedure selected for analyzing the government websites was based on a practices currently in use by national governments, international organizations and to a lesser degree, private sector consulting firms.

The citizen-centric approach was the basis for our analysis, therefore official websites addressing sectors that were considered to be most representative of services that average citizens were most likely to seek were evaluated. Five primary or target sectors were analyzed: health, education, labor or employment; social welfare and services, and finance.

We further sought to identify those aspects of agency websites that are most important for effective delivery of public information and services. It is envisioned that the results of this research will lead to the development of a set of objective

performance measures for determining the degree to which an agency website effectively fulfills its mission of providing information and services to the public. Once accepted, these measures can be tested and refined. Eventually a concise set of internationally recognized procedures that describe how these performance measures can be refined and ultimately applied could be developed.

National government websites were analyzed for their content and the type of services available. The presence or absence of specific features and information factored into a country's level or official presence. The stages present a straightforward and functional benchmark of a national government's online presence and the sophistication of its e-government program. Below is a brief analysis of each stage.

3.2. Emerging Presence

Nearly all 32 countries, (16.8 of those surveyed) at the *Emerging Presence Level*, are among the world's least developed nations with over half (18) in Sub-Saharan Africa. Countries at this level averaged 3.9 official websites per government (in 2001, the United States had over 31,000 Federal, State and local sites) with content consisting of predominately static and insufficient information that is updated infrequently, if at all. Most programs are in their embryonic stage, providing few interactive features like e-mail or downloading forms. Actual online services, as of this writing, are non-existent for the countries at this level, and no country offered an official website for any of the five target sectors. Official information for many of these countries is predominately of a highly partisan, political nature, i.e. bios and predictable spin on the prime minister or the party in power. The number of sites disproportionately favor the political

parties over the service-provision or administrative sites. There is little or no information that would assist an individual in accessing a specific public service. For the most part, content could hardly be described as citizen-centric.

Sectors with sites that are funded by international organizations or outside groups, or those promoting foreign investment and tourism tend to be more highly developed as a result of the political and economic weight placed on such issues. Some island nations, whose primary source of economic activity is tourism, have one or two sites promoting the advantages of visiting or investing in their country. Seychelles and Trinidad and Tobago are such examples.

Obviously many of these countries are among the poorest in the world, whose limited resources are stretched well beyond their finite capacities. National priorities focus on basic survival issues. However some countries have displayed an intrinsic capacity for progress. **Gabon's** national government site www.gabon.gov.ga is an example of a 'de facto' single entry portal and allows users to access 14 official national government sites. **Guiana** and **Botswana** are on the verge of ramping up to the next level.

Most government sites do not have links to all of the ministries and agencies, and many have not been updated. The sites typically are not used for administrative purposes. For the countries at the Emerging Presence level, e-government program development is erratic and disparate. There is little evidence of any coordination or strategic planning within ministries or departments, let alone, national governments. However, this condition may be reflective more of the prioritization of needs rather than organizational or political indifference.

3.3. Enhanced Presence

Of the 65 countries (34.2% of the Member States) with an *Enhanced Presence*, 58% are emerging or newly industrialized economies, and, with the exception of North America, are found in all geographic regions. The average number of sites for countries at this level is 18. There are several cases of developing countries like **Cote'd Ivoire, Burkina Faso, Ghana** who are quickly succeeding in their e-government programs as evidenced by their commitment to content improvement. There is still, however, very little if any online representation of ministries or departments dealing with social welfare, education or health issues. The potential for more advanced development in e-government is apparent from some areas of Ghana's site, however. Administrative guidelines and regulations for obtaining a license to export cocoa are clearly outlined in extensive detail. Although the sites do not allow the user to download the necessary forms and applications, the information is easily accessible and thorough. The majority of CIS states including **Georgia, Kazakhstan, Turkmenistan** are at the Enhanced Presence level.

Presently, **Nigeria's** government web sites are primarily for public affairs issues, with very little dynamic information to the citizens of Africa's most populous nation. Political agendas of the party in power are obvious and appear on the forefront of the site. In Nigeria's case, the unofficial government web site is the Presidency. Quotes about combating corruption and allegiance to the presidency appear on the page. The site itself does not provide direct access to all ministries and legislative or judicial issues, including laws and regulations or court decisions. This is not uncommon among the countries at this level, particularly those in Africa.

Nigeria has no ministries online, and instead provides links to an array of agencies and departments concerning export regulations, ports authority, public enterprises, corporate affairs, and investment promotions. The focus is clearly on promoting investment and enhancing economic growth and development. However, all sites or information relating to education, social services, health care or women and children specifically are conspicuously absent. This pattern of unbalanced implementation is common at this level and among developing countries.

Several Central American countries, such as **El Salvador, the Dominican Republic** and **Guatemala**, despite persistent program obstacles (i.e. technological, financial and human resources), are on the verge of ramping up to the next level of development. The **Principalities of Monaco and Liechtenstein** each have technically advanced websites, but their content provides general information of a public affairs nature promoting the benefits of their countries.

The majority of nations at the Enhanced Level show a greater degree of diversity in their online content and the quality of information. Although the content on most official sites is predominantly political or public affairs in nature, more than half the countries (34), are developing a citizen-centric approach with sites for at least one of the targeted sectors. Forty-two countries are upgrading their information on a regular basis (at least once every two weeks).

3.4. Interactive Presence

The *Interactive Presence* clearly embodies the citizen-centric approach as content, information and services become what the people should expect rather than what governments prefer to offer.

The delivery of information and services is aimed at maximizing the importance of the consumer by ensuring that ease of use is priority. Portals are the preferred point of entry; content is critically managed and information is well balanced. Security and privacy features are prominent among sites.

Box 6: Single Entry Portals Are Standard

As a gateway or single point of entry to government services, portals are becoming the standard. In 2001, 36 countries provided easy access through single entry portals. At the regional or state level the number is much higher. All 26 of Brazil's states use this approach, as do Germany's Landers, the majority of Mexico's states and all 50 of the US states.

Serving as much more than a simple gateway, however, a portal offers an opportunity to reorient services around the needs of citizens while consolidating back office responsibilities. **The United States** (www.firstgov.gov) and **the United Kingdom** (www.ukonline.gov) are excellent examples.

Eighty-four countries have an official national government web page. These sites can serve as de facto single entry portals. National government websites offer most of the features and links that would be found on single entry portals.

At this stage, perhaps the most varied profile of the Member States in terms of national economic, political and social conditions can be found. Of the 55 countries who offer interactive services, 20% are developing nations. The remaining 80% are evenly divided between newly emerging economies and industrialized countries. Virtually all the governments have demonstrated a strong national commitment to a citizen-centric e-government program and are well advanced technically in their programs. Only ten countries did not have websites for all five target sectors. Each of the ten,

did however have a minimum of three target sectors online.

Twelve countries (24%) at this stage employ official single entry portals. Thirty-one countries (62%) have official national government sites which serve as de facto portals, each linking the user with most ministries, agencies departments as well as government and elected officials. Of the 31 countries with official national government sites, 24 link to the ministries of the five targeted sectors: health, education, labor, social welfare and finance. Communicating with government or elected officials is available through e-mail and post comments features for each of the 55 countries.

Box 7: Single Entry Portals: Several Excellent Examples

Australia	www.fed.gov.au/KSP
Brazil	www.redegoverno.gov.br
Canada	www.canada.gc.ca
Finland	www.eduskunta.fi
France	www.service-public.fr
Germany	www.bundesregierung.de
Ireland	www.irlgov.ie
Mexico	www.precisa.gob.mx
New Zealand	www.govt.nz
Norway	www.norge.no
Rep. Of Korea	www.kois.go.kr
Singapore	www.gov.sg
Spain	www.la-moncloa.es
United Kingdom	www.ukonline.gov.uk
United States	www.firstgov.gov

Information and content take on a greater significance at this level and are continuously updated. The sites are also upgraded on a regular basis. Although there is always a degree of political information present in the content, it does not dominate a country's official government web presence. In all 55 countries, users have the capacity to download and request either documents or forms from a specific ministry, department, agency or unit. For a number of countries like the **Netherlands, Sweden, Japan**, ramping up to the transactional level is only a matter of time,

and several may have already achieved the capacity by the release of this report.

Although online transactions are one of the primary services that demonstrate e-government's utility, the point must be reiterated, that despite daily advances in information technologies and the inescapable impact of globalization the national economies for the large majority of UN Member States are predominately cashed based. Credit-cards, online banking and other paperless forms of e-commerce are, for the present, available to those who have the means to access such services. The necessity for online transactions in many of these societies may not be as great as the need for reliable and practical information.

3.5. Transactional Presence

At the **Transactional Presence** level, a country has fully demonstrated the capacity for users to interact with the government by purchasing publications or other item, or utilizing a service like obtaining a passport and paying for it online with either a credit card, bank debit or by some other electronic means. At the completion of our online research, 17 countries offered complete transactions online. (It should be emphasized that in the case of online transactions, the empirical evidence sought required a closer examination of national government websites. In some cases transactional activity at the local level has preceded national governments.) Each of these countries is a member of the OECD. All 17 use single entry portals with the UK and Singapore adopting the personal user ID approach. All have very sophisticated citizen-centric sites that offer the user access to government organizations whose existence most citizens may hardly be aware of. The sites are undergoing frequent revision and improvement to achieve the maximum level of user

satisfaction. Content is regularly updated to reflect the constant demand for current and accurate information.

Box 8: Online Tax Transactions

Perhaps the most often cited example of e-government's utility is the capacity to pay taxes online. Many countries now offer electronic filing. **Spain**, has one of the most sophisticated online taxation programs in Europe.

But paying online is a different matter. France has had an electronic payment program for years and has successfully transitioned the service to the web. But the program itself requires several steps include gaining permission to participate and securing an electronic credit from the government and the bank selected for payment and has yet to achieve popularity with the French citizens. Mexico has a similar program. But of the 91 million people only 3.7 million have access to the web. Payment of VAT, personal and business taxes are at varying stages of development.

From January 1 to April 15 the Internal Revenue Service Website receives three times as many hits as any other official US government website. However the number of taxpayers e-filing is disproportionately low. There are a number of explanations, but the most common is that despite the relative ease and convenience, US taxpayers have yet to gain a sense of trust for the process. The IRS has projected that 45 million US citizens will file electronically in 2002 an increase of 16 percent from 2001. The remaining 95 million US taxpayers, however, will continue to use the traditional approach

Online filing is gaining popularity among South American countries. Collecting payment however, is still in the pilot stage. Chile for a example since instituting the service in 1997 has seen a business filings increase from 23,000 in 1998 to 800,000 in 2001. Brasil also has in effect an online filing system in which over 80% of those who filed taxes in 2000, filed online.

Australia, the UK, Ireland, Brazil and the United States all present a concise, easily navigable portal to its transactional services.

Perhaps the most frequently cited online national government transaction is the filing and payment of taxes (see Box 8). Online taxation payment is technically in the pilot program stage for nearly all 17 countries at the transactional level. **Spain**, (www.aeat.es) has one of the most sophisticated online taxation programs in Europe. Citizens can pay income taxes online, and businesses can pay income, property and sales taxes online as well. Spain also features the use of digital signatures.

Germany and Finland have successfully launched payment programs for citizens as well as businesses. The **Republic of Ireland** (www.ros.ie) has introduced online VAT payments. **Ireland** also provides services like paying one's utility bill, which is available at most General Post Offices throughout the Republic, now online.

Norway (www.skatteetaten.no) is the site of the Norwegian Revenue Service offers several transactional services, including the payment of income, property and sales taxes.

The **United States** (www.irs.gov/e-file) improved its online taxation payment program from a year ago, though the number of those filing e-returns has remained below expectations.

France has used a variation of electronic tax filing for several years. However the transition to online taxation has been slow to gain acceptance as those wishing to use the service must negotiate several administrative steps. Mexico has instituted a similar system.

Canada has perhaps one of the most comprehensive e-government programs.

In addition to offering a bi-lingual portal, it provides citizens with a wide range of services in a highly efficient and user-friendly manner. Content and services reflect the government's unremitting commitment to improvement and to providing the best product to Canadian citizens and international users.

Level Five or **Seamless** government represents, for some countries, the ultimate goal. However very few countries have publicly acknowledged it as a final policy objective. The United Kingdom and Singapore are two examples. Seamless government is not as easy to qualify as the four previous levels. It is characterized by the objective of having all online services, information, websites, etc available to the user through a single entry point that is driven by a super-search engine. But that's only half the equation. It also presupposes a reorganization of internal administrative structure of government's responsibilities to process these services: in effect eliminating administrative boundaries. It is sound strategic thinking, however it is a perfect world scenario. A more futuristic vision of service delivery based on the presumption that both technology and human nature will be so compliant that the administrative procedures will transverse organizational boundaries and become one simple seamless process.

Attaining this level would necessitate a considerable degree of political, administrative and managerial cooperation. Before the government's time and the public's resources (both of which will need to be available in abundance) a specific set of environmental conditions must exist. These include:⁹

- ▶ A realistic political vision and plan that completely grasps the strengths and weaknesses of its public sector's capacity.

- ▶ A fully committed national leadership secure enough to sustain the political opposition to such a reform program.
- ▶ A confident and professional administrative culture willing to relinquish some degree of organizational and administrative territory.
- ▶ Identifying problems and possible solutions, as well as the effectiveness of corrective action.
- ▶ Empowering organizational actors to seek and enact solutions.
- ▶ Developing accountability organizational learning.
- ▶ Improving public information access services of those websites.

For the majority of countries, attaining the goal of seamless government may be an abstract or remote objective.

3.6. Website Evaluation as a Benchmarking Tool

Governments analyze and test a variety of measures and indicators in order to find the most practical benchmarking methods. Website Evaluation should be used in conjunction with other assessment and benchmarking activities that compliment its value. When perfected, website evaluation can be useful in fulfilling such governance goals as:

- ▶ Improved planning and goal setting of E-government initiatives.
- ▶ Improved decision-making and resource allocation related to E-government programs.
- ▶ Determining the effectiveness of a E-government website.
- ▶ Determining the degree to which the website adds value to the organization.
- ▶ Providing trend data to assess change over time.
- ▶ Contributing to continuous improvement efforts and benchmarking.

Box 9: September 11, 2001

When the entire downtown area around the White House, including the FirstGov offices, was evacuated on September 11th, team members worked through the night on computers in their homes to produce content and design for a special section on the FirstGov homepage.

By 7:00 AM on September 12th, the team had already assembled critical lists of more than 60 websites and telephone numbers of official government services, critical care facilities, and emergency centers. By that afternoon, the special FirstGov site called "America Responds to Terrorism" was up and running on the World Wide Web. In a matter of hours, the major commercial Internet search sites — AOL's Government Guide, MSN, MSNBC, Yahoo and Google had special hot links to FirstGov. Key government sites, the White House, FEMA, DOD, State, GSA and SSA all crossed linked to FirstGov. Specialized listserves and Federal call centers alerted their subscribers to FirstGov's special site. Television and radio stations across the U.S. began to broadcast FirstGov's URL.

The days following the devastation in New York and Washington provided the FirstGov team with an extraordinary opportunity to use technology to create a rapid, effective response in a time of national emergency. Hits on the site doubled, visits tripled, and the number of unique visitors to the FirstGov portal quadrupled. But what meant the most to the FirstGov team were personal testimonials from Americans stunned by the September 11th attacks. Americans turned to FirstGov for information on missing family members, for hospital telephone numbers, for locations of blood donation centers, and links to airlines and disaster centers. Hundreds of people in the U.S. and from more than 60 other countries contacted the FirstGov team, communicating their sympathy, anger and suggestions for additional information.

SECTION 4: THE E-GOVERNMENT INDEX



4.1. Ensuring an Enabling Environment

To ensure that a national e-government program realizes its maximum potential, the existence of a favorable or enabling environment is paramount. By regularly assessing the core areas that are requisite for sustaining an information society --- *institutional capacity, cultural and human resources conditions, ICT strengths and the political commitment* -- governments would be in a position to carefully evaluate performance opportunities and challenges while candidly appraising their strengths and weaknesses. "E-capacity" analysis allows policy and decision-makers to initiate the appropriate actions necessary in order to ensure the needs of their citizens are effectively met.

National governments play four distinct roles in sustaining the enabling environment of an information society:¹⁰

- ▶ Determine the policies and regulatory structures.
- ▶ Deliver the programs and services of government to the citizen.
- ▶ Use the information infrastructures to enhance the internal administrative practices.
- ▶ Interface with citizens in the democratic process of government.

In order to effectively respond to the numerous technological, fiscal and cultural factors that contribute to developing and sustaining an information society, decision-makers and public sector professionals should maintain a clear, practical vision of their national e-gov programs that realistically reflect the strengths, weaknesses, needs and priorities of their constituents.

Box 10: Factors Impeding an Enabling E-gov Environment in Developing Countries:

There are several core factors that have been identified in UN reports on ICT and have also been discussed in various forums impacting developing countries in ICT and e-government projects.

Core Factors	Symptoms	Consequences
Institutional Weakness	Insufficient Planning Unclear Objectives	Inadequately Designed Systems Cost Over-runs
Human Resources	Shortage of Qualified Personnel Lack of Professional Training	Insufficient Support Isolation from sources of technology
Funding Arrangements	Underestimated Project Costs Lack of recurring expenditure	Unfinished Projects Higher Maintenance Costs
Local Environment	Lack of Vendor representation Lack of back-up systems / parts	Lack of qualified technical support Implementation Problems
Technology and Information Changes	Limited Hardware / Software Inappropriate software	System Incompatibility Over-reliance on Customer Applications
		<i>Knowledge Societies</i>

If a national government's strategic "e-vision" anticipates greater citizen participation, improved service delivery, increased efficiency, administrative modernization, enhanced transparency and increased foreign investment, then the political leadership must be fully prepared to see such a commitment through to the completion of these objectives regardless of the challenges.

Table 3: Global Online Population

Online	August '00	August '01	% change +/-
World Total	408 mil	514 mil	+ 20
Africa	3.2 mil	4.2 mil	+ 24
Asia / Pacific	105 mil	143 mil	+ 28
Europe	114 mil	154 mil	+ 26
Middle East	2.5 mil	4.7 mil	+ 47
Canada / USA	168 mil	181 mil	+ 8
Latin America	17 mil	25 mil	+ 32

The strategic goals of any national policy should, most importantly, reflect the needs and expectations of the citizens, not necessarily the grandiose dreams of policy advisors or ephemeral promises of the political leadership.

Like resources and technical capacity, priorities and expectations vary widely from county to country, government to government and citizen to citizen. Where perfecting the payment of taxes online is one of several principle objectives in Spain, for example, simply "going online" or staying online may be the most immediate goal in Senegal.

In developing and transitioning countries, factors such as institutional weakness, lack of qualified or properly trained staff and technological limitations potentially make even a minor e-gov activity, like responding to e-mail, a major administrative challenge (see Box 10¹¹). The need for technical

assistance, administrative capacity building and human resource training are the most conspicuous areas where the international community and the United Nations can play an active, facilitating and significant role.

Box 11: Global Online Population

The figures used were collected by Nua.com, (www.nua.com.ie) an internet research firm, based in Dublin, Ireland. Currently they are the only analysts who have attempted to measure access for all countries. The analysis has shown that in all technologies Europe and North America have the highest percentage of access while the African region has the lowest percentage. According to a UNESCO study this could be an indication that as expected the more the region matures and develops economically the higher the percentage of access. This same trend becomes evident when the analysis focuses on industrialized and developing countries.

The Annual Global growth rate over the past year was 20%, which according to internet watchers should hold at this level for the next few years. Although it is not unlikely that a region could show accelerated growth, as was the case with the Middle East. This reflects a policy of full commitment to access on the part of governments in the region. The advanced telecommunications infrastructure also assisted significantly. Africa's 24 percent growth rate was its highest yet and the region should achieve at least this level of growth over the next year, if not exceed it. The figure of eight percent for Canada and the US reflects the near saturation point for both.

As regards to the provision of telematics services to government departments the difference between developing and industrialized countries is striking, as industrialized countries have an edge in that a higher proportion of their government departments have access. Source: www.nua.com.ie

The web, being a transparent and highly visible medium, is the public's most palpable assessment of a country's e-readiness. Consequently a subtle dynamic is taking place among governments: the allure of the status associated with the recognition (or the perception) of being e-ready. In order to realistically compete (or at least be given the opportunity to compete) as a knowledge-based economy in the

global e-commerce arena, many developing country governments are committing to fast track applications that are either lack real substance or address only the needs of a single sector such as the business community, often at the expense of a citizen-centric approach.¹²

4.2. Compiling the E-government Index:^{*} The Key Indicators

There are several key factors that define the core areas of an enabling e-government environment. Many are endemic to a nation's individual political, economic and cultural fabric. In short a country's national character.

Yet because the visions, goals and policies that encompass e-government vary considerably among practitioners and users, comparative indicators may not always be precise, while any proven reference points, at this time, are virtually nonexistent. Consider also the fact that despite a pattern of continuous growth in internet usage (see Table 3) it is too early to anticipate with confidence what percentage of a country's population will completely accept e-government and make it a regular part of their lives.

Several proven indicators, however, do exist that are representative of a country's capacity to launch, sustain, perfect and promote an effective e-government program --- a country's *e-gov environment*--- and can be used as dependable benchmarks.

Telecommunications indicators like, pc's, internet hosts, telephone lines, are indispensable, as without these requisite technologies, a country's capacity to sustain online service delivery is

^{*} Appendix 1 describes the formula used in compiling the e-gov index.

nonexistent. Analyzing website content, access patterns, online services and official information, give only a partial (albeit a critical) account of a countries overall e-gov environment.

Table 4: Global Leaders

USA	3.11
Australia	2.60
New Zealand	2.59
Singapore	2.58
Norway	2.55
Canada	2.52
UK	2.52
Netherlands	2.51
Denmark	2.47
Germany	2.46
Sweden	2.45
Belgium	2.39
Finland	2.33
France	2.33
Rep of Korea	2.30
Spain	2.30
Israel	2.26
Brazil	2.24
Italy	2.21
Luxembourg	2.20
Unit. Arab Emir.	2.17
Mexico	2.16
Ireland	2.16
Portugal	2.15
Austria	2.14
Kuwait	2.12
Japan	2.12
Malta	2.11
Iceland	2.10
Czech Republic	2.09
Argentina	2.09
Estonia	2.05
Bahrain	2.04
Uruguay	2.03
Chile	2.03
Lebanon	2.00

In devising a methodology for benchmarking and performance measurement for an enterprise as nascent and unique as e-government, one approach would be to include many variables in order to obtain the most comprehensive picture as possible. But currently, there are only a few comparable universal indicators suitable for quantifying e-government. And, such comprehensiveness may not be entirely desirable. While too few indicators may tell only a partial story, too many can distort the picture or dilute general trends. The model practice will weigh disparities and balance inequities.

The E-government Index attempts to emphasize and balance the conditions that are most representative of a country's capacity to develop, sustain and provide unimpeded access to timely, useful and relevant information and services for every segment of its population.

In order to best capture a balanced interpretation, three distinctive measures consisting of primary indicators available for most (144), of the UN Member States were developed. The measures are: **Web presence Measure; Telecommunications infrastructure Measure and; Human Capital Measure.** The first --- **web presence** measure--- captures a country's online stage of development discussed in Sections 2 and 3. The second measure --- **telecommunications infrastructure** measure --- compares six primary indicators which define a country's ICT infrastructure capacity. The sources for the statistics are the 2001 International Telecommunications Union Report and the 2001 UNDP Human Development Report. They are:

- ▶ **PCs per 100 individuals:** For now, PC's are the primary device for accessing the internet until

access becomes universally available through other mediums like television; this statistic is fundamental in quantifying a country's capacity to deliver online service.

- ▶ **Internet hosts per 10,000 individs:** Measures internet penetration. Obviously, the greater the number of internet hosts and service providers, the greater the opportunity for citizen access.
- ▶ **Percentage of a nation's population online:** Estimates how many are citizens are using the web. The source for these figures is www.nua.com.ie, (see table 3), the only organization that provides statistics for nearly every UN Member State
- ▶ **Telephone lines per 100 Individs:** Which is basic infrastructure measure. The greater the number of telephone lines the likelihood increases for access.
- ▶ **Mobile phones per 100 individs:** Indicates a country's potential for wireless capacity. Wireless connectivity is extremely important in many developing countries. This could play an important role in the near future, as mobile access becomes more comprehensive.
- ▶ **Televisions per 1000:** This indicator was included to assess the prospects of web TV. Cable and satellite TV potentially offer the highest rate of access of any hardware device.

Table 5: Indices for South America

Country	Web Presence Measure	Infrastructure Measure						Human Capital Measure			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Development Index	Information Access Index	Urban as % of Total Population	
Argentina	3.25	5.13	72.98	10.5	21.32	16.34	289	.842	.916	89.6	2.09
Bolivia	3.25	1.23	1.59	2.1	6.17	5.16	115	.648	.833	61.9	1.73
Brazil	4	4.41	51.53	7.1	18.18	13.63	316	.750	.667	80.7	2.24
Chile	3.25	8.55	49.11	12.5	22.12	22.36	232	.825	.833	85.4	2.03
Colombia	3.25	3.37	11.06	3.3	16.92	5.33	217	.765	.500	73.5	1.88
Ecuador	2.75	2.01	0.18	1.5	10.00	3.81	293	.726	.667	64.3	1.63
Guyana	2.5	2.45	0.69	1.1	7.49	0.33	59	.704	.833	37.6	1.22
Paraguay	2.75	1.12	2.36	1.3	5.00	19.55	101	.735	.583	55.3	1.50
Peru	2.5	3.57	4.17	1.5	6.37	4.02	144	.743	.583	72.4	1.60
Suriname	2.5	1.10	0.24	3.0	18.06	9.84	217	.758	.916	73.5	1.63
Uruguay	3	9.96	162.02	12.8	27.84	13.19	242	.828	.999	91.0	2.03
Venezuela	3	4.55	6.68	5.7	10.78	21.75	185	.765	.500	86.6	1.92
Regional Average	3.00	3.95	30.22	5.19	14.19	11.28	200.83	.760	.740	72.65	1.79

Box 12: Indexing South America

The table used as an example compares the 12 countries of South America. Analyzing the numbers reveals some interesting findings. For example, **Brazil** is the overall regional leader with a **2.24** E-gov Index. This is achieved primarily based on the strength of its Web Presence Measure of 4.0, the highest in the region.

Uruguay (2.03), however leads the region in nearly all individual infrastructure and human capital measures, and along with **Argentina (2.09)** scored higher than Brazil in many of these indicators. However both countries have not, matched Brazil's online service development. Consequently, they are slightly behind in the overall index.

Uruguay's strength in the infrastructure and human capital measures (highest Information Access indicator) would suggest that there is a greater likelihood for overall long term success and increased citizen participation. This of course precludes the possibility of political or economic emergencies.

Having the education, freedom and desire to access information is critical to e-government's efficacy. Presumably, the higher the human development the more likely citizens will be inclined to accept and use e-government services.

Having the technical means to access relevant and timely information and services is a critical factor addressed in the web presence and infrastructure measures. The third measure --- **human capital** --- attempts to capture a country's, and its citizens' facility, opportunity and willingness to use online government. The three indices are

- ▶ **The UNDP Human Development index** which measures a society's well being, including level of education, economic viability and healthcare. www.undp.org/humandevlopment.

- ▶ **The Information Access Index** which draws on two annual surveys from Transparency international (www.transparency.org) and Freedomhouse International (www.freedomhouse.org). Quantifying a country's citizen interaction with government is a challenge. Both organizations produce annual surveys that measure key democratic components which contribute to accessing and disseminating information and monitor a country's public sector for corruption. The Information Access Index combines the two annual indicators and converts them to a percentage.
- ▶ **Urban / rural population ratio** which gives an indication of internet service patterns and how access may be prioritized. Countries with a greater percentage of its inhabitants in rural areas may find bringing service to its population a greater challenge.

4.3. Global Overview

Overall, 61 or 42% of those countries indexed placed above the global mean of 1.62. Thirty-six countries, or 25% of the 144 indexed have **High E-government Capacity**, exceeding the value of 2.00. The majority of the countries with a High E-gov Capacity (25) are OECD members. Countries indexing above 2.00, predominantly, have the technical and human capacity and the resources to sustain innovative and productive citizen-centric e-gov programs with few encumbrances.

The **United States (3.11)** is the overall global leader and the only country to register an index greater than 3.00.

Clearly, the US's tradition as a pioneering leader in the field of information technology, along with its well-educated population, economic strength and a fidelity to the principles of freedom of information give it a significant competitive advantage. But despite an abundance of technological and human capital reserves, the US was slow off the e-gov mark and only began to make serious strides in 2001 with the performance of Firstgov.gov, the official portal of the federal government; improved online transaction capabilities and the US Government's remarkable ability to disseminate accurate, reliable and timely information immediately following the events of Sept. 11th, 2001 and thereafter.

Several countries, such as **Mexico (2.16)**, **Brazil (2.24)** and **Chile (2.03)** for example, were able to overcome persistent infrastructure limitations, like inadequate hardware availability or scarce internet access, and rigorous human capital challenges, to develop complete e-government programs. In Mexico and Brasil, much like in Australia, the United Kingdom, Ireland and Sweden the commitment on the part of political leadership has been strong and constant.

Twenty-six countries (18% of those indexed) have **Medium E-government Capacity** and placed between 1.60 and 1.99 with **Poland (1.96)** just missing inclusion among the global leaders. Countries in this group are predominantly technologically advanced and in many cases enjoy a well educated population. However, each country may be weak in one or more key individual areas. Poland, for example, scored high in its web presence measure suggesting an unabridged commitment on the part of the political leadership to a competitive e-government program. However in the

infrastructure and human capital measures, Poland ranked comparatively lower than most of its European neighbors.

Egypt (1.73) is another example where the commitment to an effective and efficient e-gov program is a priority despite ongoing infrastructure and human capital limitations.

A greater number of countries, 36 (25%), demonstrated a **Minimal E-government Capacity** indexing between 1.00 – 1.59 than any other level. Included in this group were newly emerging economies, developing and least developing countries. The e-government programs among these countries reflect the realities of their limited infrastructure and human capital capacities while balancing the priorities of their development needs. Information provision is the primary service provided by governments and in several cases it is of minimal value to the users (when they can actually gain access to the internet).

Lack of basic assets like PC's, partial internet access, and an inadequate number of telephone lines are part of the equation. Limited economic resources are the other part. Despite inadequacies in the areas of education, human capital levels are improving.

The commitment to a fully functional e-government program, however, is strong in many countries including, **Armenia (1.59), Costa Rica (1.42), Jamaica (1.31) and India (1.29)**.

Among the developing countries, India, has benefited from the combined effort of its political leadership and highly professional civil service in developing a multi-functional e-gov program. It maintains a single entry portal and offers many of the requisite features found in

the programs of the global leaders.

Of the 35 (24.3%) countries who indexed below 1.00 --- **Deficient E-gov Capacity** --- 31 are among the world's least developed nations with 25 from Sub-Saharan Africa.

For the majority of these countries, e-government registers a low order of priority on the policy agenda. Augmenting ICT capacity must be rationally balanced with food, medical, educational and labor issues.

However, there are nations who are finding the resources and the expertise to make e-government happen.

Bangladesh, Kenya, and Ghana, for example recognize the importance of the role technology plays in development and have embarked on e-government programs representative of their respective development agendas.

4.4 Change: The Essential Process of the E-government Universe

Change is the one word that best characterizes the current global e-government condition. Change in processes; change in thinking; change in administrative practices and change in outlook. This may sound simplistic, but it is accurate and contains its own set of complex issues.

Change in cyberspace is constant, swift and dynamic. Many of countries that are excluded from access to technological advances are often not even aware of the fact that they are falling behind.¹³

Hardware and software availability and internet access are vital components of e-government for the obvious reason that they facilitate the delivery of information to communities. This benefit ultimately empowers citizens with the

capacity to participate more readily in the governing process and by having a greater voice in decisions that impact upon their societies. This point cannot be over emphasized.

Public education to increase familiarity and comfort with the internet is a significant component of the enabling environment. Although highly guarded of official information, Singapore, for example, has made it a specific goal to ensure that its population has access and becomes literate in the use of the internet¹⁴.

Persuading citizens to change however and accept, for example, transactions online, or to even trust the official information provided requires, in many cases, a major readjustment of cultural thinking. As discussed earlier, as of 31 December 2001, 17 national governments had online transaction capability.* Most developing countries and NICs are predominantly cash-based economies with a small percentage of the population credit card users (usually restricted to the professional and affluent). One residual effect of this reality is the escalation of the digital divide. Changing cultural traditions will be a gradual and challenging process.

The raison d'être of online service delivery is to provide citizens and businesses with a 24 / 7 / 365 channel to government. Yet several nations have created for themselves a temporary dilemma: choose between a citizen centric approach or prioritize information and service delivery to address the needs of a specific sector:

* For perspective: a recent Pew Internet Project Survey found that of an estimated 68 million Americans who accessed a government website in 2001, 5.4 million or 8% conducted a transaction online. Note this includes federal, state and local sites.

i.e. the business community. This was not lost upon the conclusions of the **Third Global Forum on Reinventing Government**: *"In developing countries, e-government can reduce economic and social gaps, but in such contexts a particularly strong public action is needed to guide the process and avoid an exclusively business approach."*

Our research corroborates these findings, as addressing the business sector has been an approach preferred by many developing and newly emerging countries. This is particularly true in Latin America for countries, like Chile, Uruguay and Paraguay and to a lesser degree Brazil and Argentina. Such a policy, or strategic approach, however supports the premise that ICT led economic growth has consistently raised national productivity, created jobs and increased income.¹⁵ Countries with a long tradition of social service delivery, on the other hand, have prioritized a citizen-centric approach. The Nordic countries are excellent examples. Yet despite numerous measures to liberalize the ICT sector in a number of developing countries only about nine percent of the world's population enjoys regular internet access¹⁶. Concerns like telephony, user costs, bandwidth size, telecom regulations must be weighed in considering e-government's potential for transforming governance.

Access to the web will continue to increase as the telecommunications infrastructure improves and the preparation of vital draft legislation facilitating access become laws¹⁷ removing outdated regulations impeding e-government projects. However, there is currently little evidence to suggest that these actions will lead to increased e-government use.

Table 6: 2001 Global E-Government Indexes

High E-gov Capacity: 2.00 - 3.25

Country	Web Presence Measure	ICT Infrastructure Measures						Human Capital Measures			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Develop Index	Info Access Index	Urban as % of Total Pop	
USA	4	58.52	2928.32	62.1	69.97	36.45	847	.934	.999	77.0	3.11
Australia	4	46.46	843.52	52.5	52.41	44.63	639	.936	.999	84.7	2.60
New Zealand	4	36.02	900.87	46.1	49.57	40.25	501	.913	.999	85.7	2.59
Singapore	4	48.31	437.56	49.3	48.57	68.38	348	.876	.333	100.0	2.58
Norway	4	49.05	1009.31	54.4	72.91	70.26	579	.939	.999	75.1	2.55
Canada	4	39.02	768.68	46.5	67.65	28.46	715	.936	.999	77.0	2.52
United King	4	33.78	280.75	55.3	56.72	66.96	645	.923	.916	89.4	2.52
Netherlands	3.5	39.48	1017.49	54.4	60.67	67.12	543	.931	.999	89.3	2.51
Denmark	3.75	43.15	626.60	54.7	75.25	60.99	585	.921	.999	85.3	2.47
Germany	4	33.64	248.30	34.5	60.12	58.59	580	.921	.916	87.3	2.46
Sweden	3.75	50.67	670.79	69.9	68.20	71.37	531	.936	.999	83.3	2.45
Belgium	3.5	34.45	295.44	26.4	49.94	54.89	510	.935	.916	97.3	2.39
Finland	4	39.61	1022.53	48.3	54.69	72.64	64	.925	.999	66.7	2.33
France	4	30.48	190.89	19.7	58.02	49.41	601	.924	.916	75.4	2.33
Korea, Rep. of	4	19.03	84.10	46.4	46.37	56.69	346	.875	.833	81.1	2.30
Spain	4	14.29	112.19	18.4	42.12	60.93	506	.908	.916	77.4	2.30
Israel	3.5	25.36	287.52	17.1	0.47	70.18	318	.893	.833	91.1	2.26
Brazil	4	4.41	51.53	7.1	18.18	13.63	316	.750	.667	80.7	2.24
Italy	4	20.94	177.97	33.4	47.39	73.73	486	.909	.916	66.9	2.21
Luxembourg	3	45.90	271.15	22.9	75.97	87.22	619	.924	.999	91.0	2.20
United Arab Emirs	3.5	12.51	176.00	33.0	41.79	58.51	294	.809	.250	85.5	2.17
Mexico	4	5.06	56.55	3.5	12.47	14.23	261	.790	.750	74.2	2.16
Ireland	4	36.46	296.37	32.5	42.63	66.76	456	.916	.999	58.8	2.16
Portugal	4	10.48	62.02	21.8	43.05	66.52	542	.874	.999	62.7	2.15
Austria	3.5	27.65	588.49	40.6	47.36	78.55	516	.921	.999	64.6	2.14
Kuwait	3	12.13	17.55	8.1	24.40	24.86	491	.818	.416	97.4	2.12
Japan	3	31.52	365.66	37.2	58.58	47.30	799	.928	.916	78.6	2.12
Malta	3	18.13	169.59	11.4	52.49	29.42	518	.866	.999	90.3	2.11
Iceland	2	39.15	1419.96	60.8	67.74	66.98	356	.932	.999	92.4	2.10
Czech Rep	3.5	12.20	155.52	10.7	37.79	42.42	447	.844	.916	74.7	2.09
Argentina	3.25	5.13	72.98	10.5	21.32	16.34	289	.842	.916	89.6	2.09
Estonia	3.75	13.52	284.25	25.6	36.33	38.70	48	.812	.916	68.8	2.05
Bahrain	3	13.98	0.77	10.1	24.97	30.05	419	.824	.083	91.8	2.04
Uruguay	3	9.96	162.02	12.8	27.84	13.19	242	.828	.999	91.0	2.03
Chile	3.25	8.55	49.11	12.5	22.12	22.36	232	.825	.833	85.4	2.03
Lebanon	3	4.64	23.00	9.0	19.96	19.38	352	.758	.250	89.3	2.00
Averages	3.60	27.05	447.93	32.2	46.00	49.68	459.5	.883	.844	82.3	2.29

Medium E-Gov Capacity: 1.60 – 1.99

Country	Web Presence Measure	ICT Infrastructure Measures						Human Capital Measures			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Develop Index	Info Access Index	Urban as % of Total Pop	
Poland	3.5	6.89	87.66	9.1	28.24	17.40	413	.828	.916	65.2	1.96
Venezuela	3	4.55	6.68	5.7	10.78	21.75	185	.765	.500	86.6	1.92
Russian Fed	3	4.29	22.22	10.1	21.83	2.22	420	.775	.333	77.3	1.89
Colombia	3.25	3.37	11.06	3.3	16.92	5.33	217	.765	.500	73.5	1.88
Latvia	3	8.20	83.72	10.1	29.99	16.86	593	.791	.916	69.0	1.88
Saudi Arabia	3	5.74	1.73	2.5	13.72	6.37	26	.754	.001	85.1	1.86
Turkey	3	3.81	10.64	6.2	28.00	24.56	286	.735	.416	74.1	1.83
Qatar	2	13.58	37.68	9.8	26.77	19.96	808	.801	.167	92.3	1.81
Lithuania	3	5.95	48.14	7.2	32.11	14.17	376	.803	.916	68.4	1.81
Ukraine	3	1.58	7.09	0.4	19.89	1.62	490	.742	.500	67.9	1.80
Bahamas	2	2.34	0.79	5.1	37.59	10.36	896	.820	.999	87.9	1.79
Hungary	3	8.51	102.09	11.9	37.09	29.34	437	.829	.916	63.8	1.79
Greece	3	7.05	103.91	13.6	53.16	55.90	466	.881	.833	59.9	1.77
Jordan	3	1.39	1.36	4.1	9.29	5.83	52	.714	.500	73.6	1.75
Bolivia	3.25	1.23	1.59	2.1	6.17	5.16	115	.648	.833	61.9	1.73
Egypt	3.75	1.20	0.35	1.1	8.64	2.14	127	.635	.250	45.5	1.73
Slovakia	3	10.93	70.16	14.2	31.42	23.94	402	.831	.916	57.3	1.71
Slovenia	3	25.14	110.11	34.2	37.80	54.66	356	.874	.916	50.3	1.66
Mongolia	3	0.92	0.64	1.3	4.97	4.04	63	.569	.750	63.0	1.64
Oman	2	2.64	11.46	2.0	8.88	6.48	595	.747	.250	82.2	1.64
Ecuador	2.75	2.01	0.18	1.5	10.00	3.81	293	.726	.667	64.3	1.63
Suriname	2.5	1.10	0.24	3.0	18.06	9.84	217	.758	.916	73.5	1.63
Malaysia	3	9.45	29.33	17.0	19.93	21.32	166	.774	.333	56.7	1.63
Romania	3	2.68	18.60	3.6	17.46	11.19	226	.772	.833	55.9	1.63
Belarus	2.5	3.15	1.99	1.7	26.88	0.48	314	.782	.167	70.7	1.62
Peru	2.5	3.57	4.17	1.5	6.37	4.02	144	.743	.583	72.4	1.60
Averages	2.88	5.43	29.75	7.0	21.61	14.57	334.0	.764	.609	69.2	1.75

Minimal E-Gov Capacity: 1.00 – 1.59

Country	Web Presence Measure	ICT Infrastructure Measures						Human Capital Measures			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Develop Index	Info Access Index	Urban as % of Total Population	
Armenia	2.5	0.57	7.57	1.1	15.53	0.23	217	.743	.500	69.7	1.59
Brunei	2	6.22	141.21	1.2	24.59	20.52	638	.857	.167	71.7	1.59
South Africa	3	6.18	42.95	6.3	11.36	12.01	125	.702	.916	51.1	1.56
Paraguay	2.75	1.12	2.36	1.3	5.00	19.55	101	.735	.583	55.3	1.50
Cuba	2	0.99	0.59	1.1	4.36	0.06	239	.765	.001	76.7	1.49
Philippines	2.5	1.93	2.54	3.0	3.92	8.24	108	.747	.750	57.7	1.44
Costa Rica	2.5	10.17	18.29	7.1	24.94	5.20	387	.821	.916	47.6	1.42
Panama	2.25	3.20	52.82	2.3	16.43	8.27	187	.784	.916	56.0	1.38
Nicaragua	2.25	0.81	2.76	1.0	3.04	0.90	190	.635	.667	55.8	1.35
Djibouti	1.5	0.95	0.02	0.5	1.40	0.04	73	.447	.416	83.3	1.35
Dominican Rep	2	1.75	9.44	0.2	9.81	5.02	84	.722	.833	64.40	1.34
Trin & Tobag	1.5	5.42	50.96	4.0	23.11	10.29	331	.798	.833	73.60	1.34
Indonesia	2.75	0.99	1.26	1.2	3.14	1.73	136	.677	.583	39.8	1.34
Jamaica	2	4.30	5.71	3.2	19.86	14.24	323	.738	.833	55.60	1.31
Iran	2	5.58	0.27	0.8	14.90	1.51	157	.714	.167	61.1	1.31
Azerbaijan	2	0.45	1.99	0.7	10.36	5.56	254	.738	.250	56.9	1.30
India	3	0.45	0.35	1.2	3.20	0.35	69	.571	.750	28.1	1.29
Kazakhstan	2	0.30	4.55	1.1	10.82	0.30	234	.742	.250	56.4	1.28
Belize	2	10.63	12.16	6.9	14.94	2.97	180	.776	.999	53.6	1.26
Barbados	2	7.80	3.74	3.3	42.71	11.14	283	.864	.999	49.50	1.25
Guyana	2.5	2.45	0.69	1.1	7.49	0.33	59	.704	.833	37.6	1.22
Honduras	2	0.95	0.20	1.1	4.61	2.39	90	.634	.667	51.6	1.20
El Salvador	2	1.62	0.92	1.1	9.08	6.22	250	.701	.750	46.3	1.19
Guatemala	2.25	0.99	4.92	1.1	5.71	3.05	126	.626	.583	39.4	1.17
Gabon	1	0.84	0.28	1.5	3.18	9.79	136	.617	.416	80.3	1.17
Turkmenistan	2	0.46	2.76	1.0	8.19	0.09	201	.730	.001	44.7	1.15
Uzbekistan	2	0.29	0.11	1.0	6.58	0.22	273	.698	.083	37.2	1.10
Vietnam	2	0.89	0.02	1.0	3.19	0.99	180	.682	.083	39.8	1.10
West Samoa	2.5	0.56	139.52	0.3	4.75	1.69	69	.701	.833	21.5	1.09
Cote d'Ivoire	1.75	0.55	0.41	0.2	1.81	1.77	70	.426	.460	45.7	1.05
China	2	1.59	0.54	2.1	11.12	6.58	272	.714	.083	31.6	1.04
Pakistan	2	0.43	0.46	0.9	2.22	0.25	88	.498	.250	36.5	1.04
Nigeria	1.75	0.64	0.06	0.4	0.43	0.03	67	.455	.500	43.1	1.02
Kyrgyz tan	2	0.43	8.76	1.1	8.00	0.19	44	.707	.250	33.6	1.01
Botswana	1.5	3.10	14.53	1.2	7.69	7.45	27	.577	.833	49.7	1.01
Tajikistan	2	0.28	0.44	0.2	3.53	0.01	285	.660	.167	27.5	1.00
Averages	2.10	2.39	14.89	1.7	9.75	4.70	182.0	.686	.531	50.8	1.26

Deficient E-Gov Capacity: Below 1.00

Country	Web Presence Measure	ICT Infrastructure Measures						Human Capital Measures			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Develop Index	Info Access Index	Urban as % of Total Population	
Cameroon	1.5	0.27	0.21	0.5	0.64	1.00	81	.506	.083	48.0	0.99
Cent Afric Rep	1.75	0.14	0.02	0.9	0.26	0.14	5	.372	.583	40.8	0.98
Ghana	1.75	0.25	0.01	0.4	1.17	0.64	115	.542	.750	37.9	0.98
Nepal	2.5	0.27	0.48	0.3	1.16	0.04	4	.480	.583	11.6	0.94
Thailand	2	2.43	10.47	2.5	8.70	4.39	236	.757	.750	21.2	0.94
Congo	1	0.35	0.02	0.1	0.77	0.12	8	.429	.333	61.7	0.94
Maldives	2	1.89	9.85	2.1	9.08	2.85	39	.739	.250	26.1	0.93
Sri Lanka	2	0.56	1.14	0.6	4.06	2.38	92	.735	.583	23.3	0.92
Mauritania	1	2.72	0.45	0.2	0.72	0.27	91	.437	.250	56.4	0.91
Bangladesh	2	0.10	0.25	0.8	0.34	0.12	7	.470	.583	23.9	0.90
Kenya	1.75	0.42	1.56	1.1	1.01	0.11	21	.514	.250	32.1	0.90
Laos	2	0.23	0.01	0.7	0.75	0.23	4	.476	.083	22.9	0.88
Angola	1.5	0.10	0.01	0.6	0.53	0.20	124	.422	.167	33.5	0.85
Haiti	1.5	0.88	0.10	1.5	0.89	0.31	5	.467	.250	35.10	0.84
Mauritius	1	9.37	27.62	8.0	23.69	10.15	228	.765	.916	43.1	0.84
Tanzania	1	0.24	0.23	0.7	0.49	0.51	21	.436	.500	50.1	0.83
Senegal	1	1.51	1.94	0.5	2.17	2.06	41	.423	.583	46.7	0.80
Madagascar	1.5	0.19	0.34	0.3	0.36	0.23	46	.462	.667	29.0	0.79
Zimbabwe	1.25	1.30	2.31	1.1	2.07	1.51	29	.554	.250	34.6	0.76
Burkina Faso	1.75	0.10	0.32	1.1	0.45	0.21	6	.320	.500	17.9	0.75
Zambia	1	0.72	0.86	0.3	0.93	0.31	137	.427	.416	39.5	0.75
Mozambique	1	0.26	0.06	0.1	0.44	0.11	4	.323	.583	38.9	0.71
Sierra Leone	1	0.21	0.43	0.4	0.39	0.25	26	.258	.416	35.9	0.68
Cambodia	1.5	0.11	0.37	0.1	0.26	1.00	123	.541	.167	15.6	0.67
Comoros	1	0.30	0.58	0.5	1.00	1.00	4	.510	.333	32.7	0.65
Guinea	1	0.34	0.25	0.3	0.79	0.53	41	.397	.250	32.0	0.65
Namibia	1	2.95	18.51	2.3	5.94	4.67	32	.601	.750	30.4	0.65
Togo	1	1.77	0.34	0.8	0.92	0.54	20	.489	.333	32.7	0.65
Gambia	1	0.79	0.12	0.1	2.30	0.42	4	.398	.167	31.8	0.64
Malawi	1.25	0.10	0.01	0.3	0.44	0.22	2	.397	.667	23.5	0.64
Mali	1	0.10	0.08	0.2	0.25	0.04	11	.378	.750	29.4	0.62
Ethiopia	1.25	0.10	0.01	0.2	0.37	0.03	5	.321	.333	17.2	0.57
Chad	1	0.13	0.01	0.1	0.13	1.00	2	.359	.250	23.5	0.55
Niger	1	0.04	0.16	0.3	0.18	0.01	26	.258	.500	20.1	0.53
Uganda	1	0.25	0.08	0.3	0.26	0.54	26	.435	.250	13.8	0.46
Averages	1.36	0.90	2.26	0.9	2.11	1.09	47.6	.469	.431	31.8	0.77

SECTION 5: GEOGRAPHIC REGIONAL ANALYSIS

Chart 2: E-Gov Index by Geographic Regions

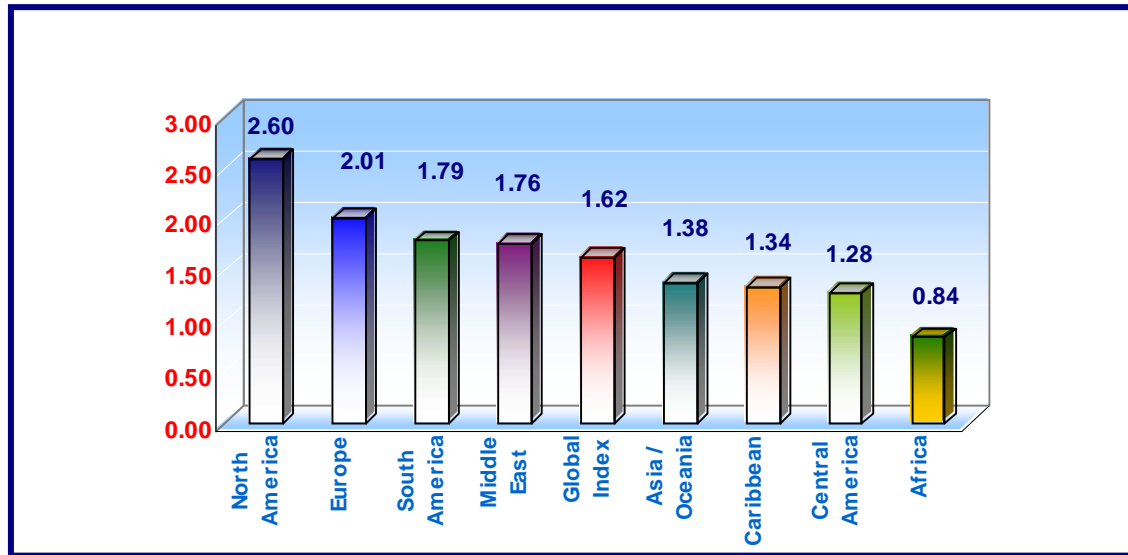


Table 7: Geographical Regional Comparison of Indicators

Region	Web Presence Measure	ICT Infrastructure Measures						Human Capital Measures			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Development Index	Info Access Index	Urban as % of Total Population	
North America	4	34.20	1251.18	37.4	50.03	26.38	607.67	.887	.916	76.1	2.60
Europe	3.25	21.14	280.93	24.97	45.41	43.54	431.75	.861	.863	71.5	2.01
South America	3	3.95	30.22	5.19	14.19	11.28	200.83	.760	.740	72.6	1.79
Middle East	2.77	6.46	37.23	7.08	14.11	16.89	279.53	.733	.278	75.1	1.76
Asia / Oceania	2.46	7.07	96.77	8.89	14.55	11.1	227.87	.709	.446	47.3	1.37
Caribbean	1.86	3.35	10.19	2.62	19.76	7.35	308.71	.739	.678	63.2	1.34
Central America	2.18	4.05	13.15	2.9	11.25	4.14	201.43	.711	.785	50.0	1.28
Africa	1.3	1.13	3.48	0.96	2.26	1.75	50.12	.453	.446	38.9	0.84
Global	2.6	10.17	215.39	11.25	21.44	15.3	288.49	.731	.646	61.9	1.62

5.1. North America

North America registered a regional index of 2.60 for a **High** E-gov Capacity mark. Canada, Mexico and the United States are fully committed to providing the most innovative and citizen centric e-government programs. Based on the measures, each country enjoys a strong enabling environment capable of sustaining the most sophisticated e-gov programs. For the United States and Canada, technology and human capital are not an issue when it comes to improving service delivery, reaching users and enhancing overall e-gov program performance. In Mexico, however, the situation is different.

Historically, the **United States** (3.11) has been an innovator and leader in digital government initiatives. Between 1993 and 2001, the Federal government launched over 1300 independent initiatives that may eventually morph into a truly comprehensive national e-government policy. An abundance of economic, technical and human resources, account for the US's global dominance in virtually all the infrastructure and human capital measures. For the United States it is now a case of living up to its potential and reputation. The challenges for the US are in improving performance, coordinating policy and programs, and encouraging increased citizen participation. Challenges which Firstgov (www.firstgov.gov) are responding to with creativity and a total commitment to the customers' needs. In the US, citizen acceptance of e-gov has taken on a quiet momentum. Increased use, however, is due more in part to an internet savvy population rather than any official government promotion. (Although, urls for many local and state governments are appearing with greater frequency on public service

announcements, television ads, and vehicle license plates as with the State of Pennsylvania (www.state.pa.us).

Table 8: Index – North America

Country	Index
USA	3.11
Canada	2.52
Regional Index	2.60
Mexico	2.16

Perhaps in more than any other federative system, the autonomy that exists among the US federal, state and local governments is most evident through the delivery of services. The greatest number of services that are provided to citizens are done so by local and municipal governments. State governments provide less services with the Federal government providing the fewest amount of services directly to citizens. (Although there does exist some confusion on the part of US citizens as to jurisdiction: case in point, the most frequently asked e-question the Federal Government's Department of Transportation receives has to do with driver's licenses, which are actually issued by the state governments.) To address this issue, a pilot project "Government Without Boundaries" which will develop a directory of government services available from all governments to citizens has been developed and is under implementation. The test program in 2001 was the purchasing of national and state park user and camping permits through one combined service, available on the Firstgov.gov site.

The Bush Administration had been supportive of e-government, appointing a federal "e-gov czar" and initiating a policy that will migrate to the internet by 2003, all government procurement.¹⁸

Yet, it remains information provision where the US is the strongest. No government offers greater online access to official information than the United States. Whether this improves government performance, increases citizen participation and enhances the policy making process, only time and a commitment to improvement will tell.

Possibly more than any other country, **Canada** (2.52) has demonstrated an uncanny prescience and intrinsic understanding of e-government's potential and reality. Like the United States, Canada's strong infrastructure and human capital measures are the foundation of a solid enabling environment and a **High** E-gov Capacity. Where the Canadian government excelled in 2001 was in its ability to implement upgrades and improvements, particularly in the area of customer relationship management. Coordination among departments is perhaps stronger than in any other industrialized nation. This could be attributed to the leadership demonstrated by the Treasury Board, which is the focal point for the national e-gov program and promotes cross departmental communication and coordination through the presence of ad hoc and permanent task forces.

Canada's portal (www.canada.gc.ca) focuses on the requests most likely frequently made by three groups --- citizens, businesses and non-Canadians. Each major government ministry and agency websites are linked by theme. Canada's fidelity to its strategic plan has also enabled individual agencies to keep pace with each other's development and maintain a consistency in site presentation.

Canada benefits from an uninterrupted confluence of technology, human capital and government

resourcefulness, suggesting that Canada will be a case study on e-gov success for years to come. It is, however, the citizens who will determine the success of 'e-Canada.' In 2001, public acceptance of e-government was still 'reserved'.

Despite a less favorable enabling environment when compared with the United States and Canada, **Mexico** (2.16) has, nevertheless demonstrated a **High** E-gov Capacity. This is primarily due to the strength of its web presence (4.0) as Mexico provides several transactional services, including the paying of taxes online. However, Mexico's infrastructure (5.06 pcs/ 100 and 3.5% of the population online in 2001) and human capital measures (.790 HDI and .750 Info Access) rank near the bottom among the 36 countries who placed in the High E-gov Capacity bracket. With the exception of percentage of population online and an overall e-gov index second only to Brasil, Mexico does rank well above the regional average of indicators for Latin America.

Despite such obstacles Mexico is developing a strong service oriented e-government program. Much of the credit could be directed toward the leadership of the administration of President Vicente Fox, which has made combating corruption, improving administrative efficiency and providing the highest quality of services to the people the highest priority of the federal government.

In 2001, the 'e-Mexico' initiative was launched with the goal of providing online all essential services. The materialization of most citizen-centric services, however, has been slow, despite the ambitious strategic objectives of the federal government. There is, however, very little evidence of

coordination among ministries and agencies. Online services are not organized around the needs of the citizens, but rather the objectives of the service provider. Progress has been slow, however, notable advances have been made in the social services sector (www.ssa.gob.mx/); education (www.sep.gob.mx/home1.html); welfare (www.sedesore.gob.mx/); and labor (<http://www.stps.gob.mx/>).

Mexico benefits from political leadership that is committed to transforming the country into the leading e-government nation in Latin America. It will take an unremitting effort to achieve this goal, however.

5.2. Europe

Throughout Europe e-government is a major administrative and political priority. Regionally, Europe has emerged as a global innovator and leader in strategic planning, program development, information access and citizen participation. With a regional e-gov index of 2.01 and 32 of the 36 countries researched achieving an index above the global mean of 1.62, Europe's E-government capacity in 2001 is classified as **High**.

In providing online services, only four countries rank below the interactive presence level. Seven countries offered online transactions in 2001. This figure should more than double in 2002 as an additional eight countries are poised to upgrade services. In 33 of the 36 countries, all the key ministries targeted as benchmarks --- health, education, social services, employment and finance --- offer interactive sites and provide regularly updated content. Currently, 20 countries use single entry portals. There is also a considerable local government presence online. In both the ICT and Human Capital measures, Europe scores higher than all

other regions with the exception of North America. Throughout most of Europe political commitment and leadership are extraordinarily supportive and are key motivating factors, as is a keen

Table 9: **Index – Europe**

Country	Index
Norway	2.55
UK	2.52
Netherlands	2.51
Denmark	2.47
Germany	2.46
Sweden	2.45
Belgium	2.39
Finland	2.33
France	2.33
Spain	2.30
Italy	2.21
Luxembourg	2.20
Ireland	2.16
Portugal	2.15
Austria	2.14
Malta	2.11
Iceland	2.10
Czech Republic	2.09
Estonia	2.05
REGIONAL INDEX	2.01
Poland	1.96
Switzerland	1.96
Russian Fed.	1.89
Latvia	1.88
Turkey	1.83
Lithuania	1.81
Ukraine	1.80
Hungary	1.79
Greece	1.77
Slovakia	1.71
Slovenia	1.66
Romania	1.63
Belarus	1.62
Cyprus	1.50
Bulgaria	1.47
Croatia	1.33
Moldova	1.29

competitive spirit among nations. This is reflected by the content of the sites and the official information made available. The United Kingdom, **Sweden**, (www.sverigedirekt.riksdagen.se/) Norway, **France** (www.service-public.fr/) Germany, the Republic of Ireland, Estonia, **Belgium** (www.belgium.fgov.be) and **Italy** (www.governo.it/) are particularly advanced in policy regarding official government information and content available to their residents. Well educated citizens who take government participation seriously and fewer official boundaries impeding information access contribute to an energetic e-government environment. Also, the European Union is active in the policy area by developing a set of guidelines that will ensure that the 15 member states' e-government programs complement each other.

Europe's technological proficiency, innovative approaches to providing online services and a history of active civil participation would suggest that Europeans should take to e-government enthusiastically. However, such was not the case in 2001, as citizen acceptance was modest. This could be attributed to among other factors, the cost of the internet provider service and the cost of telephone service to name just two. Despite an online population index of 24.9 %, which is more than double the global average, the internet has not been the phenomena in the majority of European countries as it has been in the United States or Canada. France, Austria and Germany are examples as each have a surprisingly lower than average internet use than that of the rest of Europe despite scoring high in key ICT measures.

Norway (2.55) (www.norge.no/), **The UK** (2.52) (www.open.gov.uk/), **the Netherlands** (2.51), (www.overheid.nl) lead the region.

Although competitive in most key sectors, The Netherlands lags behind in the area of online revenue payment and information. **Spain**, (2.30) (www.la-moncloa.es/) has become an innovator in the area of online taxation through its Agencia Estatal de Administracion Tributaria (www.aeat.es/). There is however, no middle ground with Spain's e-government experience. Programs and agendas are traditionally developed along departmental or regional lines with little coordination and open communication. Consequently the service is either exceptional, as in the case with taxes or deficient, as with the social services sector. **Poland** (1.96) (www.poland.pl/) is an example where a comparatively weak ICT measure contributes to an index lower than the regional medium. However this has not deterred the country's overall development as Poland has a prominent web presence. **Denmark** (2.47), (www.danmark.dk/) ranks fourth overall and like its Nordic neighbors offers exceptional social services sites. Also, official information is abundant. Where the Danes are weak is in the area of online revenue and taxation, as the service was limited and inconsistent in 2001. The United Kingdom, Ireland, Italy (before the change in government) Spain, Estonia, and the Nordic countries are examples of where elected officials have ardently supported e-government initiatives. Any mention of e-government as a campaign issue was conspicuously absent from both the UK and Italian 2001 general elections, though administrative reform and civil service performance were not.

An intense competitive and chauvinistic nature exists among the countries, particularly within the EU, as each seems to be striving to secure the title of global e-gov leader, for what ever that may be worth. Most countries are balancing program development evenly between

a citizen-centric approach and facilitating online services to the business community. In 95% of European countries, the key sectors, health, education, social services, employment/labor and justice have interactive or transactional websites. The Nordic countries are particularly specific in their approach in a region where the use of the internet is the highest in the world. The steady progress being made by the Baltic States, particularly Estonia are excellent case studies and models for NICs. **Estonia** www.riik.ee/et/valitsus/ (2.05) has from the start of its program respected the citizen-centric approach.

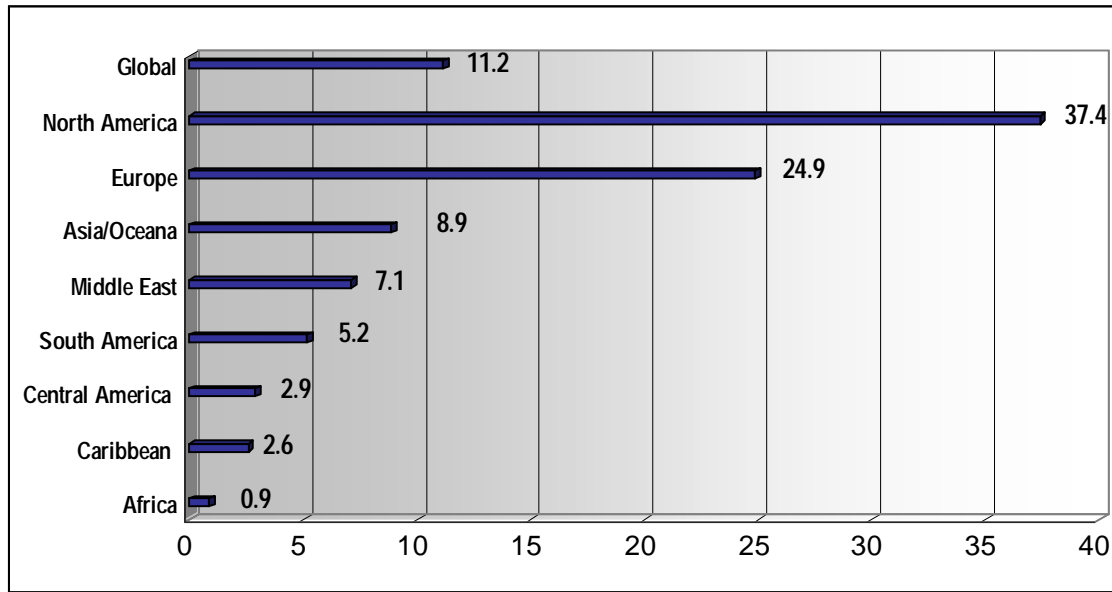
In the areas of strategic development, planning and sharing information with the public the overall strategic leader must to be considered the **United Kingdom** (www.ukonline.gov.uk) The UK's Office of E-Envoy (www.e-envoy.gov.uk) has approached the vast project of digitizing government with a level of professionalism that deserves to be praised and emulated. This is reflected in the results attained thus far. The UK also has taken several innovative steps in the direction of performance measurement of online services. However, despite prescience planning, meeting the deadline of all services online by 2003 is questionable due to unremitting interoperability issues. Convincing an indifferent public to use e-gov may be considerably easier than persuading a recalcitrant Ministry to surrender administrative responsibilities to one central entity.

In the **Republic of Ireland** (www.irlgov.ie/) resources and political commitment are not a problem. Like UK Prime Minister Tony Blair, the Taoiseach Bertie Ahern, www.irlgov.ie/taoiseach/ pledged his full support in making Ireland a global e-gov leader and his commitment is

reflected in the coherency of its program. However also like the UK, advances hit numerous walls in 2001, because of interoperability issues. Ireland excelled in developing an online revenue system and made the service a showcase of its E-Ireland Program. Revenue On Line (www.ros.ie) allows citizens to pay all types of tax obligations online and is one of the governments most popular and user-friendly sites. Close coordination typifies the collaboration between the national government and the 26 counties in administering the programs. A national council, consisting of central and local government representatives was established and interacts directly with county managers. The council's purpose is to facilitate communication of the central government's goals and the local governments concerns. County managers retain broad decision making powers, which can produce innovative results. An example is County Meath, where the county manager applied DHL's package tracking system and software to track every document that comes out of his and his staffs offices. Throughout the Irish public sector there is a strong commitment to hiring physically disabled workers. This is particularly true of e-government as demonstrated by County Meath.

As a federal system, **Germany's** (www.bundesregierung.de) e-government initiatives, innovations and practices were driven by the Landers. The Federal Government has, however, expanded its e-government presence by providing citizens with greater ease of access to the sites and services of the national and local governments, and by offering superior content and information. This is especially true in the education sector, as the federal sites are exceptional.

Chart 3: Percentage of Population Online By Geographic Region in 2001



5.3. South America

South America registered a regional index of 1.79, which classifies its E-gov Capacity as **Medium**. Most of the 12 countries are making steady progress. However, for several governments there remains an absence of strategic vision, program coordination and balancing real citizen-centric concerns with constituent needs. Throughout Latin America in general, but in South America particularly, three issues impact on the enabling environment: diffident political leadership; inadequate commitment to a citizen-centric approach, and the digital divide. The research suggests that the approach in most of South America is moving toward prioritizing service delivery to businesses potentially at the expense of individual services to citizens.

Most of the region enjoys a high rate of teledensity and expanding internet access. In 2001, Uruguay led the region in PCs/100 (9.96) int. hosts / 10,000 (102) and percentage of population online (12.8%). South America enjoys the

second highest human development index (.760) in Western Hemisphere; and growing economic diversity.

Table 10: Index – South America

South America	Index
Brazil	2.24
Argentina	2.09
Chile	2.03
Uruguay	2.03
Venezuela	1.92
Colombia	1.88
Regional Index	1.78
Bolivia	1.73
Ecuador	1.63
Suriname	1.63
Peru	1.60
Paraguay	1.50
Guyana	1.22

With a regional average of 3.0, nearly all 12 South American countries have an extensive web-presence. In each country, information provision dominates the online services. Interactive and

transactional services remain inconsistent and primarily address the needs of the business community. This may be due to the combination of several factors: the strategic importance of the business sector as a source of government revenue; the likelihood that businesses will regularly use e-gov services more than individual citizens since they are more likely to have regular access to the technology; a cultural hierarchy that historically appreciates the affluent class; the fact that governments can publicly demonstrate a greater degree of success with the business community than with the delivery of individual citizen-centric social services.

Despite increased awareness regarding the digital divide and cultural biases, hard policy choices are being made that potentially compromise citizen-centric approach. **Chile** is a case in point, while **Brazil** seems to have developed a more balanced program. Online service delivery to the business sector is a strategic planning priority that can be seen as a tool to facilitate economic development. This particularly true in Chile, and to a lesser degree in **Paraguay, Argentina and Uruguay**. It is commonly promoted that if country can demonstrate a strong enabling environment, increased foreign investment will follow. Prioritizing service delivery to the business community could also potentially generate an accelerated revenue stream for the government. Administratively, **Brasil** is in the process of upgrading back office capacity by a new administrative model that seeks to achieve the ambitious goal of computerizing the entire civil service by 2002.¹⁹ There are also plans for the creation of an infrastructure linking internet services of the Federal, State and Municipal governments. Throughout South America, e-government is a high priority. A third of

the countries have achieved a high e-gov capacity. Venezuela, Colombia and Bolivia should ramp up in 2002.

5.4. Middle East

Table 11: Index – Middle East

Country	Index
Israel	2.26
United Arab Emirs	2.17
Kuwait	2.12
Bahrain	2.04
Lebanon	2.00
Saudi Arabia	1.86
Qatar	1.81
REGIONAL INDEX	1.76
Jordan	1.75
Egypt	1.73
Oman	1.64
Libya	1.57
Morocco	1.47
Tunisia	1.36
Yemen	1.30
Algeria	1.27

The Middle East regional index of 1.76 qualifies its E-government Capacity as **Medium**. However, the enabling environments of each country vary dramatically. False program starts and the retracing of implementation steps is a common. **Israel** (2.26) is the overall leader and along with **The United Arab Emirates** (2.17) **Kuwait** (2.12), **Bahrain** (2.04) **and Lebanon** (2.00) demonstrated a High e-gov capacity in 2001. While Tunisia, Yemen, and Algeria are well below the regional index.

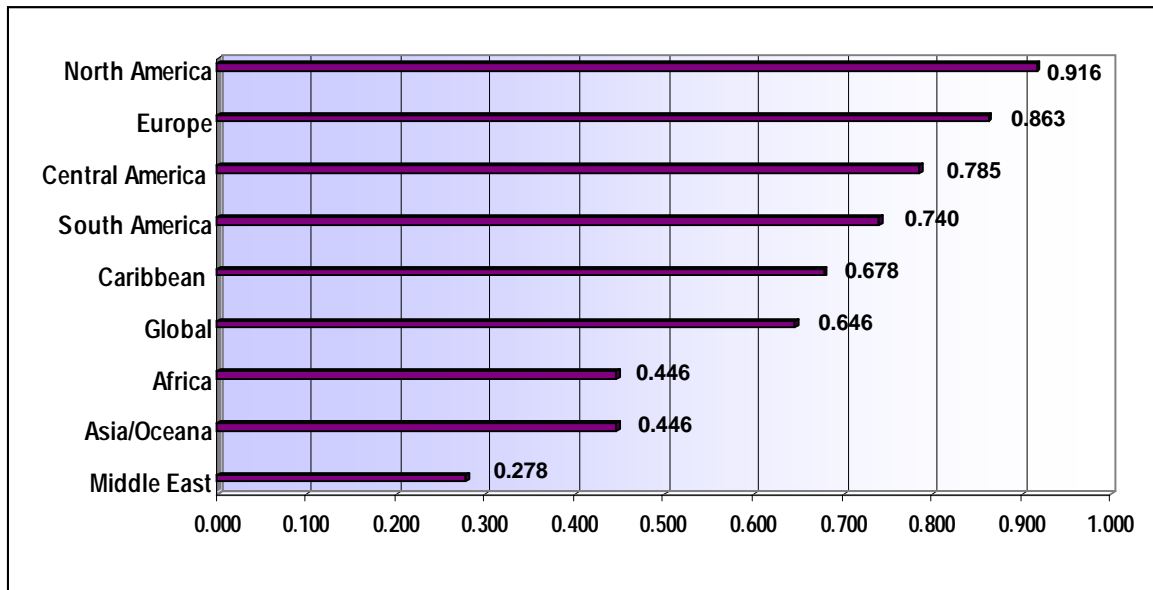
The Middle East is predominately characterized by wide imbalances in infrastructure measures. For example Israel, Qatar, Bahrain and the UAE all have twice the regional mean (6.46) of pcs/ 100, while in Libya, Algeria and

Yemen only one person in every 300 has access to a pc. The regional mean for percentage of population online was 7.08. The UAE with one third of its total population online is among the global leaders; Morocco, however, with only 0.4% of its over 32 million residents online, is among the lowest in the world. There also exists an imbalance in the quality of information. Residents have access to little official content other than information of a highly political nature. The regional mean for the information access

5.5. Asia / Oceania

Despite having five of the global leaders, Asia / Oceania's E-gov regional index measured **1.38** qualifying the region's E-gov Capacity as **Minimal**. While several countries performed exceptionally well in 2001, the majority indexed at the minimal level with several qualifying as **deficient** in e-gov capacity. Asia / Oceania was one of two regions whose mean for each of the 10 E-gov measures was below the global averages. However, the region's web presence measure of 2.46 was surpassed only by North America and Europe,

Chart 4: Information Access Measure by Regions



measure was (.278) the lowest among all geographic regions. The Middle East had the highest percentage of what could be considered political information sites and the fewest which would be described as citizen-centric. Government subsidization of the internet is the highest in the world.²⁰ Throughout the Middle East, the disparity in ICT infrastructure may not be as great an obstacle to an enabling environment as the disparity in citizen-centric information and the freedom to access it.

indicating that national governments are treating their online presence seriously. Most countries in the region have at least reached the interactive stage in their program development.

Australia (2.60), **New Zealand** (2.59) and **Singapore** (2.58), led the region. Each country demonstrated a balanced and citizen-centric e-government program, while possessing the benefits of a high technological infrastructure and human capital measures.

The Republic of Korea, (2.30) made perhaps the most dramatic advances in its e-government program by successfully implementing several new online transaction features. **Japan**, (2.12) however, has yet to live up to its rather significant potential. Japan's e-government program has not yet reached a comparable level of sophistication as that of the regional leaders due primarily to achieving only a limited interactive presence among national government websites. Japan scores high in both technology infrastructure and human capital, but despite a new national strategic plan, the government has been unable to begin to rectify the interoperability problems afflicting its obdurate bureaucracy.

Among the developing countries of Asia, **Malaysia** (1.63) has made e-government a high priority as it seeks to attain developed nation status. Malaysia's infrastructure measure's are above the regional means. (i.e. 17.9 % of population online; more than twice the regional average.) However its information access measure (.333) is among the lowest index of the 190 UN Member States. Malaysia's online services were barely above the interactive level, though the citizen-centric component is only minimally present. **India** (1.29) has enormous infrastructure and human capital challenges that must continuously be confronted. A highly innovated and well educated public sector, however, is the driving force behind a serious e-government commitment that has made the citizen-centric approach a priority. India most assuredly will attain the transactional level in 2002. However the country most likely will pay a high price as it continues to lose qualified staff to higher paying jobs in other countries

Table 12: Index – Asia / Oceania

Country	Index
Australia	2.60
New Zealand	2.59
Singapore	2.58
Rep. Of Korea	2.30
Japan	2.12
Mongolia	1.64
Malaysia	1.63
Brunei	1.59
Armenia	1.59
Philippines	1.44
Georgia	1.39
REGIONAL INDEX	1.38
Indonesia	1.34
Iran	1.31
Azerbaijan	1.30
India	1.29
Kazakhstan	1.28
Turkmenistan	1.15
Vietnam	1.10
Uzbekistan	1.10
Samoa (Western)	1.09
Pakistan	1.04
China	1.04
Kyrgyzstan	1.01
Tajikistan	1.00
Thailand	0.94
Nepal	0.94
Maldives	0.93
Sri Lanka	0.92
Bangladesh	0.90
Laos	0.88
Cambodia	0.67

For the majority of Asian countries the enabling e-government environment is weak. Addressing the deficiencies in their infrastructure and human capital measure should be a high priority for the governments of these countries.

5.6. Central America

Table 13: Index – Central America

Country	Index
Costa Rica	1.42
Panama	1.38
Nicaragua	1.35
Regional Index	1.28
Belize	1.26
Honduras	1.20
El Salvador	1.19
Guatemala	1.17

With an index of 1.28, well below the global mean of 1.62, Central America's E-gov Capacity could be described as **Minimal**. This is due primarily to a deficiency in several infrastructure and human capital indices. Although the region on average has more pc's / 100 (4.05), more internet hosts (13.15 /10000) and slightly higher percentage of the population online, (2.9) than the Caribbean, it lags behind in telephone lines (11.25) and human development (.711). The region's information access measure (.785), however, was higher than that of South America, the Caribbean, Africa, Asia and the Middle East.

Despite numerous national technological and human capital obstacles, each country did score a minimum of 2.00 in the e-gov web presence measure, confirming that e-government has secured a place on the national policy agendas of each country. Yet e-gov development for six of the seven countries lacks consistent coordination and a clear vision. Through out Central America, online services are restricted to information provision. The content does, for the most part, address the needs of the constituents and is regularly updated. Although registering a modest index (1.42), **Costa Rica** is an excellent

example of effectively maximizing limited resources. With the exception of pcs/100 and internet hosts, Costa Rica leads the region in all infrastructure and human capital measures. The national e-gov program is consistently making progress. Costa Rica is also succeeding in carefully balancing the need of citizens with those of the business community, although there were no transactional and very few interactive services available to both citizens and business in 2001.

Since 1998 Costa Rica has invested in government led initiatives to upgrade ICT facilities in schools and universities. In addition, the government is spending \$2.5 million to increase the number of professionals in the education system and to improve the country's intellectual property regime.²¹ Increased management and technical training has resulted. **Panama** (1.38) registered the second highest index in the region primarily due to the highest number of internet hosts (52.82/10,000); four times greater than the regional average); a high HDI (.784) and a high Info Access index (.916). Belize scored the highest Info Access (.999) and also had the second highest percentage (6.9) of its population online in the region also show promise.

Information access is less than adequate throughout Central America due primarily to a weakness in several of the infrastructure areas and a reluctance to fully commitment to a citizen-centric approach on the part of most of the governments. Regionally, the indicators would suggest that six of the seven countries show a potential to easily ramp up to the next level in 2002. However the indicators also suggest that achieving a favorable enabling environment for each will be a protracted and costly exercise.

5.7. The Caribbean

Based on the Caribbean's index of 1.34, in 2001, the region's E-gov Capacity is **Minimal**. No country scored higher than 2.0 in the Web Presence measure, which suggests that each country is still determining their best approach to providing online services. Only **Jamaica**, despite a low index, and a weak enabling environment, demonstrated a steadfast commitment to e-government.

Table 14: Index -- Caribbean

Caribbean	Index
Bahamas	1.79
Cuba	1.49
Dom. Rep.	1.34
Trin & Tobago	1.34
Regional Index	1.34
Jamaica	1.31
Barbados	1.25
Haiti	0.84

Infrastructure measures across the region are low. Only three in every 100 persons own or have access to a pc. In 2001, just 2.9 percent of the population had access to the internet; only Africa was lower. **The Bahamas** (1.79), had the highest percentage of its population accessing the internet (5.1), but was below the regional average (3.35) in pcs/100 (2.34). (The Bahamas did register the highest level of televisions/1000 ---896--- in the world.)

Human Capital Measures are high, (.739 HDI) as the Caribbean ranks ahead of the Middle East, Central America and Africa in regional Human Development. For information access, five of the seven countries (.899) scored well above the global average (.646). Cuba and Haiti's extremely low indices will eventually compromise the efficacy of their e-gov programs.

5.8. Africa

With a regional index of **0.84** Africa's E-government Capacity could be described as **Deficient**. Clearly, this reflects a near total absence of the core areas necessary to sustain an enabling e-government environment. But despite the regions appalling lack of an adequate telecommunications infrastructure, nearly all Sub-Saharan countries have some form of web presence. As our research found, 75% of the countries offer only static information websites. There are, however, several notable exceptions: **South Africa (1.56), Djibouti (1.35), Gabon (1.17), Cote D'Ivoire (1.05), Nigeria (1.02), Ghana (0.98), the Central African Republic (0.98), Congo (0.94), Mauritania (0.91), Kenya (0.90)** all of whom exceeded the regional Index of 0.84. Political commitment has been moderate but in some cases open to conditional external assistance.

South Africa's (1.56) enabling environment is the strongest in Africa allowing the government to successfully emulate the programs of industrialized countries. South Africa far exceeds the rest of the region in each of the ten e-gov indices, and in all probability will begin to offer transactions online in 2002.

Ghana has instituted the use of wireless payphone kiosks that has provided a cost-effective application to broaden rural access.

There was in 2001, moderate expansion of the Internet in Africa. For the first time, all countries and territories are now online, and the number of dial up internet subscribers grew by approximately 15% over the one million recorded in 2000. ²²

Most of this development, however, is happening in the major cities, and

consequently is not reaching the majority of the Africa's population. Universal internet access remains the major challenge. Despite a nearly 20 percent increase in users, access is largely confined to the capital cities --- over 61% of the continent's inhabitants live in rural areas.

The unfortunate reality is that only one in every 100 Africans have access to a pc, and less the one percent of the continent's 750 million inhabitants have actually gone online.

The infrastructure and human capital challenges have not deterred e-government progress in some countries. Ghana, Kenya, Namibia, South Africa, Nigeria and Zimbabwe, for example, have taken the initiative to upgrade their official government sites with interactive features that include, search capabilities, site maps, feedback, and discussion boards. This would indicate an increasing acceptance among decision-makers in these countries that e-government is an essential and potentially powerful medium from which to disseminate information to citizens.

Nigeria's e-government presence will likely develop and advance in proportion to the changes and improvements in accessibility for the population. Nigeria is a country worth observing closely since it is home to more than one fifth of Sub-Sahara's population. Reaching Nigeria's rural populations through e-government has been given a high priority.

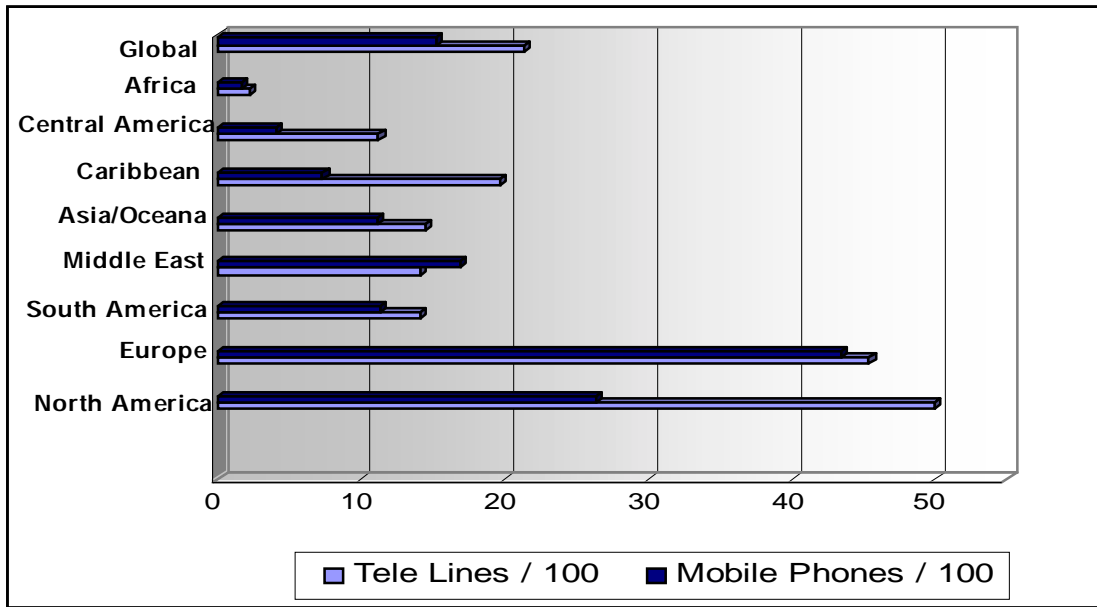
Two independent sites --- Africaonline.com (www.africaonline.com)

Table 15: Index -- Africa

Country	Index
South Africa	1.56
Djibouti	1.35
Gabon	1.17
Cote d'Ivoire	1.05
Nigeria	1.02
Botswana	1.01
Cameroon	0.99
Ghana	0.98
Cent. African Rep.	0.98
Congo	0.94
Mauritania	0.91
Kenya	0.90
Angola	0.85
Mauritius	0.84
Tanzania	0.83
REGIONAL INDEX	0.84
Senegal	0.80
Madagascar	0.79
Zimbabwe	0.76
Zambia	0.75
Burkina Faso	0.75
Mozambique	0.71
Sierra Leone	0.68
Togo	0.65
Namibia	0.65
Guinea	0.65
Comoros	0.65
Malawi	0.64
Gambia	0.64
Mali	0.62
Ethiopia	0.57
Chad	0.55
Niger	0.53
Uganda	0.46

Newafrica.com --- provide a unique service and are sources for accurate and frequently updated information for

Chart 5: Telephone lines and mobile phones / 100 inhabitants by region in 2001



every country. Africaonline.com and Newafrica.com are independent sites which fill a vast e-government void for many countries. Although the sites do not link to legislation and ministry websites, the scope of their content and the mere fact that single sites have consolidated information on so many countries allows each to function as a de facto single entry portal. Africaonline allows users to access dynamic information about developments in every country, regardless of the progress that government itself has made online. A residual benefit of these sites is in building of an information and e-government culture among Africans.

This type of centralized information provider is a first step to increasing the number of e-government users. It may also become an ideal way to encourage horizontal development among countries, so that the web presence of one government may be seen as an incentive or encouragement for others to develop. This is already

in evidence to a certain extent, but the direction each government's online development takes is very divergent.

Considering their weak enabling environments, eight countries are making progress with e-government. Yet, no country has implemented transactional services. But as access expands and the number of users increase, it is possible that demand for such services will lead to their development. For now the obstacles of cost, intervention of prevailing political party views and priorities, and the inability to find a common strategy or theme which determines how e-government should develop, either across countries or within one country's government, remain the biggest barriers to developing an enabling environment capable of sustaining interactive and eventually transactional service delivery in all African countries.

Section 6: PUBLIC ADMINISTRATION AND E-GOVERNMENT



6.1. E-administration: Challenges of Governing in the Information Age

Information age governing presents an entirely new set of challenges for decision-makers, public sector professionals and citizens. How individuals and businesses interact with government is being fundamentally altered by the technological advances driving e-government. This transformation has public sector professionals considering questions like:

- ▶ How will e-government affect the performance of public organizations?
- ▶ What are the structural effects of e-government and information technology on the public organization?
- ▶ What skills do public employees need in order to maximize their performance in an information age?
- ▶ What new leadership skills will be needed in the e-governing age?
- ▶ Will e-government instill individuals in public sector organizations with a greater degree of autonomy, enabling them to re-think conventional administrative practices?

Developing an effective online public

administration or *e-administration* means balancing the needs of two constituent groups: one external --- the citizens or the customers, and one internal --- staff and management, or the administrative back office. These two obligations are neither conflicting nor mutually exclusive. In both situations the internet has become essential in augmenting the administrative system in support of its mission.

For a number of countries (industrialized, emerging and developing) there exists a propensity to center their e-government projects and budgetary resources on the output of services provided to external users before ensuring the administrative capacity exists to support such initiatives. The reason for this choice, as a recent EU report found, is, "the need to catch-up that prompts governments to go as fast as possible giving priority to matters of direct interest to citizens, before being fully capable of providing such services."²³

The obvious result is that there is limited back office capability to handle the new responsibilities created by e-government, thus potentially compromising online service delivery efficiency. This was perhaps the major concern of the public sector professionals interviewed for this report. In developing countries the chronic lack of qualified staff and inadequate human resources training has been a problem for years. The new e-government programs that many developing countries feel compelled to launch further compounds this problem.

Countless official guidelines and methodologies have been published to help countries implement e-government initiatives more successfully. While these tools have been used with some success, many e-gov programs are underachieving and falling short of their

initial promise. Implementation problems exist because too many organizations conceive of, organize, and implement e-government programs first and foremost as generic information technology projects.²⁴ Box 13 identifies the most common organizational obstacles encountered at the Institutional, Managerial and Planning areas. Several can afflict more than one area.

facilitate existing workflows but, to reorganize assignments and planning in ways that fundamentally transform government operations—integrating work-flow across (and outside) government in recognition that citizens interact with government as a single enterprise.²⁶ Skeptical decision-makers and reluctant public sector managers need to understand and appreciate the value that can be created when technology is used to redesign workflow

Table 16: Barriers to e-government²⁵

INSTITUTIONAL / OPERATIONAL	MANAGERIAL	POLICY / PLANNING
Technology and infrastructure costs / factors	Lack of capacity to manage large scale IT projects	Lack of Coordination and or Strategic Planning
Lack of resources to support 24 / 7 operations	Lack of conviction of top or middle managers	Lack of comprehensiveness and continuity of policies / programmes
Lack of innovative incentives in the public sector – particularly regarding IT	Management Expectations vs. Management Realities	Absence of Policy guidelines
Organizational / cultural dichotomies	Doubts and resistance by leadership	Organizational / cultural dichotomies
Lack of institutional support	Opposition by professional or union interests	Local governments and municipalities if left far behind become bottlenecks
<i>Information mismanagement Reluctance to share among depts. Misuse of sensitive data</i>	Obsolete legal frameworks to innovate and incorporate private sector	Lack of comprehensiveness and continuity of policies and programmes
Absence of Policy guidelines	Information mismanagement Reluctance to share among depts. Misuse of sensitive data	Opposition by professional or union interests

The most perplexing problems, however, are almost always the ones created as a result of the politics of organizational change. If change-related issues get the kind of consideration they warrant, then implementing e-government programs will be a much less complicated exercise.

from an enterprise perspective. While such changes will often be difficult to implement, the potential benefits may very well justify the risks involved. The goal should be to balance risk against return—not merely to minimize risk.

The most effective back office e-gov applications are not used simply to

For the aforementioned skeptical decisions-makers, a first step is to recognize and understand the patterns

of confusion and conflict that can be associated with a particular e-gov project. Different paradigms will require different types of decision-making --- "thinking outside of the box" is a start.²⁷

The degree in which E-gov can improve a government's administrative systems varies greatly and may be too subjective to measure reliably. The dream of a paperless office is still, for a large majority of government's years away, if it is a realistic outcome at all. The EU report found that only a few of its members confirmed that the expanding use of ICT has had a concrete and tangible effect on administrative reorganization and effectiveness.²⁸ How new technological tools are used within the framework of existing organizational environments depends on the administrative traditions, practices and cultures endemic to a country. Successful execution of these changes depends on the will which managers and decision makers ultimately demonstrate.

6.2. Administrative Issues in 2001

National E-government program development lacks coordination.

There are four fundamental approaches to e-government program development. 1) A nationally coordinated or top-down approach, which is driven by the central government and often features a national strategic plan that coordinates all e-gov initiatives, spending and implementation, among ministries, departments, agencies and units. 2) A nationally autonomous or parallel approach where ministries and agencies develop their own e-gov initiatives with less formal strategic planning, support or coordination from the central government. 3) Sub-nationally or vertically up where local and state

governments tend to be the drivers and initiators of programs that rise up and are eventually adopted as policy by the central or federal government. 4) Sub-nationally autonomous approach, where again the innovations and programs are developed at the local levels, but have modest influence on the national governments e-gov activities.

Predominately across ministries, departments, agencies and units e-government development has been autonomous, with only a limited number of countries coordinating national efforts. This could probably be best attributed to the newness of the medium and technology and to the fact that

Box 13: E-Government Program Development

Nationally Coordinated: top down approach

Nationally autonomously: parallel

Sub-national autonomously: vertically up

Sub-national autonomously: parallel

there are few existing policies and strategies to act as guidelines.²⁹ Although the success of a coordinated e-gov approach cannot be overemphasized, only 35 countries, in 2001, developed a comprehensive official national strategic e-gov agenda and translated it into a government wide policy.

A majority of decision and policy makers choose to proceed from the point of view that e-government should remain part of existing government information technology programs. But developing e-government independent of existing government IT programs has been a key to successful development: the United Kingdom, Ireland and Singapore are examples.

Although coordination from the top down is a strategically sound initiative, in practice actual program development is autonomous and spontaneous in character as most ministries department and agencies go online as their capacity and resources permit.

For developing countries, the priority is upgrading internal administrative capacity --- back-office capability --- in order to support e-government programs. In the developing world, citizen-focused online services barely exists as website content remains static and politicized. Limited resources are an obvious explanation, but a collective lack of confidence and / or creativity on the part of the ICT strategists is another reason.³⁰ Ultimately the push will come from an informed civil society. The developing countries have been slow to accept a coordinated approach to e-government implementation. Of the 58 countries In Sub-Sahara Africa, for example, 20 have demonstrated some type of limited coordinated approach to e-government program development. An obvious measure is the websites themselves and how content is displayed.

One important factor impacting all countries, but particularly those where resources are scarce, is the change in thinking required within the public sector, particularly among the administrative culture, when transitioning to web-based service delivery. This actuality is more likely to create a greater sense of unease than most other policies or new programs because of the imposing nature that the technology can project.³¹ For example, the decision to assign content-managers the responsibility of keeping information topical and responsive to constituent needs requires an extensive organizational commitment. Also, the delegation of authority that must

accompany increased accountability, individual ministries and departments will need to interact more intensively with their clients and the community at large. Traditional processes where material being made public was confined to a specific unit or individual will now need to yield to managerial empowerment, with greater accountability.

In 2001, E-gov project management teams were the exception rather than the rule.

The creation of specialized units or divisions mandated with the responsibility of coordinating and implementing the government wide e-gov strategic plan rather than delegating the responsibility to individual agencies remains the exception rather than the rule. E-gov management teams are a significant organizational change and a tangible sign that governments are serious about implementation. They recognize the challenges and realize that the success of projects of this scale depends upon inter-governmental cooperation of an unprecedented scope.³² These units are usually not an independent agency, fall under the administration of the executive branch and can be ad hoc.

Over 100 countries have official Chief Information Officers, many of Cabinet Rank³³. Special e-gov offices or task forces appear to be more effective when independent of the CIO. They mandated with the difficult task of launching the e-gov initiatives usually under extremely tight deadlines. Team composition is often an eclectic combination of talent from the policy areas, IT, management and public affairs areas. There are several management models that warrant further study. These include the UK, Ireland, Italy, and to a lesser degree Brasil, Singapore, Australia. The US

Firstgov team is operating on very limited resources due to the tragic events of September 11th, 2001.

A prevailing belief which exists among non-IT government staff is that e-gov, especially web-based activities, is merely another policy administrative approach to providing generic public affairs type information. Outside of the ICT community there seems to be a limited sense of e-gov as a major driver of change, administrative reform or reengineering.

The one weakness of e-gov teams: They tend to be isolated and self-contained generating limited acceptance on the part of the rest of the government. They may also attach a quasi-messianic message and posture to their mission.

A considerable digital divide exists within public administrations.

Upon taking office as Secretary of State in January 2001, one of the first administrative policy decisions Colin Powell made was to address the significant deficiency in information technology throughout the Department of State. All 42,000 State employees were to receive pcs and have internet access before the end of 2002. Even the global e-gov leader is subjected to resource imbalances.

Lack of connectivity to the web, inferior technology, limited e-mail capacity, absence of intranets all need to be addressed within national, regional, state and local public sectors, before governments can realistically expect online service delivery to be effective. At the same time there is a need to *educate* all governmental agencies on the level of effort, capacity, coordination, citizen focus, and most of all, commitment needed to transition to

digital government.

Though the most visible component of e-gov, the internet is, however, another medium for service delivery. Potentially a very powerful medium, but still another means for delivering services. Despite the hype, most decision-makers and public sector professionals understand this and tend to view e-government through a pragmatic and objective lens. Those truly in touch with reality are not myopic in their outlook to think that the internet alone is the ultimate transformational or "killer" application that will reform how government provides information and delivers service to citizens.

The issue of funding e-government is tied directly to the level of commitment and prioritization on the part of the political leadership

Despite its growing importance, in a majority of countries decision-makers tend to view e-government as a decentralized IT issue allocating funds accordingly based on individual department, ministries, IT budgetary needs. There are of course exceptions among the national leadership and it is reflected in the level of development in several national programs. UK Prime Minister Tony Blair is one example, as is the Republic of Ireland's Taoiseach, Bertie Ahern. President Fernando Cordoza of Brazil has also demonstrated a strong degree of public support for e-government. Does this guarantee success? Not necessarily. Does a lack of political leadership mean limited success or slower development? Not necessarily either. Supportive political leadership, however, is more likely to accept the complexities and tolerate the setbacks that are encountered throughout all phases of development. Several OECD countries have established independent funding initiatives or arrangements through the executive branch.

Cost effectiveness

The belief that online service delivery is less costly than other channels is not wholly unfounded. But according to a Columbia University Study³⁴ this is contingent on several factors like cost per unit / cost per transaction / processing time, etc. Currently, there is very little reliable data to support or refute this assertion. What research or data that does exist is likely to come from local or regional governments. Savings can translate into a source of additional revenue, but most likely this will take several years to realize in both developed and developing countries. E-services require investments in IT hardware, software and staff. Most e-gov savings expected or anticipated by the transferring and upgrading of service delivery will not be realized in the fiscal year in which the project is launched or the services are upgraded.³⁵ In fact it will more than likely be several years before an agency or government can show appreciable savings. Planning web-based service delivery programs should include a scheme that automatically collects unit cost data, analyzes and projects costs. According to the Columbia University Study, very little if any microanalysis is being done in the US.³⁶

Logically, the unit cost of web-based services will be reduced as there is an increase in citizen use. Accordingly citizen use will increase as more people become web proficient. Analysis should factor in increased speed and accuracy of online service delivery and increased customer satisfaction.

The Digital Divide

There is growing concern that e-government will only exacerbate the digital divide and further marginalize the have-nots. Among the reasons for this

are, governments prioritize program development based on limited or contracting resources consequently targeting sectors that are more likely to use e-gov. There is a cynical perception on the part of some decision-makers that those without access will never have the motivation or desire to accept and take advantage of e-government programs regardless of what services, hardware or incentives are provided. Competition among other programs for resources is keen and can result in the more proactive sectors or programs winning out. The question, How long will innovative attempts to bring access to rural poor remain viable and cost manageable? is embedded in most planning agendas.

Effective citizen-centric programs prioritize development to reflect a country's ICT capacities, no matter how weak, and user capacity, no matter how limited. If most businesses are connected, the priority may be towards e-commerce service delivery. This is not to suggest that there should be a zero sum attitude toward strategic deployment of e-government programs or that decisions are based on less than equitable factors. It is intended to emphasize the reality that governments face when it comes to allocating resources in choosing the approach that is the most cost-effective and beneficial. Service delivery programs should be built around current technological strengths no matter how limited these strengths may appear to be.

6.3: E-Governance

Defining E-Governance

Governance is not necessarily government as a physical entity, nor is it the act of governing through individuals. It is more realistically understood to be a process: the process by which

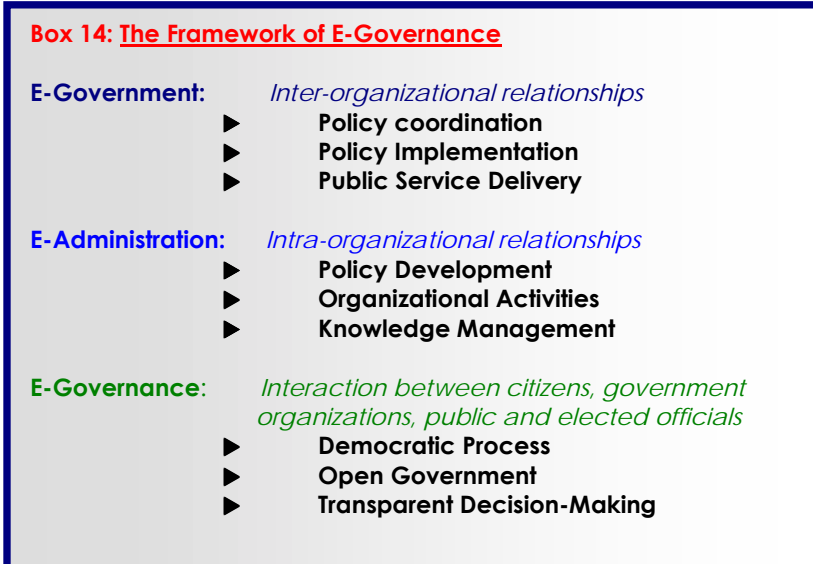
institutions, organizations, and citizens 'guide' themselves. Governance is also about the interaction between the

of e-governance is a way to ensure that every citizen has an equal right to be a part of the decision-making processes

which affect them directly or indirectly, and influence the process in a manner which may best improve their conditions and the quality of their lives.

E-Governance has the potential to ensure that citizens are no longer passive consumers of services offered to them by allowing them to play a more proactive role in deciding the kind of services they want and the structure which could best provide them. Below

are the core disciplines which form the framework of E-governance.



public sector and how society organizes itself for collective decision making, and provides the transparent mechanisms for seeing those decisions through.

E-governance is the public sector's use of the most innovative information and communication technologies, like the internet, to deliver to all citizens improved services, reliable information and greater knowledge in order to facilitate access to the governing process and encourage deeper citizen participation. It is an unequivocal commitment by decision-makers to strengthening the partnership between the private citizen and the public sector.

Digital government has the potential to connect every citizen with elected officials and decision-makers like no previous innovation or activity. It offers individuals new and greater access to information and knowledge, subsequently redefining personal freedom. Introduction and acceptance

E-government is characterized by *inter-organizational* relationships including policy coordination and policy implementation and by the delivery of services online or through other electronic means to citizens. This includes:

- ▶ *Developing citizen-centric programs*
- ▶ *Promoting and enhancing citizen participation*
- ▶ *Perfecting Online service delivery through analysis and evaluation; measuring efficiency and benchmarking against other forms of service delivery*
- ▶ *Country Indexing (performance measurement benchmarking): portal analysis; website analysis*

E-administration defines the **intra-organizational** relationships or the internal and public sector management component and includes:

- ▶ *Strategic planning in transitioning to electronic delivery of services*
- ▶ *Quantifying cost effectiveness of electronic service delivery*
- ▶ *Benchmarking and performance measurement*
- ▶ *Human resource management issues like training and recruitment, deployment of staff and maximizing existing resources.*

▶ *Legislative and policy-making environment framework: policy initiatives governments are taking; the regulatory framework; implications of initiatives like recognizing the legality of e-signatures; greater citizen participation in the policy-making environment (e-democracy)*

▶ *International Implications: Lowering of borders through information exchanges -- impacts and consequences; International standards and best practices; Information and knowledge management and e-government.*

E-governance facilitates the **interactions between citizens, government organizations and elected officials** and how the internet can improve the governing and policy making process. The core are:

- ▶ *How technology (particularly the web) is transforming the governing process*
- ▶ *E-federalism; the changing relationship among the levels of government*
- ▶ *Social implications --- the digital divides*
- ▶ *Administrative professionalism: e-ethics; increased transparency*
- ▶ *E-democracy: Enhancing citizen participation; online voting; Issues of Ethics, security and privacy; Fundraising for the e-campaign; increased transparency*

As the various components of e-governance evolve from objectives into accomplishments, the vision and philosophy for digital government will be confirmed. In the past, citizens presented themselves to governments that stood between them and the information and services they wanted. In contrast, e-governance ensures citizens direct access to information and services on their own terms without regard to the government agency behind the counter or service. This requires the bureaucrat that used to control that information, and indeed all government, to take on a whole new role in serving the citizen.

Instead of being served at arms length as a customer, the citizen now has assumed their rightful place as the proprietor and must be regarded and respected as a shareholder in the business of government. And it is this citizen who will define the details and determine the future and nature of digital government.

CONCLUSION



E-government is no longer an experiment in administrative reform but a permanent part of the governing process. For both governments and citizens, clearly its advantages far outweigh the risks of investment.

Yet how a country chooses to approach, design, and ultimately implement e-government is dependent upon its capacity to sustain an enabling environment and address the needs and priorities of its citizens. By the end of 2002, many countries will have upgraded their online services, while many more will be striving to find the best possible approach. The E-gov Index attempted to identify and benchmark the core factors that embody the UN Member States

“e-capacity”, and to create a foundation for further analysis and performance measurement.

E-government is about opportunity. Opportunity to transform a public sector organization's commitment in order to function as citizen-centric. Opportunity to provide cost effective services to the private sector contributing to the development of business and promoting long-term economic growth. And opportunity to enhance governance through improved access to accurate information and transparent, responsive and democratic institutions.

As Thomas Jefferson wrote nearly two hundred years ago: *“Information is the currency of democracy.”*

Appendix 1: Member States' E-government Index by Region

Computing the E-government Index:

The e-government index is a mean figure derived from the Web Presence, telecommunications infrastructure, and human capital measures. Since multiple indices contribute to the infrastructure and the human capital measures, a composite variable was compiled. Because of the considerable differences in a number of the ICT indices, a weighted composite variable for the infrastructure measure was computed in an attempt to 'level the playing field' to some extent. The unabridged tables for each region are available on the UN's Public Administration Website (www.unpan.org).

North America

Country	Web Presence Measure	Infrastructure Measure						Human Capital Measure			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Development Index	Information Access Index	Urban as % of Total Population	
Canada	4	39.02	768.68	46.5	67.65	28.46	715	.936	.999	77.0	2.52
Mexico	4	5.06	56.55	3.5	12.47	14.23	261	.790	.750	74.2	2.16
USA	4	58.52	2928.32	62.1	69.97	36.45	847	.934	.999	77.0	3.11
Regional Avg	4	34.20	1251.18	37.4	50.03	26.38	607.67	.887	.916	76.1	2.60

Central America

Country	Web Presence Measure	Infrastructure Measure						Human Capital Measure			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Development Index	Information Access Index	Urban as % of Total Population	
Belize	2	10.63	12.16	6.9	14.94	2.97	180	.776	.999	53.6	1.26
Costa Rica	2.5	10.17	18.29	7.1	24.94	5.20	387	.821	.916	47.6	1.42
El Salvador	2	1.62	0.92	1.1	9.08	6.22	250	.701	.750	46.3	1.19
Guatemala	2.25	0.99	4.92	1.1	5.71	3.05	126	.626	.583	39.4	1.17
Honduras	2	0.95	0.20	1.1	4.61	2.39	90	.634	.667	51.6	1.20
Nicaragua	2.25	0.81	2.76	1.0	3.04	0.90	190	.635	.667	55.8	1.35
Panama	2.25	3.20	52.82	2.3	16.43	8.27	187	.784	.916	56.0	1.38
Regional Avg	2.18	4.05	13.15	2.9	11.25	4.14	201.43	.711	.785	50.04	1.28

The Caribbean

Country	Web Presence Measure	Infrastructure Measure						Human Capital Measure			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Development Index	Information Access Index	Urban as % of Total Population	
Bahamas	2	2.34	0.79	5.1	37.59	10.36	896	.820	.999	87.90	1.79
Barbados	2	7.80	3.74	3.3	42.71	11.14	283	.864	.999	49.50	1.25
Cuba	2	0.99	0.59	1.1	4.36	0.06	239	.765	.001	76.7	1.49
Dom Rep	2	1.75	9.44	0.2	9.81	5.02	84	.722	.833	64.40	1.34
Haiti	1.5	0.88	0.10	1.5	0.89	0.31	5	.467	.250	35.10	0.84
Jamaica	2	4.30	5.71	3.2	19.86	14.24	323	.738	.833	55.60	1.31
Trin & Tob	1.5	5.42	50.96	4.0	23.11	10.29	331	.798	.833	73.60	1.34
Regional Avg	1.86	3.35	10.19	2.62	19.76	7.35	308.71	.739	.678	63.26	1.34

Benchmarking E-government: A Global Perspective --- Assessing the UN Member States

Europe

Country	Web Presence Measure	Infrastructure Measure						Human Capital Measure			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Development Index	Information Access Index	Urban as % of Total Population	
Austria	3.5	27.65	588.49	40.6	47.36	78.55	516	.921	.999	64.6	2.14
Belarus	2.5	3.15	1.99	1.7	26.88	0.48	314	.782	.167	70.7	1.62
Belgium	3.5	34.45	295.44	26.4	49.94	54.89	510	.935	.916	97.3	2.39
Bulgaria	2	2.66	22.41	7.6	35.04	8.97	366	.772	.750	69.3	1.47
Croatia	2	6.70	37.12	4.7	36.49	23.09	267	.803	.750	57.3	1.33
Cyprus	2.5	19.32	117.62	15.8	64.72	32.11	167	.877	.999	56.2	1.50
Czech Rep	3.5	12.20	155.52	10.7	37.79	42.42	447	.844	.916	74.7	2.09
Denmark	3.75	43.15	626.60	54.7	75.25	60.99	585	.921	.999	85.3	2.47
Estonia	3.75	13.52	284.25	25.6	36.33	38.70	48	.812	.916	68.8	2.05
Finland	4	39.61	1022.53	48.3	54.69	72.64	64	.925	.999	66.7	2.33
France	4	30.48	190.89	19.7	58.02	49.41	601	.924	.916	75.4	2.33
Germany	4	33.64	248.30	34.5	60.12	58.59	580	.921	.916	87.3	2.46
Greece	3	7.05	103.91	13.6	53.16	55.90	466	.881	.833	59.9	1.77
Hungary	3	8.51	102.09	11.9	37.09	29.34	437	.829	.916	63.8	1.79
Iceland	2	39.15	1419.96	60.8	67.74	66.98	356	.932	.999	92.4	2.10
Ireland	4	36.46	296.37	32.5	42.63	66.76	456	.916	.999	58.8	2.16
Italy	3.75	20.94	177.97	33.4	47.39	73.73	486	.909	.916	66.9	2.21
Latvia	3	8.20	83.72	10.1	29.99	16.86	593	.791	.916	69.0	1.88
Lithuania	3	5.95	48.14	7.2	32.11	14.17	376	.803	.916	68.4	1.81
Luxembourg	3	45.90	271.15	22.9	75.97	87.22	619	.924	.999	91.0	2.20
Malta	3	18.13	169.59	11.4	52.49	29.42	518	.866	.999	90.3	2.11
Moldova	2.25	0.80	4.03	1.1	13.33	3.02	297	.699	.667	46.2	1.29
Netherlands	3.5	39.48	1017.49	54.4	60.67	67.12	543	.931	.999	89.3	2.51
Norway	4	49.05	1009.31	54.4	72.91	70.26	579	.939	.999	75.1	2.55
Poland	3.5	6.89	87.66	9.1	28.24	17.40	413	.828	.916	65.2	1.96
Portugal	3.5	10.48	62.02	21.8	43.05	66.52	542	.874	.999	62.7	2.15
Romania	3	2.68	18.60	3.6	17.46	11.19	226	.772	.833	55.9	1.63
Russian Fed	3	4.29	22.22	10.1	21.83	2.22	420	.775	.333	77.3	1.89
Slovakia	3	10.93	70.16	14.2	31.42	23.94	402	.831	.916	57.3	1.71
Slovenia	3	25.14	110.11	34.2	37.80	54.66	356	.874	.916	50.3	1.66
Spain	4	14.29	112.19	18.4	42.12	60.93	506	.908	.916	77.4	2.30
Sweden	3.75	50.67	670.79	69.9	68.20	71.37	531	.936	.999	83.3	2.45
Switzerland	3	50.25	366.41	51.5	71.99	64.46	535	.924	.999	67.7	1.96
Turkey	3	3.81	10.64	6.2	28.00	24.56	286	.735	.416	74.1	1.83
UK	4	33.78	280.75	55.3	56.72	66.96	645	.923	.916	89.4	2.52
Ukraine	3	1.58	7.09	0.4	19.89	1.62	490	.742	.500	67.9	1.80
Regional Avg	3.25	21.14	280.93	24.97	45.41	43.54	431.75	.861	.863	71.48	2.01

South America

Country	Web Presence Measure	Infrastructure Measure						Human Capital Measure			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Development Index	Information Access Index	Urban as % of Total Population	
Argentina	3.25	5.13	72.98	10.5	21.32	16.34	289	.842	.916	89.6	2.09
Bolivia	3.25	1.23	1.59	2.1	6.17	5.16	115	.648	.833	61.9	1.73
Brasil	4	4.41	51.53	7.1	18.18	13.63	316	.750	.667	80.7	2.24
Chile	3.25	8.55	49.11	12.5	22.12	22.36	232	.825	.833	85.4	2.03
Colombia	3.25	3.37	11.06	3.3	16.92	5.33	217	.765	.500	73.5	1.88
Ecuador	2.75	2.01	0.18	1.5	10	3.81	293	.726	.667	64.3	1.63
Guyana	2.5	2.45	0.69	1.1	7.49	0.33	59	.704	.833	37.6	1.22
Paraguay	2.75	1.12	2.36	1.3	5	19.55	101	.735	.583	55.3	1.5
Peru	2.5	3.57	4.17	1.5	6.37	4.02	144	.743	.583	72.4	1.6
Suriname	2.5	1.1	0.24	3	18.06	9.84	217	.758	.916	73.5	1.63
Uruguay	3	9.96	162.02	12.8	27.84	13.19	242	.828	.999	91	2.03
Venezuela	3	4.55	6.68	5.7	10.78	21.75	185	.765	.500	86.6	1.92
Regional Avg	3	3.95	30.22	5.19	14.19	11.28	200.83	.760	.740	72.65	1.79

The Middle East

Country	Web Presence Measure	Infrastructure Measure						Human Capital Measure			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Development Index	Information Access Index	Urban as % of Total Pop.	
Algeria	2	0.58	0.01	1.1	5.60	0.27	68	.693	.250	59.5	1.27
Bahrain	3	13.98	0.77	10.1	24.97	30.05	419	.824	.083	91.8	2.04
Egypt	3.75	1.20	0.35	1.1	8.64	2.14	127	.635	.250	45.5	1.73
Israel	3.5	25.36	287.52	17.1	0.47	70.18	318	.893	.833	91.1	2.26
Jordan	3	1.39	1.36	4.1	9.29	5.83	52	.714	.500	73.6	1.75
Kuwait	3	12.13	17.55	8.1	24.40	24.86	491	.818	.416	97.4	2.12
Lebanon	3	4.64	23.00	9.0	19.96	19.38	352	.758	.250	89.3	2.00
Libya	2	0.35	0.05	4.0	10.88	0.36	143	.770	.001	87.2	1.57
Morocco	2.75	1.08	0.84	0.4	5.03	8.26	16	.596	.416	55.3	1.47
Oman	2	2.64	11.46	2.0	8.88	6.48	595	.747	.250	82.2	1.64
Qatar	2	13.58	37.68	9.8	26.77	19.96	808	.801	.167	92.3	1.81
Saudi Arabia	3	5.74	1.73	2.5	13.72	6.37	26	.754	.001	85.1	1.86
Tunisia	2	1.53	0.03	2.9	8.99	0.58	198	.714	.250	64.8	1.36
Unit Arab Em	3.5	12.51	176.00	33.0	41.79	58.51	294	.809	.250	85.5	2.17
Yemen	3	0.17	0.03	1.1	2.27	0.17	286	.468	.250	24.5	1.30
Regional Avg	.77	6.46	37.23	7.08	14.11	16.89	279.53	.733	.278	75.01	1.76

Africa

Country	Web Presence Measure	Infrastructure Indices						Human Capital Indices			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Development Index	Information Access Index	Urban as % of Population	
Angola	1.5	0.10	0.01	0.6	0.53	0.20	124	.422	.167	33.5	0.85
Botswana	1.5	3.10	14.53	1.2	7.69	7.45	27	.577	.833	49.7	1.01
Burkina Faso	1.75	0.10	0.32	1.1	0.45	0.21	6	.320	.500	17.9	0.75
Cameroon	1.5	0.27	0.21	0.5	0.64	1.00	81	.506	.083	48.0	0.99
Cent Afric Rep	1.75	0.14	0.02	0.9	0.26	0.14	5	.372	.583	40.8	0.98
Chad	1	0.13	0.01	0.1	0.13	1.00	2	.359	.250	23.5	0.55
Comoros	1	0.30	0.58	0.5	1.00	1.00	4	.510	.333	32.7	0.65
Congo	1	0.35	0.02	0.1	0.77	0.12	8	.429	.333	61.7	0.94
Cote d'Ivoire	1.75	0.55	0.41	0.2	1.81	1.77	70	.426	.460	45.7	1.05
Djibouti	1.5	0.95	0.02	0.5	1.40	0.04	73	.447	.416	83.3	1.35
Ethiopia	1.25	0.10	0.01	0.2	0.37	0.03	5	.321	.333	17.2	0.57
Gabon	1	0.84	0.28	1.5	3.18	9.79	136	.617	.416	80.3	1.17
Gambia	1	0.79	0.12	0.1	2.30	0.42	4	.398	.167	31.8	0.64
Ghana	1.75	0.25	0.01	0.4	1.17	0.64	115	.542	.750	37.9	0.98
Guinea	1	0.34	0.25	0.3	0.79	0.53	41	.397	.250	32.0	0.65
Kenya	1.75	0.42	1.56	1.1	1.01	0.11	21	.514	.250	32.1	0.90
Madagascar	1.5	0.19	0.34	0.3	0.36	0.23	46	.462	.667	29.0	0.79
Malawi	1.25	0.10	0.01	0.3	0.44	0.22	2	.397	.667	23.5	0.64
Mali	1	0.10	0.08	0.2	0.25	0.04	11	.378	.750	29.4	0.62
Mauritania	1	2.72	0.45	0.2	0.72	0.27	91	.437	.250	56.4	0.91
Mauritius	1	9.37	27.62	8.0	23.69	10.15	228	.765	.916	43.1	0.84
Mozambique	1	0.26	0.06	0.1	0.44	0.11	4	.323	.583	38.9	0.71
Namibia	1	2.95	18.51	2.3	5.94	4.67	32	.601	.750	30.4	0.65
Niger	1	0.04	0.16	0.3	0.18	0.01	26	.258	.500	20.1	0.53
Nigeria	1.75	0.64	0.06	0.4	0.43	0.03	67	.455	.500	43.1	1.02
Senegal	1	1.51	1.94	0.5	2.17	2.06	41	.423	.583	46.7	0.80
Sierra Leone	1	0.21	0.43	0.4	0.39	0.25	26	.258	.416	35.9	0.68
South Africa	3	6.18	42.95	6.3	11.36	12.01	125	.702	.916	51.1	1.56
Tanzania	1	0.24	0.23	0.7	0.49	0.51	21	.436	.500	50.1	0.83
Togo	1	1.77	0.34	0.8	0.92	0.54	20	.489	.333	32.7	0.65
Uganda	1	0.25	0.08	0.3	0.26	0.54	26	.435	.250	13.8	0.46
Zambia	1	0.72	0.86	0.3	0.93	0.31	137	.427	.416	39.5	0.75
Zimbabwe	1.25	1.30	2.31	1.1	2.07	1.51	29	.554	.250	34.6	0.76
Regional Avg.	1.30	1.13	3.48	0.96	2.26	1.75	50.12	.453	.466	38.98	0.84

Asia / Oceania

Country	Web Presence Measure	Infrastructure Measure						Human Capital Measure			E-Gov Index
		PCs / 100	Int Hosts / 10000	% of Pop Online	Tele Lines / 100	Mobile Phones / 100	TVs / 1000	Human Development Index	Info Access Index	Urban as % of Total Pop.	
Armenia	2.5	0.57	7.57	1.1	15.53	0.23	217	0.743	0.500	69.7	1.59
Australia	4	46.46	843.52	52.5	52.41	44.63	639	0.936	0.999	84.7	2.60
Azerbaijan	2	0.45	1.99	0.7	10.36	5.56	254	0.738	0.250	56.9	1.30
Bangladesh	2	0.10	0.25	0.8	0.34	0.12	7	0.470	0.583	23.9	0.90
Brunei	2	6.22	141.21	1.2	24.59	20.52	638	0.857	0.167	71.7	1.59
Cambodia	1.5	0.11	0.37	0.1	0.26	1.00	123	0.541	0.167	15.6	0.67
China	2	1.59	0.54	2.1	11.12	6.58	272	0.714	0.083	31.6	1.04
Georgia	2	0.31	3.17	1.1	12.31	1.88	472	0.742	0.500	60.2	1.39
India	3	0.45	0.35	1.2	3.20	0.35	69	0.571	0.750	28.1	1.29
Indonesia	2.75	0.99	1.26	1.2	3.14	1.73	136	0.677	0.583	39.8	1.34
Iran	2	5.58	0.27	0.8	14.90	1.51	157	0.714	0.167	61.1	1.31
Japan	3	31.52	365.66	37.2	58.58	47.30	799	0.928	0.916	78.6	2.12
Kazakhstan	2	0.30	4.55	1.1	10.82	0.30	234	0.742	0.250	56.4	1.28
Rep. Korea	4	19.03	84.10	46.4	46.37	56.69	346	0.875	0.833	81.1	2.30
Kyrgyzstan	2	0.43	8.76	1.1	8.00	0.19	44	0.707	0.250	33.6	1.01
Laos	2	0.23	0.01	0.7	0.75	0.23	4	0.476	0.083	22.9	0.88
Malaysia	3	9.45	29.33	17.0	19.93	21.32	166	0.774	0.333	56.7	1.63
Maldives	2	1.89	9.85	2.1	9.08	2.85	39	0.739	0.250	26.1	0.93
Mongolia	3	0.92	0.64	1.3	4.97	4.04	63	0.569	0.750	63.0	1.64
Nepal	2.5	0.27	0.48	0.3	1.16	0.04	4	0.480	0.583	11.6	0.94
New Zealand	4	36.02	900.87	46.1	49.57	40.25	501	0.913	0.999	85.7	2.59
Pakistan	2	0.43	0.46	0.9	2.22	0.25	88	0.498	0.250	36.5	1.04
Philippines	2.5	1.93	2.54	3.0	3.92	8.24	108	0.747	0.750	57.7	1.44
West Samoa	2.5	0.56	139.52	0.3	4.75	1.69	69	0.701	0.833	21.5	1.09
Singapore	4	48.31	437.56	49.3	48.45	68.38	348	0.876	0.333	100.0	2.58
Sri Lanka	2	0.56	1.14	0.6	4.06	2.38	92	0.735	0.583	23.3	0.92
Tajikistan	2	0.28	0.44	0.2	3.53	0.01	285	0.660	0.167	27.5	1.00
Thailand	2	2.43	10.47	2.5	8.70	4.39	236	0.757	0.750	21.2	0.94
Turkmenistan	2	0.46	2.76	1.0	8.19	0.09	201	0.730	0.001	44.7	1.15
Uzbekistan	2	0.29	0.11	1.0	6.58	0.22	273	0.698	0.083	37.2	1.10
Vietnam	2	0.89	0.02	1.0	3.19	0.99	180	0.682	0.083	39.8	1.10
Regional Avg	2.46	7.07	96.77	8.89	14.55	11.10	227.87	0.709	0.446	47.37	1.37

Appendix 2: Best Practices developed by the USA's Firstgov.gov team



Web Content Best Practices

- ★ Define purpose of website
- ★ Define your audience(s)
- ★ Focus on audience, not on your organization or program names
- ★ Provide audience interaction and listen to your audience
- ★ Respond to customers
- ★ Continue to define your audience
- ★ Offer information/services in different ways/paths
- ★ Avoid duplication and confusion – develop once, then use many times
- ★ Get forms and services online; 3-Click rule for common services/information
- ★ Structure content to make it scan-able; avoid long scrolling pages
- ★ Create consistent navigation
- ★ Create consistent look and feel
- ★ Partner with organizations, agencies, states and localities
- ★ Write for the web; Use Plain Language
- ★ Determine style guide and use consistent style
- ★ Keep content up-to-date; Check often for broken links
- ★ Create linking, security and privacy policies and post them on your site
- ★ Make site accessible and usable for persons with disabilities
- ★ Test your site in browsers and levels of machines
- ★ Check back often with your customers – and use their input

System Architecture Best Practices

- ★ Design systems around a secure paradigm
- ★ Promote standards-based open systems
- ★ Ensure scalability
- ★ Strive for modularity
- ★ Be aware of customer needs
- ★ Anticipate integration needs
- ★ Ensure fault tolerance
- ★ Understand and manage risk
- ★ Constantly re-evaluate system architecture needs

FirstGov.gov Linking Policy

- ★ Official government-owned or supported site
- ★ Official government information or services
- ★ Complements existing information and services
- ★ Accessible and applicable to a wide audience
- ★ Relevant and useful for our customers
- ★ Accurate and current
- ★ Consistent with privacy and security policies
- ★ User-friendly
- ★ Highly desirable:
 - ★ Crosses agency or intergovernmental boundaries
 - ★ Enables online transactions
 - ★ Includes ability to interact with government
 - ★ Provides information on service performance
 - ★ Provides community-level information and services

Appendix 3: Sample questionnaire sent to public sector professionals working on e-government.

- 1a) Has your government developed a national e-government strategic plan?
yes _____ no _____
- b) Approximately what is the time frame for **fully implementing** the program?
Under 12 months _____ 1- 2 years _____ 2- 5 years _____ 5 + years _____
- 2) Who is charged with the **overall responsibility** of implementing and managing the e-gov program?
- a) National Government Chief Executive
 - b) Minister / Director of Public Administration
 - c) Information Technology Dept / Chief Information Officer
 - d) Special Commission / Agency
 - e) Special e-government Unit
 - f) Other _____
(please specify)
- 3a) Does your government have an **intranet**?
yes _____ no _____
- b) Does the ministry / department / agency where you work have an **intranet**?
yes _____ no _____
- 4) Approximately how many staff (full and part time) would say are part of your e-gov team?
Below 10 _____ 25 – 50 _____ 50 – 100 _____ 100 + _____
- 5) Approximately how much in US dollars is being allocated **annually** to e-government activities?
Under \$100,000 _____ \$100,000 – 500,000 _____ \$500,000 – 1 million _____
\$1 million – 1.5 million _____ \$1.5 – 2 million _____ \$2 million + _____
- 6) In your opinion, how high of a priority is your country's commitment to e-government?
- a) Of the highest priority
 - b) Of a high priority
 - a) Of a moderate priority
 - d) Of an emerging priority
- _____
- 7) Is the decision to place specific content and information online made by:

- a) National chief executive _____
- b) National legislature _____
- c) Chief Information officer _____
- d) Individual Ministers _____
- e) Individual Dept / Unit heads _____

8) On a scale of 1 - 5, with 1 being *extremely important* and 5 of *little importance*, rank the below challenges that may be impacting on country's e-government development

- a) limited availability of financial resources _____
- b) lack of technology / trained public sector IT staff _____
- c) internet access limitations _____
- d) absence of a coordinated government strategy _____
- e) citizen unresponsiveness _____
- f) lack of support from elected officials _____
- g) other (please specify) _____

9) Are any of the below areas of your e -government program being outsourced:

	yes	no
a) full network architecture and online service delivery development	_____	_____
b) website development	_____	_____
c) human resource training	_____	_____
d) transactions and collections	_____	_____
e) other _____	_____	_____

10) What initiatives (if any) are being undertaken by decision-makers to ensure e-government oversight?
The establishment of: (check as many as appropriate)

- a) special institutions; _____
- b) special commissions; _____
- c) specialized units within departments, agencies; _____
- d) e-gov task force(s); _____
- e) non-governmental independent oversight; _____
- f) e-envoy / ombudsmen; _____
- g) other (please specify) _____

11) Have any of the following actions been taken by the national government to encourage increased citizen use of the internet for accessing government services?

- a) financial assistance to local governments for e-gov activities _____
- b) government sponsored training programmes for the public; _____
- c) national public information campaigns; _____
- d) local citizen awareness programs; _____
- e) public information kiosks; _____
- f) other: please specify _____

Benchmarking E-government: A Global Perspective --- Assessing the UN Member States

12) Are any of the below government "special initiatives" being instituted to close the "digital divide"?

	yes	no
a) assistance programmes for the less privilege	_____	_____
b) awareness programmes through the media to reach rural areas	_____	_____
c) awareness programmes to reach citizen with special needs	_____	_____
d) awareness programmes through educational institutions and programmes	_____	_____
e) financial assistance to local governments	_____	_____
f) other: please specify _____		

13) Would you favor or oppose permitting voters to cast their ballots over the internet for the following:

	National	regional/state	municipal/local
Favor	_____	_____	_____
Oppose	_____	_____	_____
No opinion	_____	_____	_____

14) In the very near future, the use of new wireless information and communication technologies like web tv and cell phones will permit countries to "leapfrog" in their development stages of e-government. Would you say your were:

a) very optimistic; b) optimistic; c) cautious; d) skeptical; e) of no opinion

that such technologies will accelerate the development of e-gov in your country by expanding access of online service delivery to virtually all citizens.

15) The Final question concerns the role the UN can play in providing assistance to developing countries and countries in transition in the area of e-government. UN/DPEPA has recently launched the internet based United Nations Public Administration Network (UNPAN) which is a one stop portal to the services provided by the UN and its regional partners like ASPA in all areas of public sector management and finance. UNPAN is a working example of how the internet can effectively be used to facilitate capacity building and provide the latest in public sector developments, best practices and knowledge. In your opinion, how can international assistance (i.e. UN) be the most effective in this area.

By providing:

- a) Technical capacity building of e-gov systems;
- b) Human resources training in e-gov and ICT;
- c) Technical and Resource mobilization;
- d) Legal assistance;
- e) Research and identification of emerging e-gov issues, programmes, best practices
- f) Other (please specify) _____

Name and e-mail address (optional)

Ministry, department or agency where you work

Title

Appendix 4: Sample form used to evaluate websites

COUNTRY	
SITE	
URL	
GENERAL QUESTIONS	
Does the country maintain an official:	name of contact individual(s) telephone numbers, addresses, etc directories site index or map help feature contact us FAQs what's new link
Customized portal (UK model) One-stop-shop portal; (US, Australia, NZ model) National government home page Other (describe)	Does the site offer access to specialized databases? (i.e. job banks, hospitals, legislation,)
Do the sites link to any or all of the following?	Is the site multi-lingual? Please list all languages other than national.
Ministries -- How many? Ministry of Health Ministry of Education Ministry of Welfare/Social Services Ministry of Labor Specialized agencies/ divisions units Parliaments / national legislatures Regional / Local governments International Orgs (UN) NGOs Private Sector sites	Does the site offer a search feature that is easy to use and accurate?
Is there an national e-gov strategic plan online?	Does the site allow the user to post comments or offer feedback?
Can the user download or printout national laws; bills; judicial decisions?	Is there a site security feature?
SITE QUESTIONS	SERVICES QUESTIONS
How is the sites content organized? By:	Does the site offer the following online services:
services provided alphabetically themes none of the above	e-application forms requesting a specific service e-forms requesting a permit of any kind e-form requesting a benefits payment request information or publication register online for a benefits service or programme register online for a training or skills enhancement course register online for a job or employment service apply / pay a utility bill, fine or other govt obligation make an appointment with officials, staff etc: download or print forms or applications Other(s):
Does the site's content include?	Can taxes be filed (national;local;sales; VAT) online?
links to minister / dept. head links internal divisions, units, staff links to specialized programmes links to the online services offered links to other related services provided by government links to other govt ministries, agencies, departments general organization information / org chart	Can the user pay any tax obligation online?
Does the site's content include the following?	Can the user pay fines or other government obligations online?
	What form or method of online payment is used (for any transaction)
	credit card bank or debit card bill the users home
	Please list any additional online <i>transactional</i> services; this could include: purchasing postal services, govt bids, commemerative gifts, property, military surplus, etc.

Is there a direct link to specific individual services?
Is there a direct link to all available online forms?
What kind of published information is available?
official government reports publications available for purchase newsletters press releases; news alerts, bios, pa* summaries specialized publications on critical topics
Can the documents be saved or downloaded?
Is there a fee?
Are the documents mostly in PDF format?
ADVANCED FEATURES
Can the user participate in a chat room or e-townhall?
Does the site accept digital signatures?
Does the site include:
<i>links to private sector sites</i> <i>advertisements of any kind</i> <i>other uncommon features (give an example)</i>
Does the site offer streaming media, like live video or audio of events, etc.
Does the site offer push technology?
COMMENTARY
Would you describe the type of content and services available as predominately: (select one)
<i>informational</i> (basic); <i>interactive</i> (users can e-mail, offer feedback, etc) <i>transactional</i> (user can pay for service(s); taxes; fines; purchases)
Would you say the content was updated:
<i>frequently</i> (weekly) <i>regularly</i> (monthly or bi-monthly) <i>seldom</i> (six months or longer)
How user-friendly was the site? Select one
<i>Extremely user friendly with content well presented</i> <i>User friendly with content adequately displayed</i> <i>Somewhat user friendly with room for improvement</i> <i>Not at all user friendly; content was disorganized</i> <i>Site was poorly developed.</i>
Were there any content items, basic features, links you expected to be present on the site and were not?
If so, please list examples.

MISC
Name of contact on page (if any)
Title
e-mail
Telephone

(*) For questions 14-17 the Ministry of Finance or any Division or Unit of Taxation may be the best place to try, in which case please indicate so on the form.

(*) *pa* = public affairs / public relations pieces

Selected Online Resources

United Nations:

Division for Public Economics and Public Administration United Nations Department of Economic and Social Affairs (DPEPA/UNDESA)

The Division's mission is to assist Member States in ensuring that their governance systems, administrative and financial institutions, human resources and policy development processes function in an effective and participatory manner by fostering dialogue, promoting and sharing information and knowledge and providing technical and advisory services.

<http://www.unpan.org/dpepa.asp>

UNPAN

The United Nations Online Network in Public Administration and Finance (UNPAN)

is a network of international organizations and an electronic gateway to research, information and knowledge on all public sector management and administrative issues and areas currently impacting the UN Member States. The mission of UNPAN is to promote the sharing of knowledge, experiences and best practices throughout the world in sound public policies, effective public administration and efficient civil services, through capacity-building and cooperation among Member States, with emphasis on south-south cooperation and UNPAN's commitment to integrity and excellence.

<http://www.unpan.org/>

ASPA

The American Society for Public Administration

is a non-profit organization whose mission is to advance excellence in public service. ASPA was established to professionalize the public service, to keep members on the cutting edge of good government, and to help answer the enduring question of how to make government work better.

<http://www.aspanet.org/>

Governments on the WWW

is a comprehensive database of governmental institutions on the World Wide Web: parliaments, ministries, offices, law courts, embassies, city councils, public broadcasting corporations, central banks, multi-governmental institutions etc. Includes also political parties. It contains more than 17000 entries from more than 220 countries and territories.

<http://www.gksoft.com/govt/>

Foreign Government Resources on the Internet

<http://www.lib.berkeley.edu/GSSI/foreign.html>

Egovlinks.com

This portal offers resources on e-government including reports, news and links sorted by category.

http://www.egovlinks.com/world_egov_links.html

The Third Global Forum on Reinventing Government Portal

<http://www.egov.it/egovie/index.html>

The World Bank's e-government page includes information and case studies from developing countries on e-government organized by country, sector or objectives as well as links to external studies on e-government, many from developed countries.
<http://www1.worldbank.org/publicsector/egov/>

The Organization for Economic Cooperation and Development (OECD) Web site offers downloadable reports (in PDF format) on various aspects of e-government, public participation and ICT.
<http://www1.oecd.org/puma/pubs/>

The Web site for the Intergovernmental Technology Leadership Consortium of the **Council for Excellence in Government** has information on e-government, including public surveys from the US and an award competition
<http://www.excelgov.org/techcon/index.htm>

Digital Governance is a project that explores and disseminates innovative models by which ICT can be used in developing countries to lead to better governance.
<http://www.digitalgovernance.org>

This site of the **Social Science Information Gateway**, part of UK Resource Discovery Network, offers links to numerous papers, reports, news, governmental and non-governmental organizations addressing e-government.
<http://sosig.esrc.bristol.ac.uk/roads/subject-listing/World-cat/polcom.html>

References:

Publications /Text Books

Comparative Performance Measurement

Morley, Bryant and Hatry
The Urban Institute, Washington, DC,
2001

Performance Measurement: Getting Results

Harry P. Hatry
The Urban Institute, Washington, DC,
1999

Designing E-government:

On the Crossroads of Technological Innovation and Institutional Change

Edited by J.E.J. Prins
Kluwer Law International, 2001

E-Government 2001

Pricewaterhouse Coopers Endowment for The Business of Government
Edited by Mark A. Abramson and Grady E. Means

Reinventing Government in the Information Age: International Practices in IT Public Sector Reform

Editor: Richard Heeks
Routledge Publications, London and New York, 2000

The Internet Edge: Social Technical and Legal Challenges for a Networked World

Mark Stefik
MIT Press, 1999

The Rise of the Network Society

Manual Castells
Blackwell Publications, 1996

UN Reports / Publications:

Building Confidence

Electronic Commerce for Development
United Nations Conference on Trade and Development (UNCTAD), 2000

2000 Human Development Report
United Nations Development Program,
New York, NY
Oxford University Press

Knowledge for Development
World Development Report 1999
World Bank, Washington DC

Knowledge Societies: Information Technology for Sustainable Development
Robin Mansell and Uta Wehn, editors
United Nations Commission on Science and technology for Development
Oxford University Press, 1998

Global Survey of Online Governance
The Commonwealth Network of Information Technology for Development Foundation
United Nations Educational, Scientific and Cultural Organization
Paris, 2000

Government Publications / Reports

Australia

Government Online
The Commonwealth Government's Strategy
Office for Government Online
Telephone:02 6271 1222
Facsimile:02 6271 1698
Email:info@govonline.gov.au
www.govonline.gov.auwww.govonline

Estonia

The e-Citizen Estonia
A nation-wide project for developing the co-operation between Estonian citizens and the public sector through the Internet

The Republic of Ireland

Information Society Ireland
Third Report of the Information Society Commission

The Government of Italy

E-government Action Plan

The Netherlands

Contract with the Future

A vision on the electronic relationship between government and citizen
Memorandum presented to the Lower Chamber of Dutch Parliament by the Minister for Urban Policy and the Integration of Ethnic Minorities.
Lower Chamber, session year 1999-2000, May 2000

Sweden

24 / 7 Program: Strategic Plan 2001
www.sverigedirekt.riksdagen.se/

The United Kingdom:

E-government: A Strategic Framework for Public Services in the Information Age
Cabinet Office, April 2001

E-government Interoperability Framework, April 2001
Cabinet Office

Information Age Government Benchmarking Electronic Service Delivery,
A report by the Central IT Unit, July 2000

The UK Modernising Government White Paper (MGWP), 1999

The United States

The Enabling Environment for a Free and Independent Media
Contribution to Transparent and Accountable Governance
January, 2002
Office of Democracy and Governance
Bureau for Democracy, Conflict and Humanitarian Assistance
US Agency For International Development

The European Union

Benchmarking eEurope

Methodology Paper
Information Society Working Group
October, 2000

The Use of Information and Communication Technology in the Public Administration of the EU Member States

35th Conference of the Directors-General of the Public Service of the Member States of the European Union
Strasbourg, November 2001

Articles / Reports

How People Use Government Agencies' Web sites

Principal authors: Elena Larsen, Research Fellow
Lee Rainie, Director
Pew Internet & American Life Project,
April, 2002

The Rise of the e-Citizen

Eight Imperatives for Leaders in a Networked World:
The Harvard Policy Group On Network-Enabled Services and Government
John F. Kennedy School of Government
Imperative 3: Utilize Best Practices for Implementing Initiatives
March, 2001

Imperative 4 : Improve Budgeting and Financing for Promising IT Initiatives
April, 2001

The Use of the Internet in Government Service Delivery

Steven Cohen and William Eimicke
Columbia University: School of International and Public Affairs
E-Government 2001
The Pricewaterhouse Coopers Endowment of the Business of Government

The African Internet - A Status Report
May 2001 www.africaonline.com
Mike Jensen- mikei@sn.apc.org

Internet for the Arab World
International Telecommunications Union
Telecommunication Development
Bureau
Meeting for the Arab Region for
The World Telecommunication
Development Conference, Alexandria
(Egypt), 17-19 October 2000
Document 15-E
2 October 2000

The Role of Government in A Digital Age
Commissioned by the Computer &
Communications Industry Association
Joseph M. Stiglitz, Peter R. Orszag,
Jonathan M. Orszag
October 2000

*And Justice for All: Designing Your
Business Case for Integrating Justice
Information, 2000*
Center for Technology in Government,
Albany, NY

*E-Government: The Next American
Revolution.* Council for Excellence in
Government Washington D.C.: Council
for Excellence in Government, 2001.

*Innovative Funding Approaches for
Information Technology Initiatives:
Federal, State, and Local
Government Experiences.* Washington
D.C.: Intergovernmental Advisory Board,
1998.

*Overcoming Budget Barriers: Funding IT
Projects in the Public Sector.* Jerry
Mechling and Victoria Sweeney
Cambridge, MA:

*Program on Strategic Computing and
Telecommunications in the Public
Sector,* Harvard University, 1997

*Dollars & Sense: Several States Are
attempting to overhaul funding for
enterprise IT projects*
Steve Towns
Government Technology, January 2001.
*Powering Up: How Public Managers Can
Take Control of Information Technology.*
Katherine Barrett and Richard Greene.
Washington D.C.: CQ Press, 2001.

Consulting Firms:

At the Dawn of E-government
Deloitte Research, Pittsburgh, PA

Rhetoric vs. Reality - Closing the Gap,
Accenture Consulting Washington, DC,
July 2001

Endnotes:

¹ The Enabling Environment for Free and Independent Media: Contribution to Transparent and Accountable Governance Office of Democracy and Governance US Agency for International Development January, 2002

² Reinventing Government in the Information Age: International Practices in IT Public Sector Reform

Editor: Richard Heeks

³ *ibid*, Heeks

⁴ Building Confidence: Electronic Commerce for Development United Nations Conference on Trade and Development (UNCTAD), 2000

⁵ How people use government agencies' Web sites

Principal authors: Elena Larsen, Research Fellow, Lee Rainie, Director Pew Internet & American Life Project, April, 2002

⁶ *Ibid*, Pew

⁷ *Ibid*, Pew

⁸ At the Dawn of E-government, Deloitte Research, Pittsburgh PA

⁹ Information Age Government Benchmarking Electronic Service Delivery, A Report by the Central IT Unit, July 2000

¹⁰ The Role of Government in A Digital Age Joseph E. Stiglitz, Peter Orszag, Jonathan M. Orszag; Computer & Communications Industry Association, October 2000

¹¹ *ibid*, Knowledge Societies

¹² Global Survey of Online Governance The Commonwealth Network of Information Technology for Development Foundation United Nations Educational, Scientific and Cultural Organization (UNESCO) Paris, 2000

¹³ *ibid*, Knowledge Societies

¹⁴ *ibid*, USAID

¹⁵ *ibid*, Knowledge Societies

¹⁶ www.nua.ie

¹⁷ UNESCO

¹⁸ Rhetoric vs. Reality - Closing the Gap, Accenture, Washington, DC, July 2001

¹⁹ *ibid*, Accenture

²⁰ Global Survey of Online Governance The Commonwealth Network of Information Technology for Development Foundation United Nations Educational, Scientific and Cultural Organization (UNESCO) Paris, 2000

²¹ World Bank: 1999 World Development Report.

²² The Internet in Africa, Analysis Mike Jensen. www.africaonline.com

²³ European Union The Use of Information and Communication Technology in the Public Administration of the EU Member States 35th Conference of the Directors-General of the Public Service of the Member States of the European Union Strasbourg, November 2001

²⁴ *ibid*, Heeks

²⁵ *ibid*, European Union, Knowledge Societies

²⁶ *ibid*, Heeks

²⁷ *ibid*, European Union

²⁸ *ibid*, European Union

²⁹ *ibid*, UNESCO

³⁰ *ibid*, Knowledge Societies

³¹ *ibid*, Heeks

³² *ibid*, Heeks

³³ ITU

³⁴ The Use of the Internet in Government Service Delivery Steven Cohen and William Eimicke Columbia University E-Government 2001

The Pricewaterhouse Coopers Endowment of the Business of Government

³⁵ Cohen/Eimicke

³⁶ Cohen/Eimicke