

# GLOBAL SURVEY ON ON-LINE GOVERNANCE

## FINAL REPORT

by

The Commonwealth Network of Information  
Technology for Development Foundation  
(COMNET-IT)

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United Nations Educational,  
Scientific and Cultural Organization

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## Preface

UNESCO and COMNET-IT have undertaken a first step in investigating the international state of the art of on-line governance, as exemplified by government-led initiatives for the electronic provision of information services, and of public input to the process of government. This first stage has been concluded with the present survey report resulting from data polled from sixty-two countries and an Internet-based facility from which the data can be queried and accessed (<http://www.comnet.mt/Unesco/>).

Global competition demands more effective and integrated resource management of a nation's assets. Concurrently with aspirations for a better quality of life (fuelled in part by a heightened awareness disseminated through the mass media), governments are facing pressures for increased accountability. This in turn is encouraging a push for the devolution of authority and decentralisation of services, particularly as information and communication technologies (ICTs) are deployed to re-engineer processes and interactions. The consequent unfolding of electronic government catalyses the deployment of infrastructures and community involvement, initially as recipients of information and services, but increasingly in multiple interactions both with authorities and with other communities/community of interests.

Building in part on the emergence of E-Government, the transition to market economies brings in its wake the liberalisation of telecommunications and other sectors and an emergence of new services which fuel the pervasiveness of ICTs in networks outside the domain of the public service.

Whilst developed countries are evidently on an accelerating spiral of knowledge acquisition and application, as well as the transformation of governance, developing countries are facing formidable hurdles – of which acquiring and deploying ICTs is but one.

Whilst the data from industrialized countries may be construed as a road map for the less-developed, it is vital to concurrently examine the contextual issues in developing countries if we are to achieve a truly participative society - not simply one of leaders and followers. Transforming global governance, therefore, is the ultimate challenge.

The report presents the results of the survey, a discussion of key issues taking account of these results as well as the available literature and the experience of authors, and a set of concrete and applicable recommendations that address the issues presented. Mainly these recommendations can be divided into policy awareness, funding, legislative standards, access, ICT empowerment and involvement of private enterprises at community and local levels. They further provides a way forward to deepen this study and to sustain its continuous development and dissemination.

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## Introduction and Methodology

The revolution brought about by the convergence of rapidly advancing information and communication technologies has changed our personal and working lives dramatically. Today 's applications were only a dream some years ago and it is ever more evident that there seems to be no limit to the changes that this revolution can bring into our lives.

These technologies have also influenced and drastically changed the way we do business. Organisations strive to keep up with technological developments in their efforts to gain or maintain their competitive advantage. Likewise Governments all around the world have turned their attention to the use of information technology to re-engineer their business and to deliver more with less.

The wide use of information technology by Governments raises a number of issues and perspectives that have to be taken into consideration - social, economic, technical, legislative and other matters that may have an impact on the wider society. Unlike business enterprises, government plays different roles. In some contexts it is the regulator, in others it is the initiator and in others it is a partner with private industry to improve the management of its business. Having said all this it is important to understand that the reason for which Government exists is fundamentally different from those of private industry or enterprise. From this one can further argue that the use to which information technology is put is also different. In the G8 Government Online and Democracy White Paper<sup>1</sup>, Paul Bird, the chairman of the G8 Government On-line Steering Group, argues that the issues cover a wide range from governments trying to raise awareness about the democratic process and the system of government to enhancing public participation in the process of government and administration.

Raising awareness about the democratic process and a system of government is a task in which governments give information about themselves, rather than about the specific services they provide. It is the provision of information about the system of government, administration, representatives, mandate, individual rights, etc. This is essentially the basic lowest level of online governance and has a stronger educational aspect than most other possible uses of technology by government. Such information is normally the type of information one comes across on parliamentary, head of state/government web sites.

A further level of online governance is the provision of information about (i) the services provided by the administration and (ii) the operation of government in the sense that the citizen is provided with guidance on where to obtain services. This information can be made available on request by the citizen or placed on bulletin boards and web sites automatically by government.

Another aspect also indicated in the White Paper referred to above is the point at which the citizen has the possibility to interact by providing feedback to a department or individual within the administration of government. This type of feedback can be both general or specific about particular topics, and it can also be solicited or unsolicited.

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 practised through the use of voting and referenda and again mostly at community and local level. Its use at higher levels of government is less common. It goes beyond simply providing feedback, it is a process of discussions and negotiations which often may involve face-to-face interaction. The use of information technology can increase the broad involvement of citizens in the process of governance at all

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<sup>1</sup> An online version of the white paper can be found on [www.open.gov.uk/govoline/front.htm](http://www.open.gov.uk/govoline/front.htm)

levels by providing the possibility of on-line discussion groups and enhancing the rapid development and effectiveness of pressure groups.

An even higher level presented by Bird is the direct support for the democratic process. This may include various aspects like on-line opinion polling on non-political matters, on-line support for the electoral process such as the registration of voters and the checking of voters lists and finally actual on-line voting.

The public and political pressures for reform, accountability and improved service is making of On-Line Governance a vehicle for far-reaching developments in public-access to information, the promotion of public fora, and the evolution of both legislative and administrative institutions. The above model could be presented as a developmental model for on-line governance. It can also be used to gauge the level of citizen participation in the process of governance through the use of information technology and systems.

In the provision of services, ICTs are enabling the decentralisation of services and the introduction of a "one-stop shop" culture. They are also facilitating the decentralisation of authority since overall control and management information at the policy level is in no way diminished. The increased decentralisation, in turn, enhances (indeed may be a pre-requisite for) increased accountability.

On-line governance is offering developing countries the possibility to catch up. If they are able to harness the new technologies, these countries will have the ability to leap-frog over decades of evolutionary development. In these countries, the public sector, given forward-looking policies, often plays a catalytic and lead role in promoting IT nationally and the infrastructure deployment and provisions made for access to services impact favourably on the empowerment of society through information.

As a result of this and with both the hindsight of experience as well as the foresight which such experience imparts about the impact this new technology has over the process of Governance, UNESCO and COMNET-IT have teamed up to research the interaction between access, empowerment and governance.

UNESCO has been mandated by its Member States, *inter alia*, "to promote the free flow of ideas by word and image and to foster international co-operation in the fields of communication, information and informatics in order to narrow the existing gap between the developed and developing countries in these areas. UNESCO's Medium-Term Strategy for 1996-2001 foresees a special focus on the application of communication and information technologies for development, democracy and peace. With this and other considerations in mind, UNESCO has decided to give attention to the development of On-line Governance, undertaking to provide its Member-States, particularly developing countries, with information on the experiences, trends and issues in this area. In view of this and the ever increasing use of information technology in the process of governance UNESCO and COMNET-IT have agreed to collaborate in the conduct of this global survey in the area of online governance. The present exercise can be viewed as no more than an overview "snap-shot" of international trends and practices regarding the manner and extent to which governments are adopting IT for purpose of

- providing services to the public
- providing information
- engaging citizens in the development of policy and democracy

The survey defined on-line governance as "*providing citizens with access to computer-mediated information, service delivery or dialogue in liaison with government at any level*". It is not necessary that any telecommunication link be involved e.g. regularly updated stand-alone kiosks could fulfil an on-line government function. The notion of government was extended to include all public services incorporating

those of quasi-governmental entities.

The methodology adopted was questionnaires based. As shown in Appendix A, a questionnaire was developed and sent in mid-1999 to 186 UNESCO National Commissions as listed on the UNESCO web site (<http://www.unesco.org/general/eng/partners/commission/listecn.html>) and to two UNESCO non-member states, the United States of America and Singapore, who were invited to complete the questionnaire. All the participating countries, through the UNESCO commission (if this was available) were responsible for completing the questionnaire optionally in consultation with other concerned national authorities.

Sixty-two countries (Appendix D) returned a completed or partially completed questionnaire. The figures below show the distribution of responding countries according to whether the country is industrialised or developing and according to region.

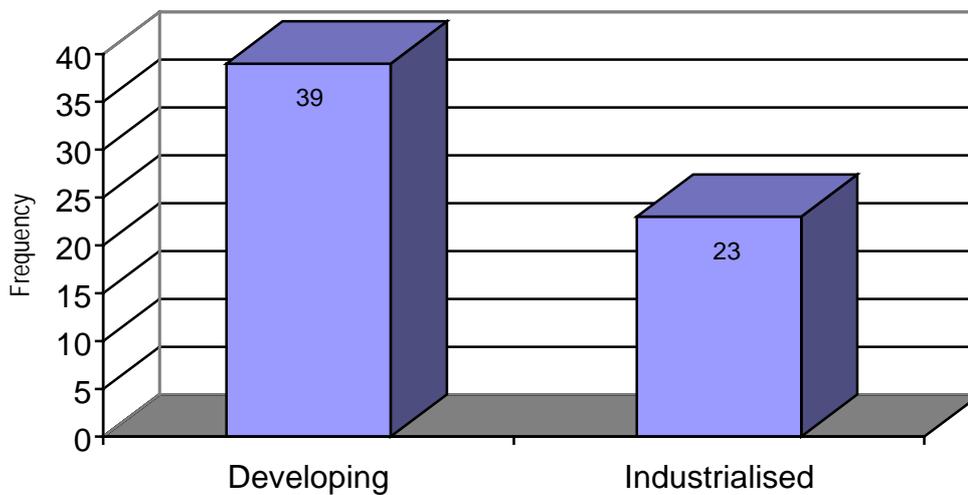


Figure 1: Number of responding countries by development (N=62)

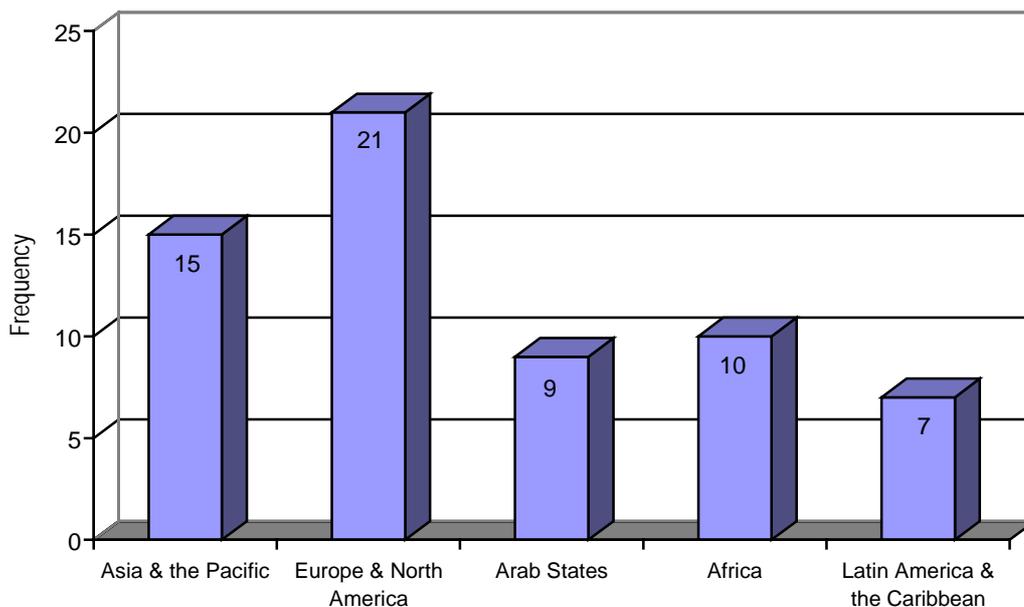


Figure 2: Number of responding countries by region (N=62)

As can be seen from Appendix A, the questionnaire was designed to minimize as much as possible the time needed for completion. In trying to minimize the workload on people completing the questionnaire a compromise on the type of information collected was made. Although the questionnaire contained both qualitative and quantitative measures, the nature of its design made it more adaptable for a quantitative analysis bringing with it all the limitations that such an analysis can have. Nonetheless it is proposed that a second phase of this project will be undertaken and that the information collected during this later phase will be of a more qualitative nature which should add the flesh to the framework provided by this report.

The questionnaire was translated into three languages, English, French and Spanish, and divided into four sections, each tackling a specific area of online governance. Section 1 required the respondents to give general information about the state of information and communication technology in their country. Section 2 asked respondents to indicate the status of several applications that dealt with on-line information to citizen. Examples of these are listings of government agencies and officials or the publication of tenders through a number of media. Section 3 dealt with on-line services to the citizen and this included among others services like filling out application forms or paying bills. Section 4 dealt with the on-line participation of citizens in the process of governance and included processes like voting and referenda.

In addition to the information elicited by the questionnaire additional research was carried out to collect other information such as demographic information about the countries returning the completed questionnaires. This demographic information includes a number of indicators such as GNP, population, literacy levels, PCs/radios/televisions per 1000 people etc. and can be found on the project web site [www.comnet.mt:8080/unesco](http://www.comnet.mt:8080/unesco).

To further ease the completion of the questionnaire, a set of guidelines were developed (Appendix B). These guidelines explained the different sections in the questionnaire with instructions for completion. The questionnaire was sent to UNESCO National Commissions in April/May 1999, data was analysed in October/November of the same year and consultations were carried out in the first half of 2000.

## Results

Three different segmentation levels were utilised in analysing the questionnaire responses. In the first instance a global analysis was conducted in which the overall trends and results were presented. This provided a bird's eye view of the situation internationally. Following this another analysis was conducted which splits the countries into five regions being, Africa, Arab States, Asia and the Pacific, Latin America and the Caribbean and Europe and North America (Appendix C). This analysis provided a picture of where each region stood with respect to the topic being researched. Finally a third analysis of the responses were carried out according to whether the countries were classified as industrialised or developing.<sup>2</sup>

In interpreting the results a number of limitations need to be kept in mind:

- (i) in most cases the information received came from either the UNESCO National Commissions or other parties who would not have access to primary data. This may explain the relatively large proportion of missing replies to some questions, which in turn mandates care in the interpretation of the results.
- (ii) there was no significant validation carried out on the responses in this phase of the project
- (iii) the reported figures represent the number of countries sending in a completed or partially completed questionnaire. In this respect in certain instances the results cannot be extrapolated to the whole population of countries around the world.

The results mainly give an overall picture of the situation yet in instances where this was warranted the results also present regional and industrialized versus non-industrialized differences. Each section of the questionnaire is treated in this manner and a full comment is made prior to moving on to the next question. (For the full database of responses and related country statistics refer to <http://www.comnet.mt/Unesco/>).

### ***Government Information***

The group of questions concerning government information asked the respondents about the initiatives launched by government to promote the use of information technology, the changes in the government's budget for information technology, government's web site and policy for plurality of opinion and the cost of access to on-line government information.

This part of the survey was designed to gather general information about ICTs and government. Not unexpectedly, almost all countries report a number of initiatives; interestingly, some of them include an increasing number of deliberate government-wide strategies and policy co-ordination programmes. Even developed countries with a history of independent developments and strong departmental or ministerial autonomy are attempting to come to grips with the strategic importance of co-ordinated IT policy, seamless infrastructures and data or information sharing where legally permissible. This tendency has been accentuated in recent years by the strong push in recent years for devolution and delegation of authority, and the falling unit costs of technology. For developing countries, the relative absence of "baggage" from the past, or legacy systems, in itself offers an opportunity to leapfrog, by deploying

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<sup>2</sup> In the absence of standard criteria for the identification of countries as developing or industrialised, a choice has been made for this analysis (as per the notes in Appendix C) which roughly corresponds to the views of the different regions, but is not fully consistent among regions; this classification does not imply a judgement.

contemporary technology standards in support of improved information flow and effective use of scarce IT resources. This is particularly true for small and island states.

Notwithstanding these initiatives in developing countries, however, the focus in most application systems is still on the “back-office” activities of government administration, with little exploitation of internet-enabled services. This may be indicative of two things: insufficient boldness or creativity on the part of the IT strategists or, perhaps more important, the lack of sufficient external pressure/drivers, particularly from the agencies that are clients to the IT function. Ultimately the push will come from an informed community, but for a long time the service agencies will play an intermediary - though not always overtly catalytic - role. We may find, in time, that deploying the technology was “the easy bit”.

To the first question asking whether Government had launched any initiatives to promote the use of informatics and telematics in government and public service. Eighty-nine percent of the respondents said that Government had launched such initiatives.

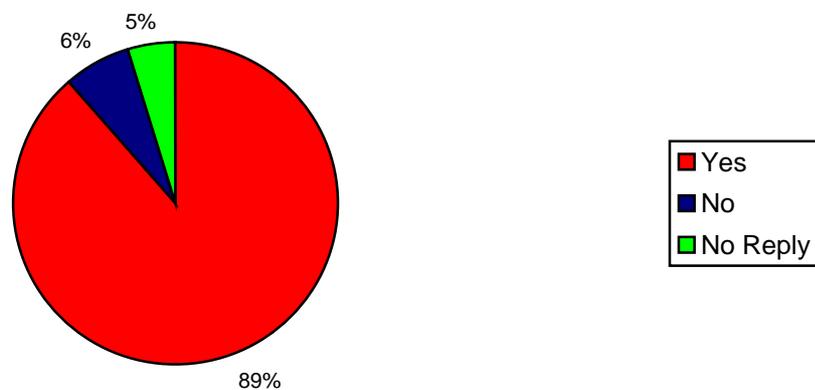


Figure 1: Promotion of informatics and telematics use through government initiatives (N=62)

As shown in the figure below there seems to be a consensus on the promotion of the use of informatics and telematics in that the majority of governments in all regions have launched initiatives to promote the use of information technology. In this regard, based on the information available, it is safe to say that commitment to information technology can be found across the globe.

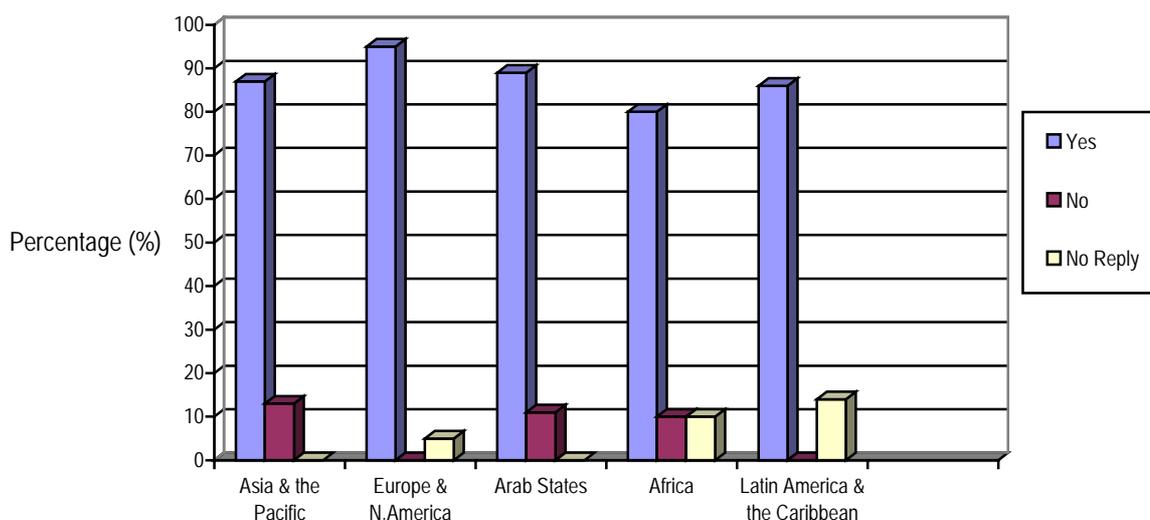


Figure 2: Has government launched any initiatives to promote the use of informatics and telematics in government and public service (N=62)

The same trend with regards to the launching of new initiatives is seen also in the analysis for developing and industrialized countries. The majority of respondents (89%) have launched initiatives and none of the countries categorized as industrialized has said that no initiatives have been launched.

	Developing (%)	Industrialized (%)
Yes	85	96
No	10	0
No Reply	5	4

Table 1: Has Government launched any initiatives to promote the use of informatics and telematics in Government and public service (N=62)

In addition to this the questionnaire asked who was involved in these initiatives. Figure 3 classifies the responses. Whilst this representation may be stating the obvious, it is the emerging "other entities" that are of interest. For example, whilst a few (notably Scandinavian) countries mention the involvement of local authorities, NGOs also feature (Lithuania) and Switzerland reports the involvement of consumer associations.

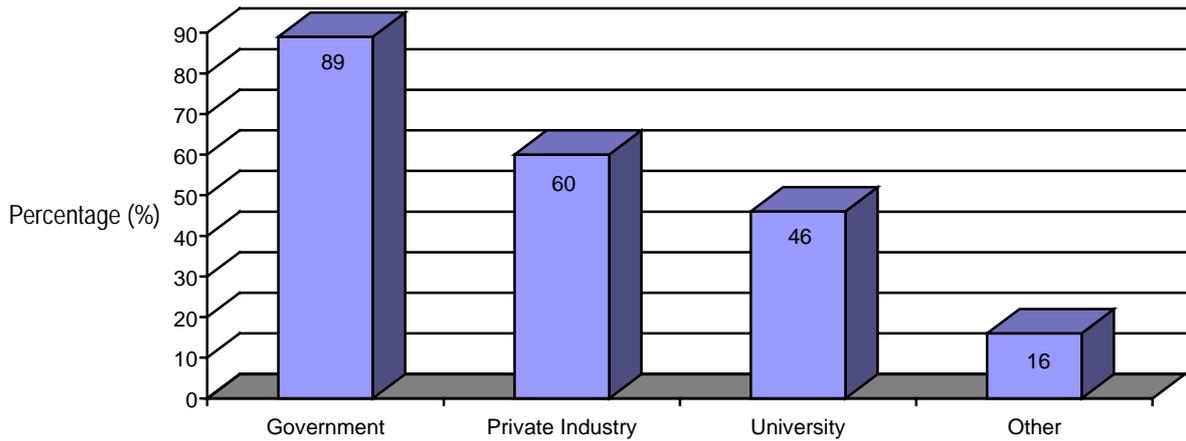


Figure 3: Entities involved in initiatives (N=62)

Looking at the analysis from different angles i.e. by region and by level of industrialization the same trend emerges, in that Government seems to be the main driver across the board. Looking at the data from an industrialized versus developing perspective similarities can be seen between the two groups in both the involvement of Private Industry and University, so much so that the percentages are almost the same. Surprisingly Government seems to be more involved in industrialized countries than in developing countries. This is surprising in that one expects that the more a country is industrialized the greater the devolution of power. Having said that a counter argument to this may be that IT has become such an important aspect of a country's economic well being that Governments see it as an item of national importance.

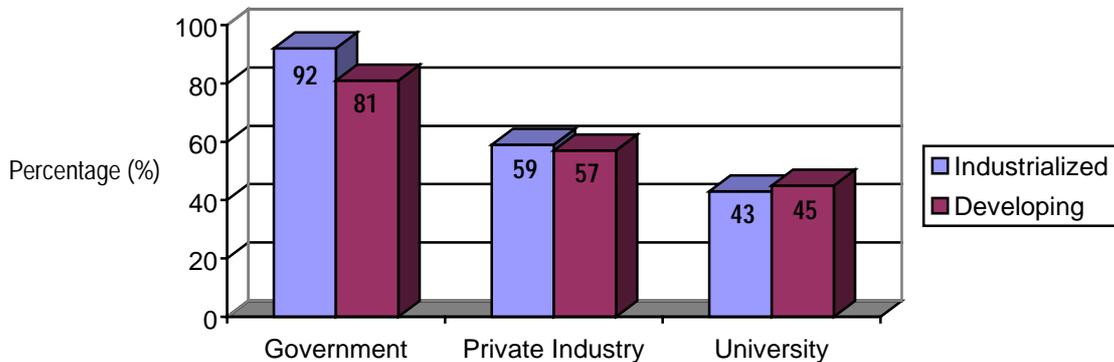


Figure 4: Entities involved in initiatives - industrialized versus developing (N=62)

The regional analysis elicits some interesting information as can be seen from the table below.

Region	Government (%)	Private Industry (%)	University (%)
Asia and The Pacific	87	60	27
Europe and N. America	95	60	45
Arab States	86	57	57
Africa	70	40	50
Latin America and The Caribbean	86	71	57
Overall	86	58	44

Table 2: Who is involved in the initiatives launched by Government to promote the use of informatics and telematics in Government and public service (N=62)

Once again across all regions Government is the main driver for initiatives in the area of informatics and telematics. Yet some regional differences may be seen in the case of Private Industry and University. Africa seems to be the only region where Private Industry is behind University in its involvement. One has yet to see whether this could be interpreted as being due to the relatively low penetration of privatization in the region when compared with other regions.

The question concerning Government budget for Information Technology was one which elicited a low level of response and the replies showed a wide variation possibly due to different interpretations of the scope and of the terms used.

When asked about whether the budget had changed in real terms over the last three years, the respondents answered as shown in Figure 5.

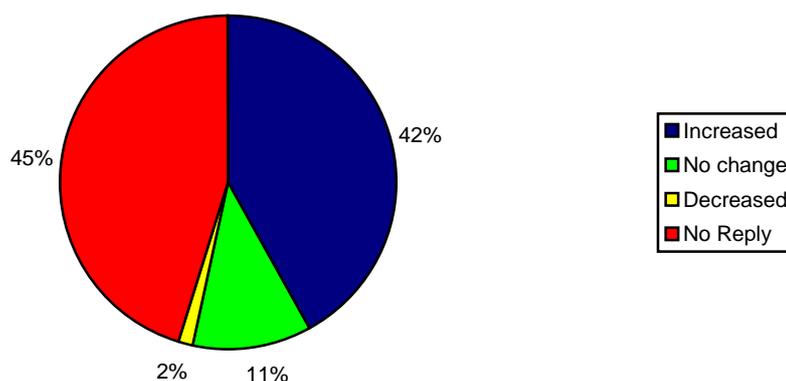


Figure 5: Change in IT budget over the last 3 years (N=62)

Overall Governments are increasing their budgets for information technology. According to the little quantitative information made available budgets were increased by an average of 12%, yet this figure needs to be interpreted with some caution. Some responses provide an indicator of IT expenditure as a percentage of the national budget and these responses are listed hereunder.

Bulgaria	0.8 percent
Greece	2
Hungary	1.1
Japan	1
Jordan	0.2
Seychelles	4
Senegal	0.05
USA	1.5
Malta	1.5
Chile	0.64
India	2.5

When asked about whether the government's budget for information technology has increased or decreased the regional response was that in Figure 6 below.

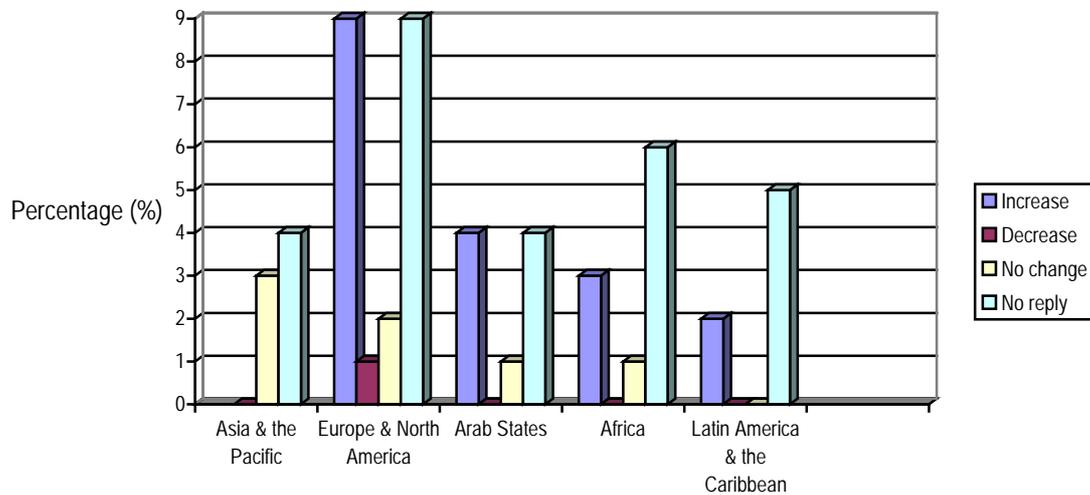


Figure 6: Changes in Government budgets for information technology (N=62)

Relatively speaking the number of null replies is quite high, yet from the data available one can see that a negligible number decreased the budget for information technology and that most countries have registered an increase. Once again the commitment to invest in information technology seems to be universal. This reflects an increasing awareness by governments that the competitive edge of their countries can depend significantly on having a sound IT infrastructure.

Looking at the same question and comparing across countries in terms of their level of development produced the following analysis:

	Developing (%)	Industrialised (%)
Increase	38	48
Decrease		4
No Change	13	9
No Reply	49	39

Table 3: Changes in Government budgets for information technology (N=62)

These results seem to indicate that industrialization does not make any significant difference in determining the extent of government ICT initiatives and their relative budgetary fluctuations.

The next question asked about the availability of one or more official Government web site/s and the overwhelming response was that such web sites exist. This can be seen in the graphs and tables shown below.

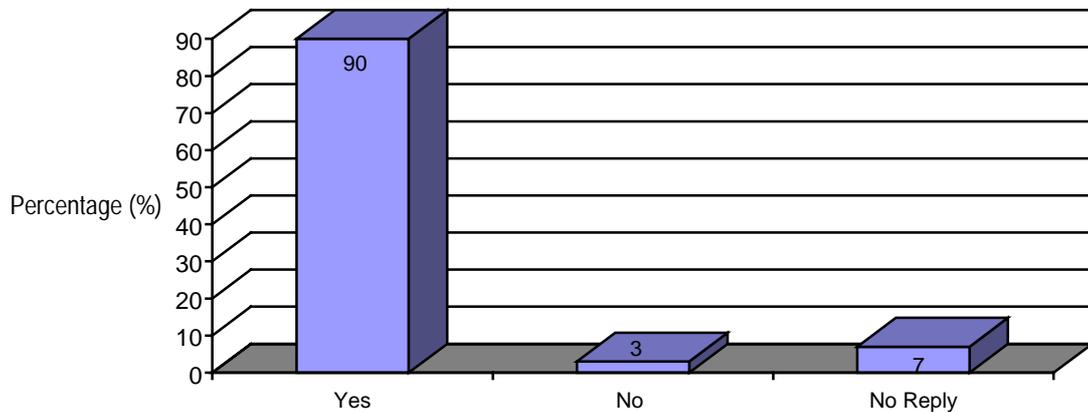


Figure 7: Does government have one or more official web sites (N=62)

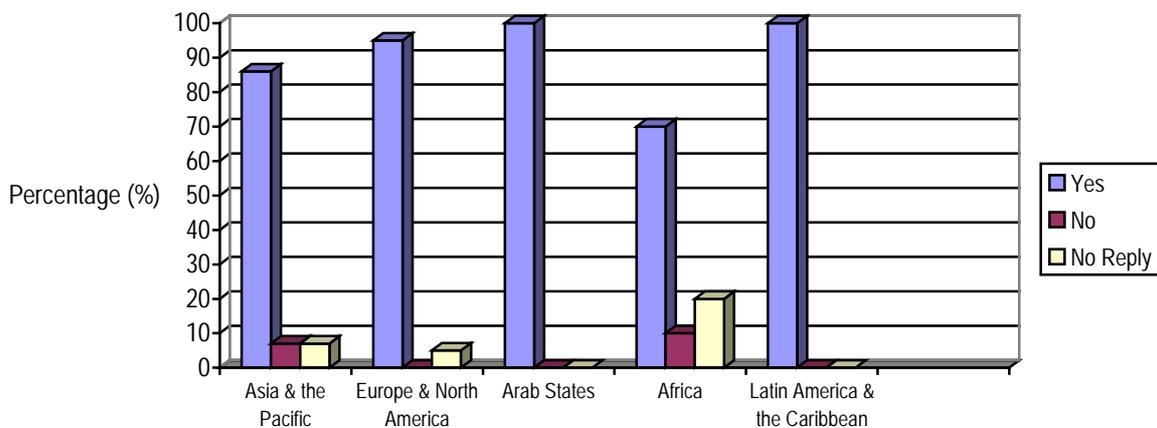


Figure 8: Does government have an official web site (N=62)

The distribution of government web sites across industrialized and developing nations was also investigated and this is reported in the table below.

	Developing (%)	Industrialized (%)
Yes	87	96
No	5	
No reply	8	4

Table 4: Does government have an official web site (N=62)

Once again the analyses are showing that Governments want to have a presence on the World Wide Web. This in itself is indicative of a realisation of the power of the Internet. The questionnaire did not ask for reasons why official web sites are set up. Early research on the subject had indicated that private

organisations, especially those in more traditional economies, had a tendency to have a presence on the Web because it was fashionable rather than because they felt that such a presence could increase their business. One wonders whether Government has also been bitten by the same bug. This issue is discussed in some more detail later on in the report.

Respondents were also asked whether a policy existed to include a plurality of opinion and information sources on the web site or web sites. The majority (61%) said yes, there was such a policy, while twenty-four per cent said there wasn't and 15% did not answer. Further to this the questionnaire also asked in what language the site(s) were presented and most of the responses received indicated the official language of the country and another (international) language. In most cases, the latter was English, but other languages, such as French and German, were also represented depending on the region. The table below shows the responses received.

Questionnaire response	Percentage of respondents
The web site is presented in the official language only	29 %
The web site is presented in both the official language and another language	52 %
The web site is presented in another language other than the official language	5 %
No reply	14 %

Table 5: Responses for web site language (N=62)

When asked about a policy to include plurality of opinions and information sources on the web site two regions, Europe and North America and Latin America and the Caribbean, were the ones where such a policy was not predominant.

Looking at this same matter from the viewpoint of industrialized vs developing countries it became apparent that there are no significant differences on this matter between the two groups of countries.

The widespread existence of web sites, however, bears further enquiry on their use and status. The launch of official web sites is often regarded as an exercise in public relations rather than a means to deliver services, much less to elicit feedback. The exploitation of web-technology requires cultural shifts, besides the deployment of networks: for instance, an organisational commitment to assign content-managers to keep information topical and responsive to community needs. Also, consistent with 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 of central sanctioning of material being made public will need to give way to managerial empowerment, with accountability. Most sites, therefore, are in their embryonic stage, providing rather limited one-way information. Regarding the estimated number of web site accesses, it is possible to derive an indicator of "monthly accesses" per thousand population. In the future this could, with refinement, constitute one of a number of "maturity indices" for the benchmarking of progress in the transition to on-line governance.

Responses that provided insights into the nature of the web sites refer to the incorporation of a large number of links to other sites. A number of sites report the inclusion of discussion facilities and feedback mechanisms (notably Peru), youth fora (Luxembourg), newsgroups (Singapore), advisory services (India) and government policy awareness (Oman).

Finally this section asked about the price of Government on-line information and the results achieved can be seen in the table and figures below.

In most cases on-line government information is free of charge. Figure 9 below shows the responses received to this question.

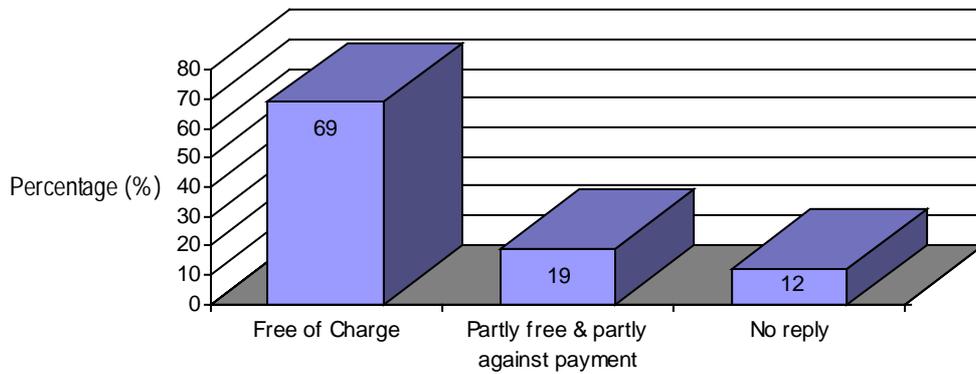


Figure 9: Cost of information provided by Government on-line (N=62)

The majority of responses indicated that the information is free of charge; however this belies a major inhibitor, which is the cost of access itself. At the time of writing the report<sup>2</sup>, the average cost of a local dial-up internet account for 20 hours in Africa is over \$100 per month (inclusive of usage and telephone time). This contrasts with \$29 for the USA, \$74 in Germany, \$52 in France, \$65 in Britain, for roughly four times the amount of access. Per capita incomes for these countries are more than 10 times the African average.

The regional analysis of the responses show that in most cases the information is free of charge across all regions with, relatively speaking, the highest being in the Arab States in which almost 100% of the respondents claimed that it is free. In all other cases some of the information is free of charge while some other information is against payment. Figure 10 below shows the responses received according to region.

<sup>2</sup> These amounts are based on figures collected in 1999.

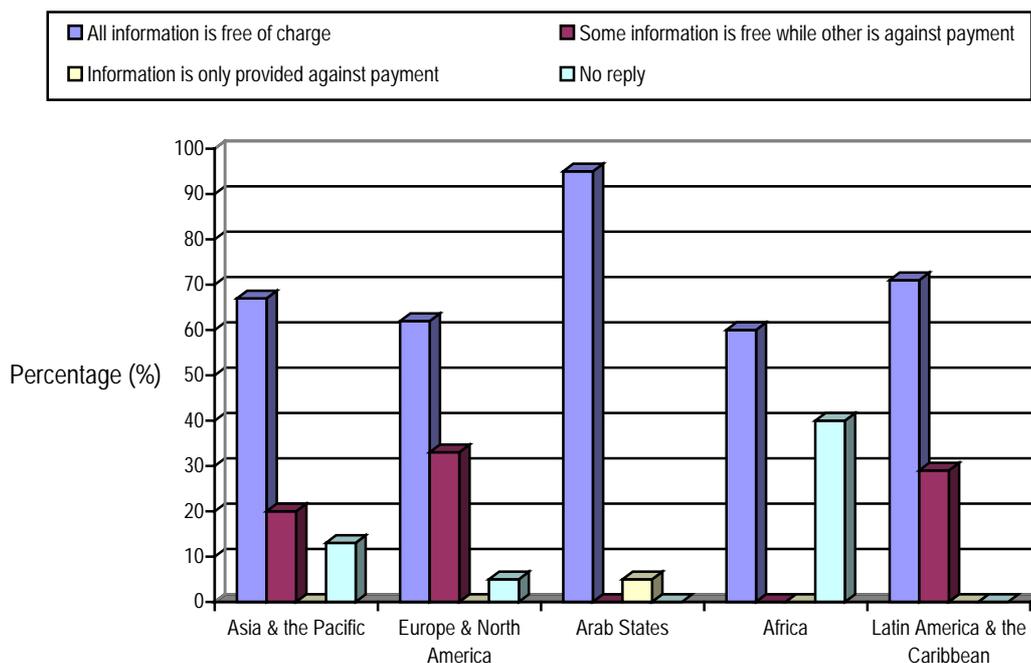


Figure 10: Cost of access to government information (N=62)

Comparing the industrialized with the developing countries shows that in most cases information is offered free of charge no matter in which of the two groups the country falls into. The developing countries group had a higher rate of no replies than the other group perhaps indicating that information on official government web sites is not followed as closely as in the industrialized countries. Having said that, there is, however, no significant difference between the two groups.

	Developing (%)	Industrialized (%)
All information free of charge	72	61
Some information free of charge and some against payment	10	35
Information is only provided against payment	3	
No Reply	15	4

Table 6: Price of access to government information (N=62)

### ***Overall Policy for Information and Communication Technologies***

Respondents were asked to indicate whether their government had a policy that showed its commitment to IT literacy. In almost half the countries (50%) such a policy existed and was partly implemented. In some countries (12%) this policy existed and was about to be implemented. In twenty per cent of the countries the policy was still being discussed while in 10% of the countries this policy was fully implemented. Four per cent of the countries said that there was no such policy. All in all the figures look encouraging as 92% of the respondents had a policy that is at some stage of development and/or implementation.

Figure 11 below shows the efforts that governments are undertaking in order to increase the number of people who have access to on-line information and services.

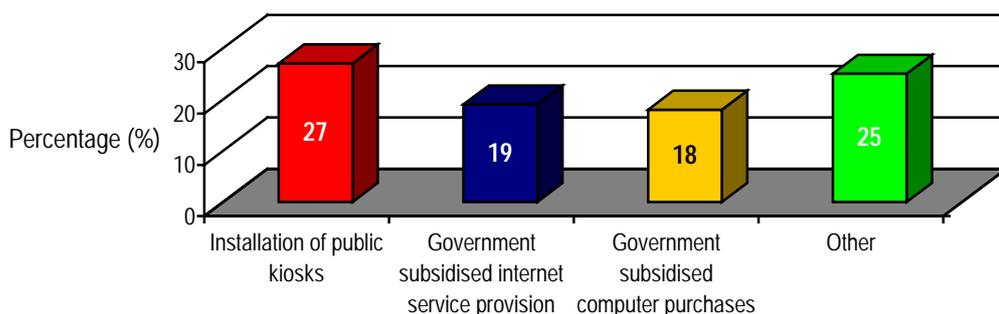


Figure 11: Giving access to more people (N=62)

Practically all countries indicated some sort of initiative, typically the deployment of public kiosks and some form of subsidy for equipment and ISP costs. Interesting observations under “other initiatives” referred to:

- subsidies in schools and/or libraries (Norway, Ireland, Netherlands)
- a public awareness campaign (Switzerland)
- a Communications Training Institute (Uganda)
- all-country access at local call-rates (Lithuania)
- free access to schools (Jordan)
- Internet and email access at post offices (Jamaica)
- Internet at local council offices; public PC and internet.
- familiarisation training (evenings) for adults/children at local councils in partnership with private sector sponsors at nominal fee (Malta)

Undoubtedly, a lot of the initiatives concerning public kiosks and telecentres are at early stages, and conclusions or feedback may be mixed. Some of the early starters (Portugal’s INFOCID project for public kiosks) are deemed a success story; others are not so positive but may be a learning experience on the underlying issues (Appendix E presents an analysis of a pilot project in Sweden). Overall, a significant yet modest level of work is being done in this area.

When asked about whether Government has a policy which shows its commitment to IT literacy, all countries across all regions said that some form of policy is either being discussed, partly implemented or fully implemented. Across all regions the highest number of responses was that the policy exists and is partly implemented.

The regional analysis was also done with regards to the efforts being made so that more people will have more access to on-line information and services. The responses given are shown in Figure 12 below.

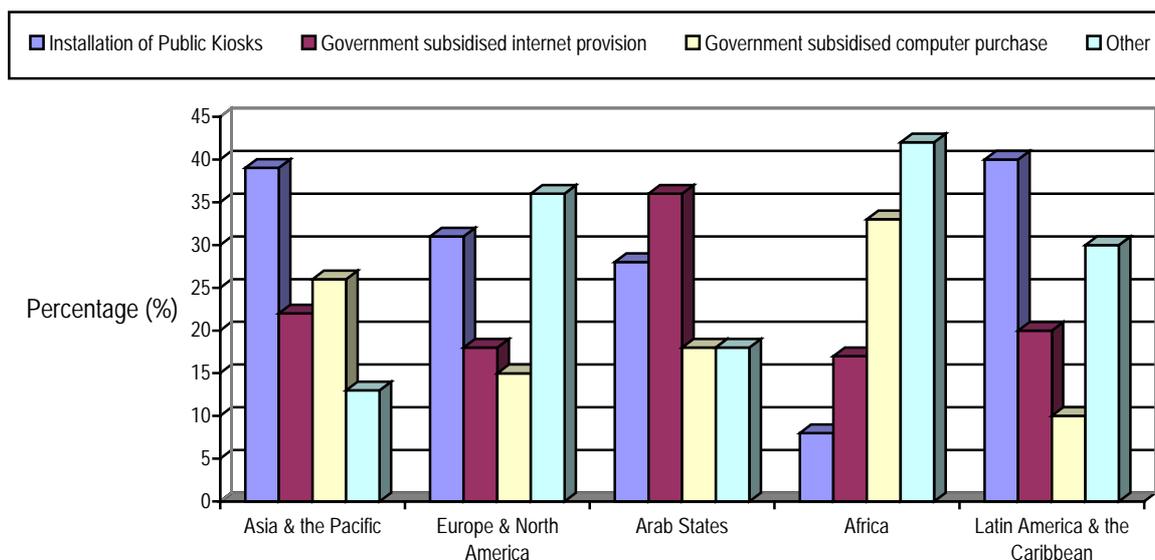


Figure 12: Government commitments to IT access (N=62)

Public kiosks seemed to be most popular in Asia and the Pacific, Europe and North America, and Latin America and the Caribbean, while government subsidies are relatively more frequent in the Arab States and in Africa.

Both the industrialized and developing countries answered positively to the question about whether a policy existed, and indicated it was partly implemented. There was a greater number of countries in the developing group that were still discussing the policies but also a small number but relatively larger proportion of developing countries where this policy was fully implemented

	Developing (%)	Industrialised (%)
No policy exists	5	
Yes but still being discussed	31	4
Yes and about to be implemented	8	17
Yes and partly implemented	38	66
Yes and fully implemented	13	9
No Reply	5	4

Table 7: Policy showing commitment to IT literacy

Further analysis of the efforts being made to increase access to on-line information and services is shown in Table 7.

	Developing (%)	Industrialised (%)
Installation of Public Kiosks	24	19
Govt. subsidised internet provision	19	11
Govt. subsidised computer purchase	19	10
Other	21	19

Table 8: Efforts for increased access (N=62)

A difference is evident from the table above. The efforts on the part of the developing countries seem to be wider than those of the industrialised group. It could be that the industrialised society considers itself wealthy enough not to need subsidies from Government for internet service provision or to purchase computers.

### *Technology Access*

The access to technology by the citizen and by Government employees was also assessed in the survey. The questionnaire sought information on the proportion of government departments with access to the Internet, an intranet and E-mail. Figure 13 below indicates the proportion of departments with access to the relevant technology. The percentage of respondents is shown on the Y-axis.

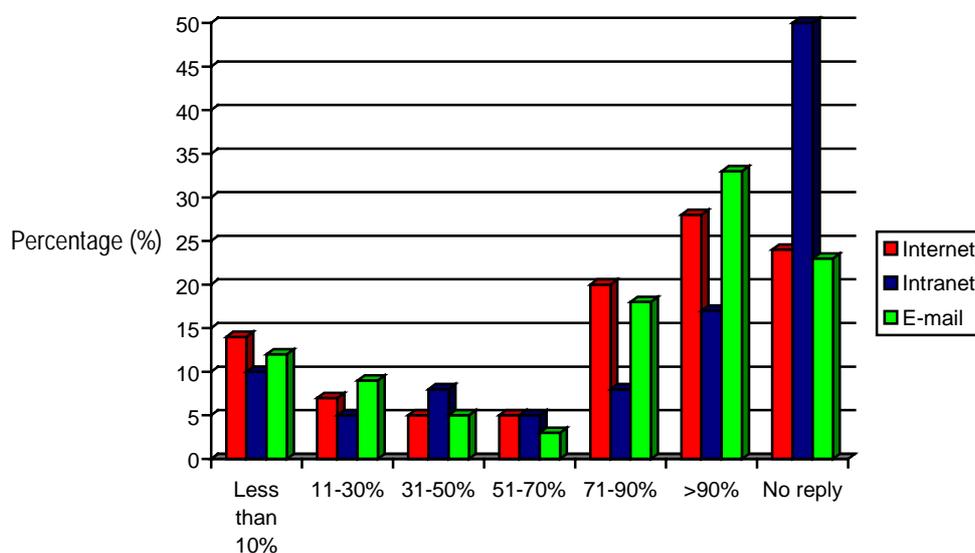


Figure 13: Access to technology by government departments (N=62)

The regional analysis of the same data has shown that in all technologies Europe and North America have the highest percentage of access while the African region has the lowest percentage of access. This could be an indication that as expected the more the region is mature and economically developed the higher in general the percentage of access. This same trend becomes evident when the analysis focuses on industrialized and developing countries. As regards to the provision of telematics services to government departments the difference between developing and industrialized countries is not striking, yet industrialized countries have a slight edge in that a higher proportion of their government departments have access.

The focus was then turned onto access to other forms of technology at home and at work. The technologies listed were the telephone, fax, internet, cable television and personal computers. Figures 14 and 15 below show the levels of access by citizens to these technologies from the home and work respectively. There was a high rate of missing replies, probably indicating that in most countries such statistics are not available. The graphs show the proportion of citizens with access to the technologies by the percentage of respondents being shown on the Y-axis.

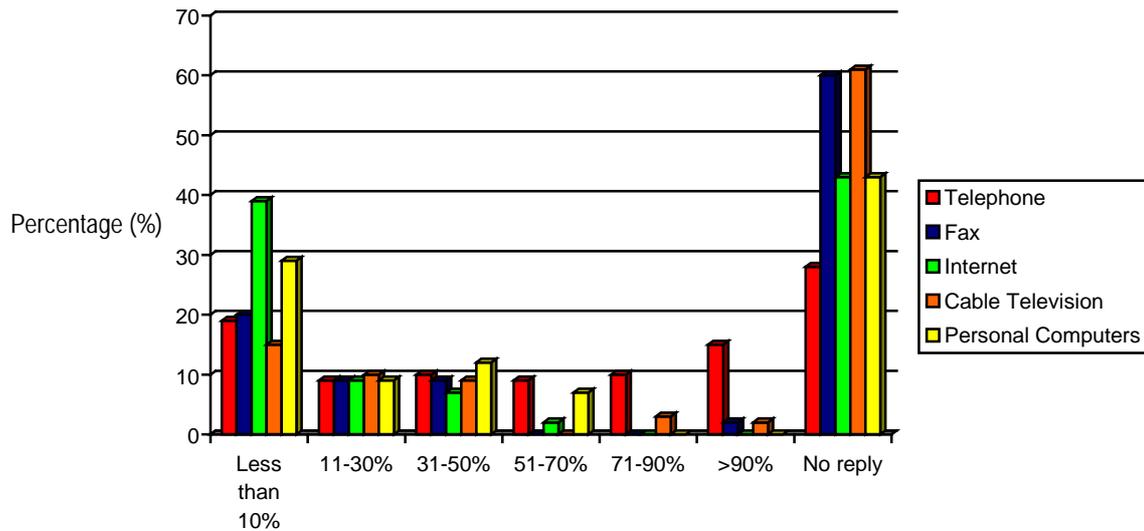


Figure 14: Access to technology at home (N=62)

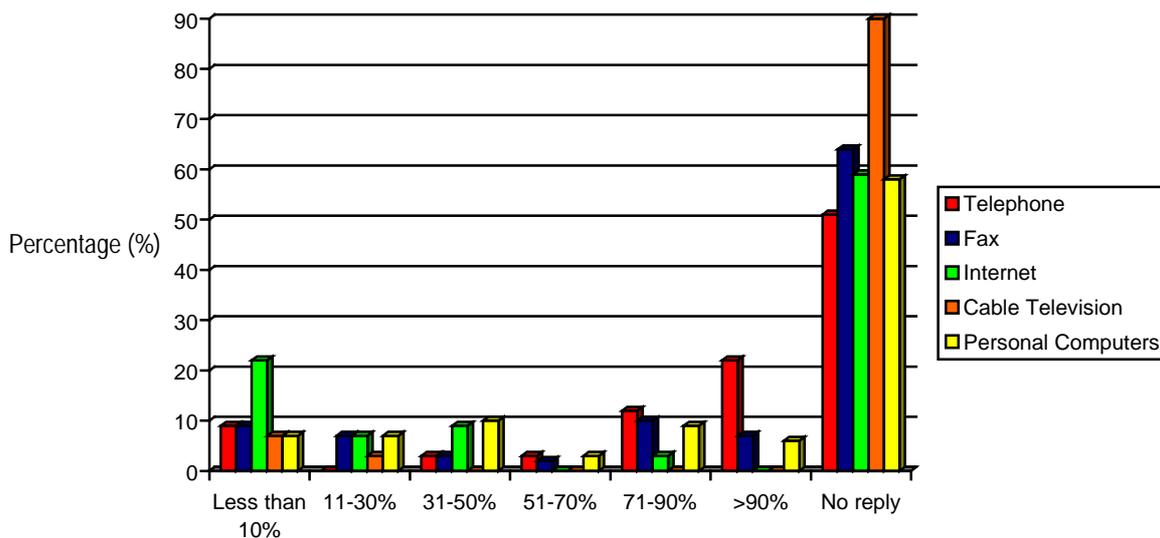


Figure 15: Access to technologies at work (N=62)

At the regional level the analysis shows that the developed economies of Europe and N. America and the emerging tiger economies of Asia and the Pacific have higher levels of access on all of the five technologies listed. The less mature economies of the Arab States, Africa and Latin America and The Caribbean tend to lag behind with lower levels of access.

As shown above the same trend can be seen when looking at the data from the industrialized vs developing countries perspective. Telephone is the most common form of technology available from the five technologies listed yet there are far more countries claiming to have low levels of penetration in the developing group than in the industrialized group.

The questionnaire also asked respondents to indicate whether their country used smart-card technology. Fifty-one per cent of the participating countries said yes, their country used smart-card technology, 42 %

said no and 7 % did not reply. Out of those who said that they utilised smart card technology 58% said that it was mainly used in the educational sector, 12% said in the banking and financial sector while 8% said that it was used in a number of sectors. These included:

- travel cards for public transport (Australia)
- health applications (Bulgaria, Belgium, Denmark)
- (planned) national I.D. Card (Lebanon, Hungary)
- Government Multipurpose card (Malaysia)
- payment of bills and salaries (Peru)
- higher education (USA, Israel, Hungary)

The questionnaire asked whether the country utilised smart card technology and once again the trend was as indicated above.

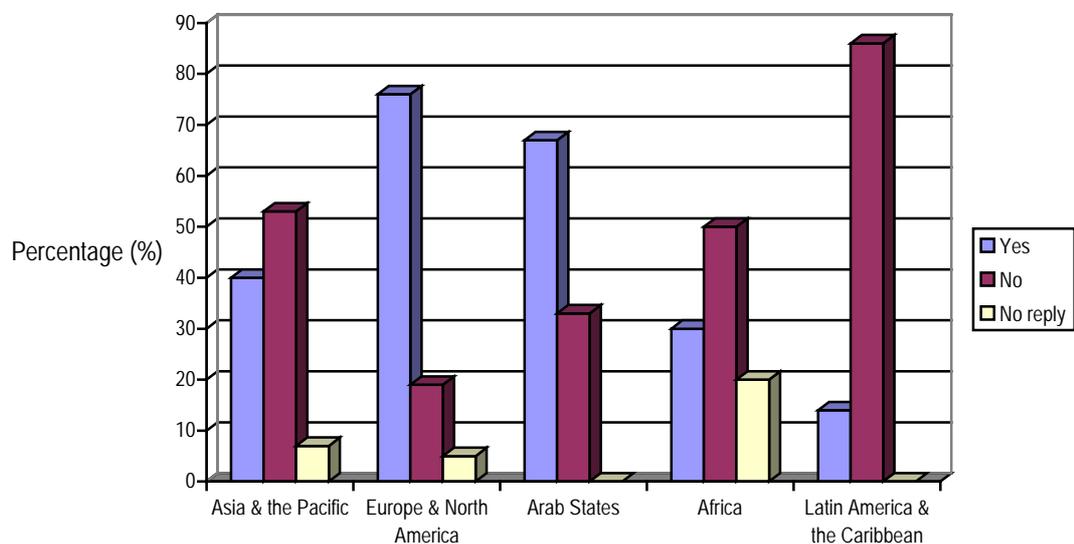


Figure 16: Use of smart card technology (N=62)

The European and North American regions are the regions that use smart card technology the most. The lowest number of affirmative responses, both relatively and absolutely, were from Latin America and the Caribbean but otherwise the use of smart cards seems to be correlated to the degree of industrialization.

The developing and industrialized classification of the replies on the use of smart card technology show the same trend as above, i.e. most countries in the developing group say they do not use smart card technology while most countries labelled as industrialized do.

	Developing (%)	Industrialised (%)
Yes	38	74
No	54	22
No reply	8	4

Table 9: Use of smart card technology (N=62)

### Enabling Factors

The survey attempted to identify the status regarding key enabling legislation and perceived chief inhibitors to on-line governance. Four types of legislation were classified as enacted, under discussion or non-existent in the country. Figure 17 shows the responses received.

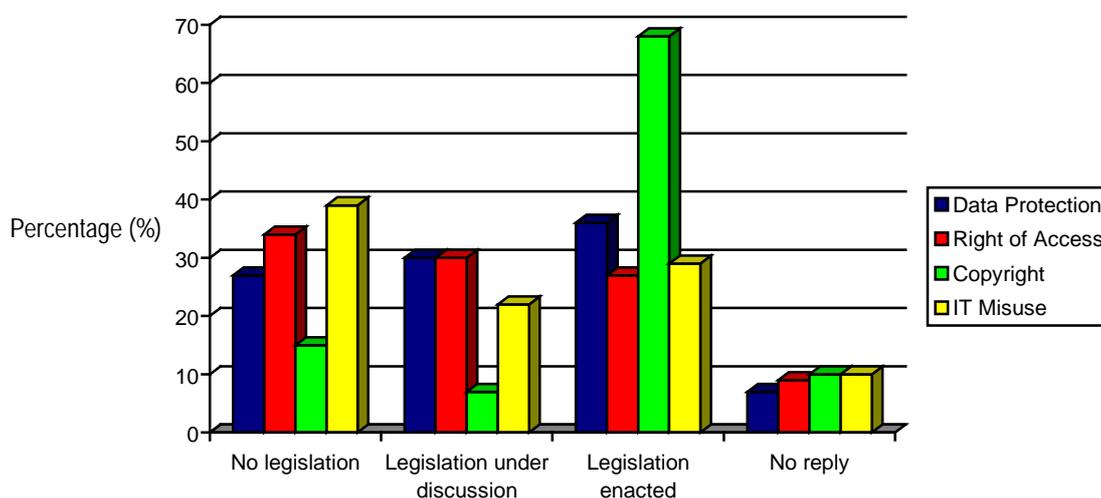


Figure 17: Regulation of electronic data and digital media (N=62)

The regional analysis shows that Europe and North America is by far the region that has the most legislation enacted. The Asia and Pacific region has most of the legislation still under discussion while in the African and Latin American and Caribbean regions most of the legislation still does not exist in any form. Copyright legislation could be found, to some extent, in all five regions. Once again the more industrialized region seems to be also the most advanced in terms of legislation enacted as in the European and North American region more than 50% of the countries have such legislation enacted.

The third type of analysis was also carried out on this data and the results obtained can be seen below.

	Developing (%)	Industrialised (%)
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<b>Data Protection</b>	No reply	8	9
	No legislation	41	4
	Legislation under discussion	28	30
	Legislation Enacted	23	57
<b>Right of Access</b>	No reply	10	9
	No legislation	38	22
	Legislation under discussion	31	30
	Legislation Enacted	21	39
<b>Copyright</b>	No reply	10	13
	No legislation	21	9
	Legislation under discussion	10	
	Legislation Enacted	59	78
<b>IT Misuse</b>	No reply	13	13
	No legislation	51	17
	Legislation under discussion	13	35
	Legislation Enacted	23	35

Table 10: Legislation as an enabling factor (N=62 for each category)

Relatively speaking and overall a larger proportion of the industrialized nations has legislation enacted than the developing countries. Likewise a much greater number of developing countries have no legislation in specific areas than is the case for the Industrialized countries.

In addition to the above respondents were asked what they consider as being the main inhibitors to the development of on-line governance in their country. A list of 6 inhibitors was offered for a choice of three. The top three inhibitors selected were:

- a. Lack of resources - 46% (mainly financial and human resources)
- b. Lack of infrastructure - 46%
- c. Low levels of IT literacy - 44%

A close runner up to low levels of IT literacy was lack of awareness at policy level, while low public incentive was the factor least (29%) seen to be an inhibitor to the development of on-line governance. Policy-sensitisation/development, therefore, seems to be a crucial need, impacting as it does the other perceived inhibitors<sup>3</sup>.

Access is universally recognised as a key issue. Whilst many actions are being taken, Internet focus is still running ahead of actual accessibility. In Africa for example, Internet access is largely confined to the capital cities - over 70% of the population is found in rural areas. It is estimated that the number of Internet subscribers is somewhat over 500,000, and that each Internet or email connection supports an average of three users. This gives an estimated 1.5 million users, of whom 1 million are in South Africa. The rest are dispersed amongst 734 million people and contracted mainly in the cities. So, for Africa, South Africa excluded, this gives an average of about one per 1500 people against one to every four in North America and Europe. Twenty six countries have 1000 or more subscribers, and only nine can count more than 5,000 subscribers. Amongst these, Ghana, Uganda and Mozambique are of particular interest. Having adopted early on innovative communication policies, these were amongst the first

<sup>3</sup> Attention is drawn to the possibility of some error in this interpretation due to the ambiguity between the 4<sup>th</sup> and 5<sup>th</sup> options in the French version of question 13. The 5<sup>th</sup> option, "Low public incentive", was given in the questionnaire as "Low motivation of the public authorities" confusing this option with the preceding one, "Lack of awareness at policy level". Eleven countries (out of 62) replied via the French version of the questionnaire.

countries with internet access and have a head-start in the development of their user base.

The same two types of analyses were conducted on this data and the results shown below were obtained. The regional analysis showed no clear trend; lack of infrastructure and resources seem to be very important inhibitors across all regions although relatively less so in the Arab States. It is interesting to note that lack of infrastructure is not seen as the main inhibitor in Europe. This could be explained by the fact that since it is the most industrialized region of the five listed above, it would be expected that the investment for the infrastructure has already been made. Low levels of IT literacy are cited relatively more often in Africa while lack of policy awareness and low Internet penetration seem to be particularly important in the Arab States and Latin America and the Caribbean. The graph below shows the analysis in pictorial form.

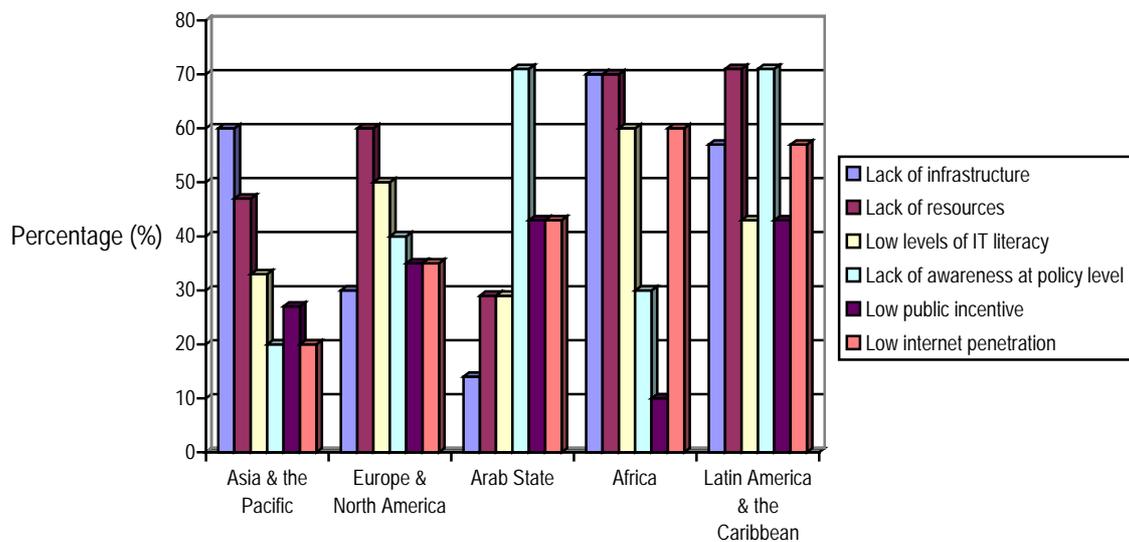


Figure 18: Main inhibitors for the development of On-line Governance (N=62)

	Developing (%)	Industrialized (%)
Lack of Infrastructure	59	23
Lack of resources	57	52
Low levels of IT literacy	46	41
Lack of awareness at policy level	43	36
Low public incentive	27	32
Low internet penetration	46	27

Table 11: Main inhibitors for the development of On-line Governance

This analysis clearly shows that the developing countries are facing far more inhibitors than the industrialised countries. The reason for this could be two fold: (i) either the industrialised countries have already gone through the stage of having to face so many inhibitors and have therefore substantially overcome them or (ii) since the industrialised countries are on average wealthier than the developing countries, they have been able to buy themselves out of the problems which could be solved in this manner. It is interesting to note that lack of resources features high for both groups as a main inhibitor that might tend to favour the first explanation above.

A conditional statement needs to be made about these figures in that developing country figures may be

slightly skewed by such emerging economies as Argentina, Bahrain, Ecuador, Kuwait, Malta, Malaysia and others.

The above brings to an end the analysis of the data done at three levels i.e. overall, regional and industrialized versus developing. The other sections of the questionnaire, shown below, are only being presented with an overall analysis as the quality and level of data available did not make it amenable to any more complex level of analysis.

### ***On-line Information***

The questionnaire provided a list of eleven applications and respondents were asked to indicate their respective stage of development, the level of utilization and the technology used by government to provide this information. Figures 19 to 21 below give the responses received for each of the applications by stage of development, level of utilization and technology used respectively.

In most cases the service was available at a national level whilst if one had to take all the figures together an encouraging picture emerges. In most cases the services are either being provided or are in a planning or pilot stage. The number of null replies for this section was also quite low. On the other hand the question concerning the level of utilisation of the service produced a rather high number of missing responses, indicating scant information.

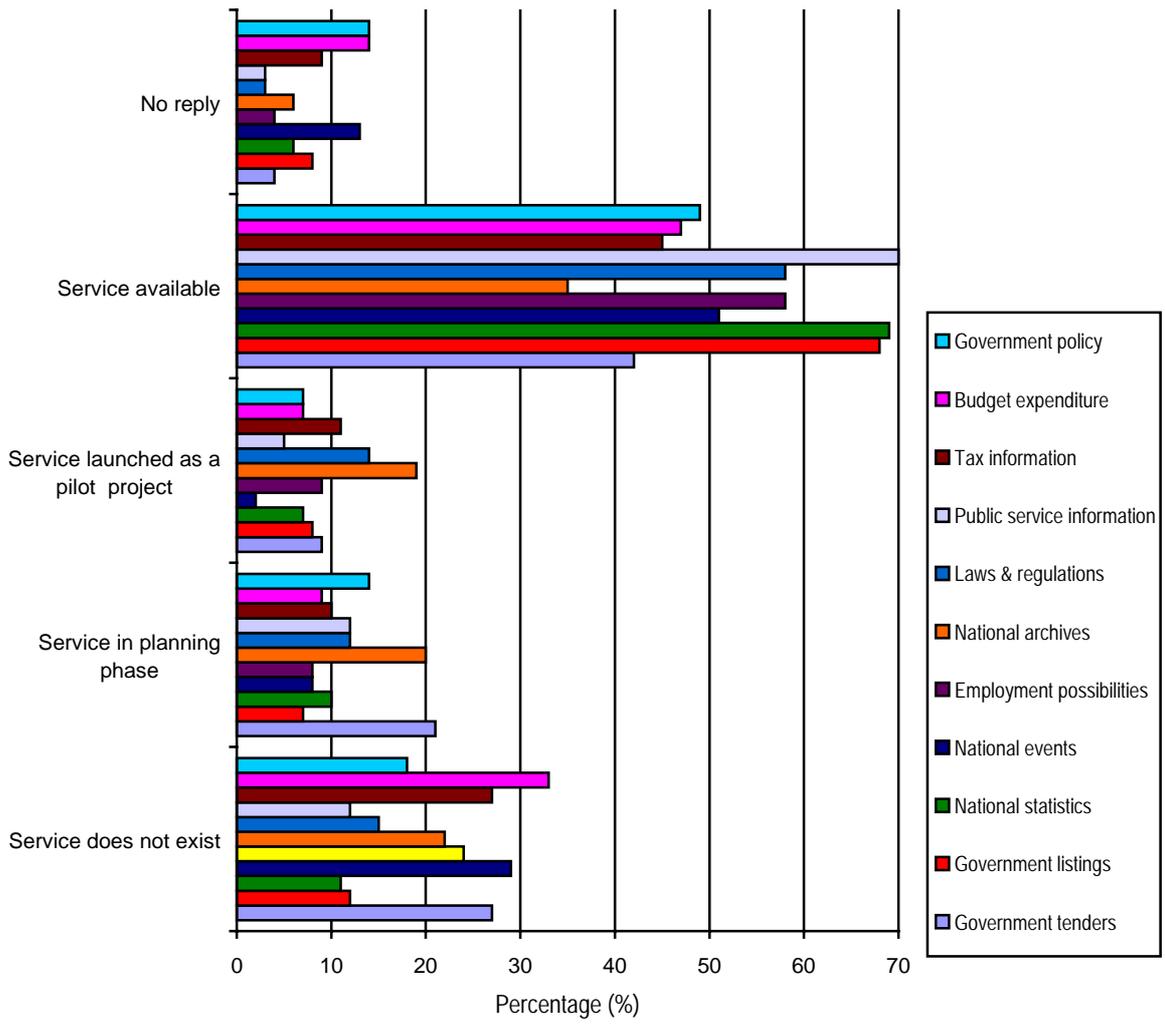


Figure 19: Stage of development in the provision of on-line information to citizen (N=62)

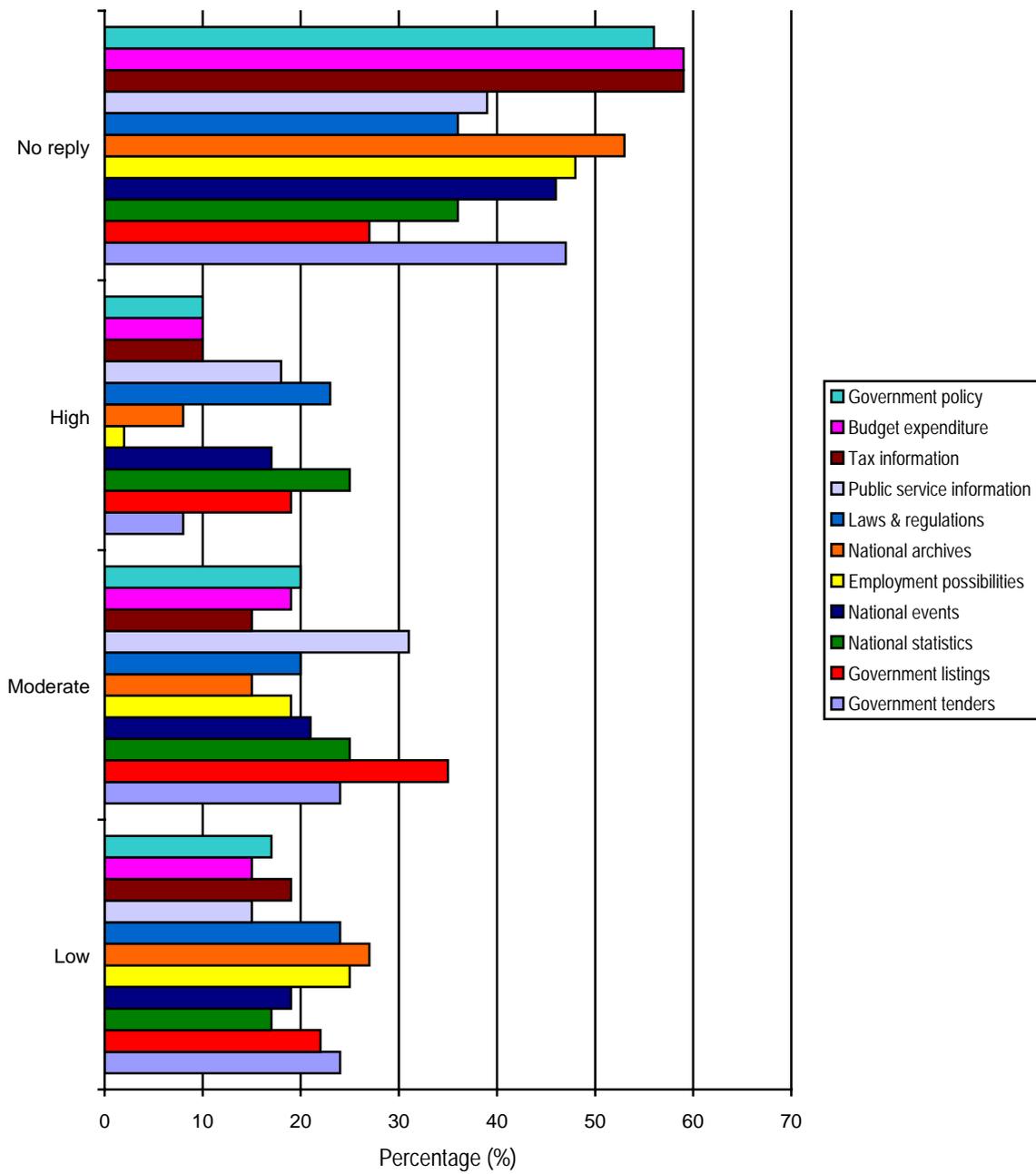


Figure 20: Level of utilization of the provision of on-line information to citizen (N=62)

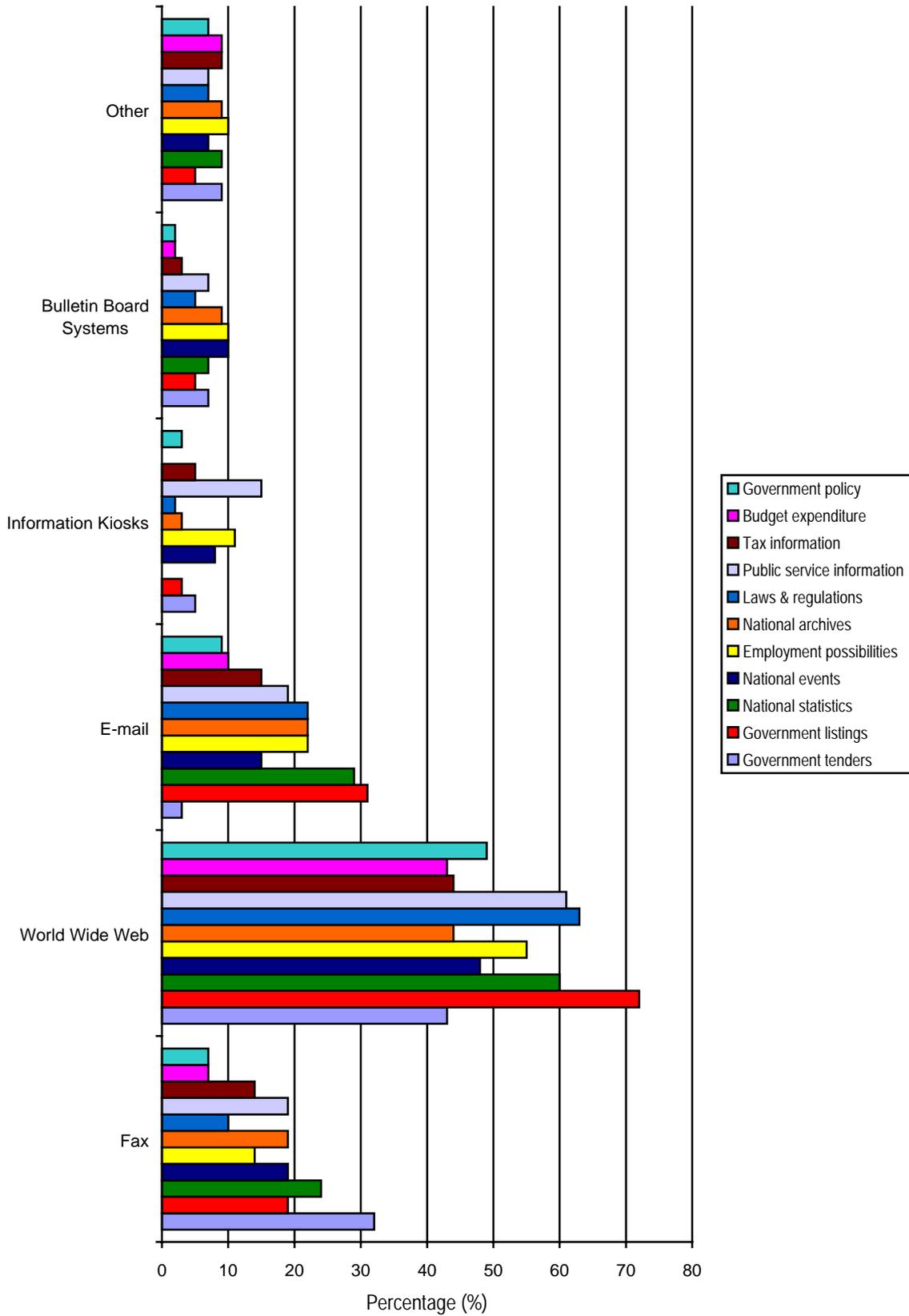


Figure 21: Technology used for the provision of on-line information to citizen (N=62)

As can be seen from the graphs above in most cases the services are available on-line. National statistics seems to be the one that is most available. On the other hand, government listing, national statistics, laws and regulations and public service information are the services with the highest levels of utilization. Figure 21 shows that the technology most used for all services is the World Wide Web. Information kiosks and bulletin board systems are the technologies least used and fax is in decline.

### *On-line services*

Section three of the questionnaire dealt with the provision of on-line services to the citizen. A list of three common services was provided and, as in the previous section, respondents were invited to indicate the respective stage of development, the level of utilization and the technology used by government to provide this information. Figures 22 to 24 below give the responses received for each of the applications by stage of development, level of utilization and technology used respectively.

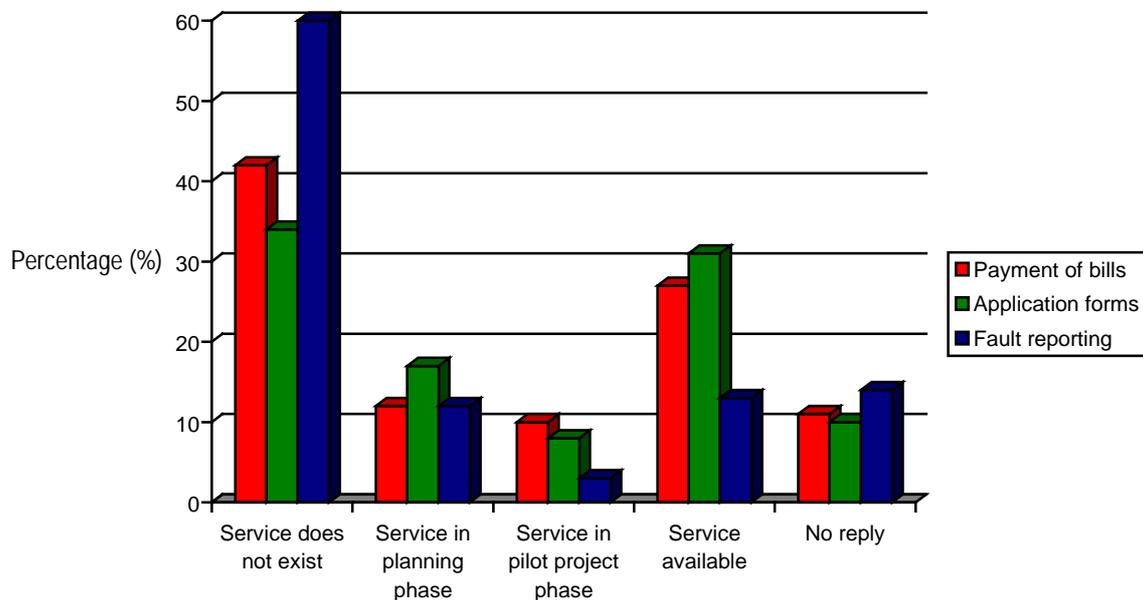


Figure 22: Stage of development in the provision of on-line services to citizen (N=62)

The payment of bills and application forms were indicated as the two services most available on-line with a larger number of countries offering application forms than payment of bills online. Such a trend may be expected since there are a number of difficulties, e.g. security with payment, when transacting on-line.

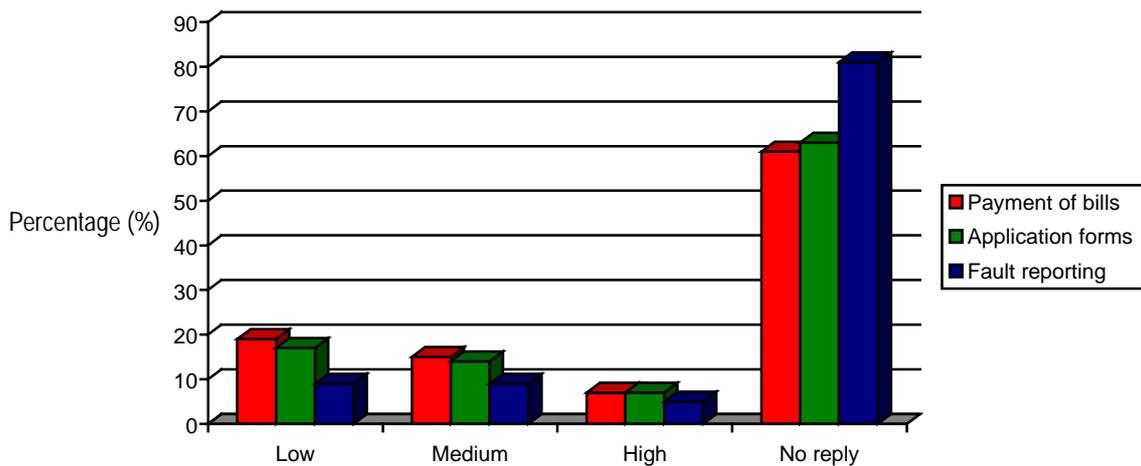


Figure 23: Level of utilization of the provision of on-line services to citizen (N=62)

The large number of nil responses makes any conclusions from the above data somewhat dubious. Yet the low level of utilisation for the available services may be a point worth investigating further. Application forms are the most used while the payment of bills shows similar but very slightly less use, with fault reporting featuring significantly less than these two.

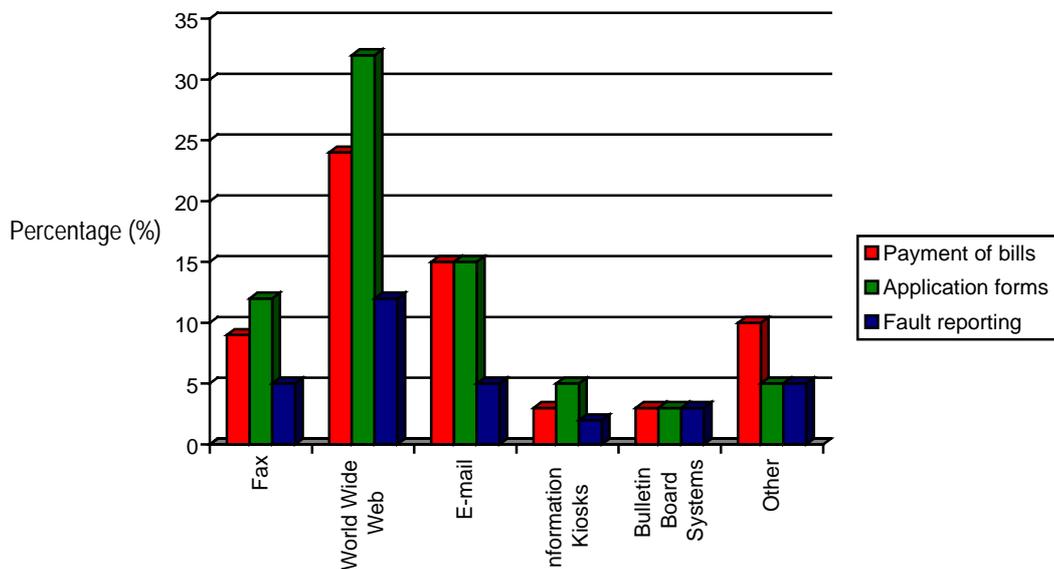


Figure 24: Technology used for the provision of on-line services to citizen (N=62)

Once again the World Wide Web is the medium most used for the provision of on-line services to the citizen and information kiosks and bulletin board systems are the least used.

### On-line Citizen participation

Section 4 of the questionnaire dealt with the participation of citizens in the process of government. Opinion polling, voting and referenda and the provision of feedback were listed as the possible areas of participation by citizens in the process of government. Once again respondents had to indicate the stage of development for each application, its level of utilization and the technology used by government to provide this information. Figures 25 to 27 below give the responses received for each of the applications by stage of development, level of utilization and technology used respectively.

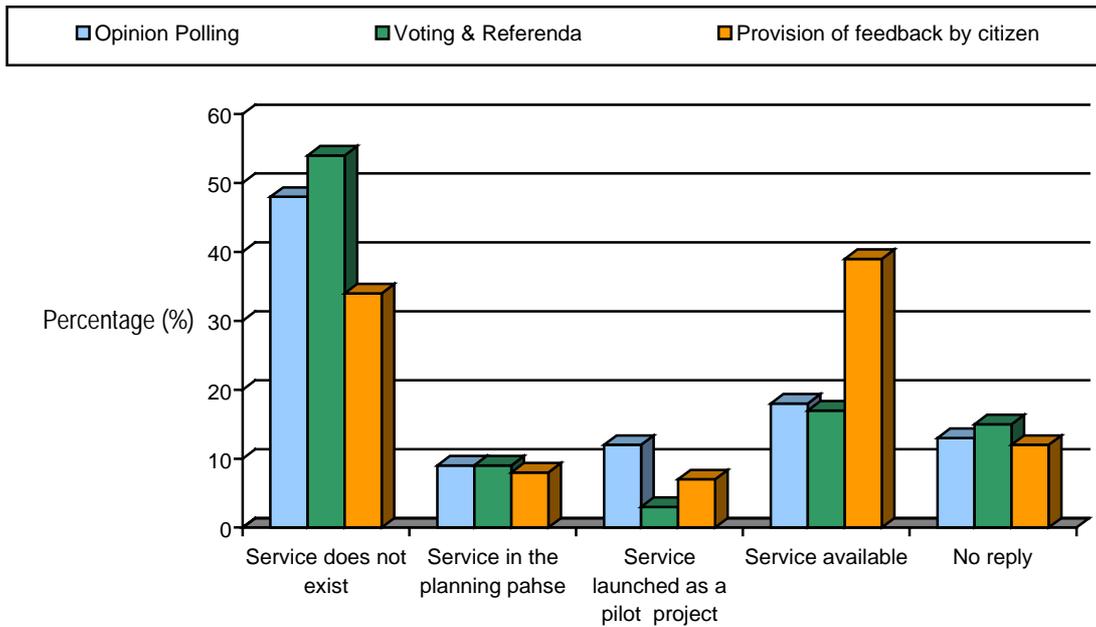


Figure 25: Stage of development in on-line participation by the citizen (N=62)

In most cases the services listed, i.e. opinion polling, voting and referenda and the provision of feedback by the citizen, are not available. Within the countries responding to the questionnaire the provision of feedback by the citizen is the most common. This is understandable as it does not carry with it as many sensitive issues as for example voting and referenda. On the other hand the provision of feedback involves the most personalised level of interaction among the applications listed, implying that it can most easily create a close virtual relationship with government by the citizen.

Figure 26 below shows that although the services are available, citizens are not using them as much as one would expect them to.

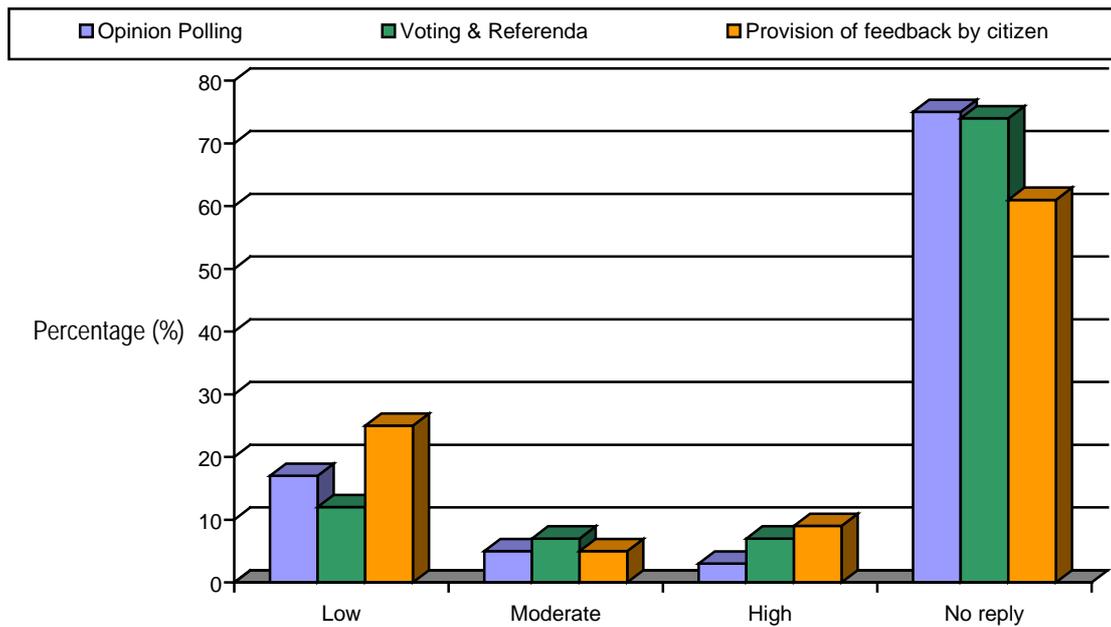


Figure 26: Level of utilization of services for on-line participation by the citizen (N=62)

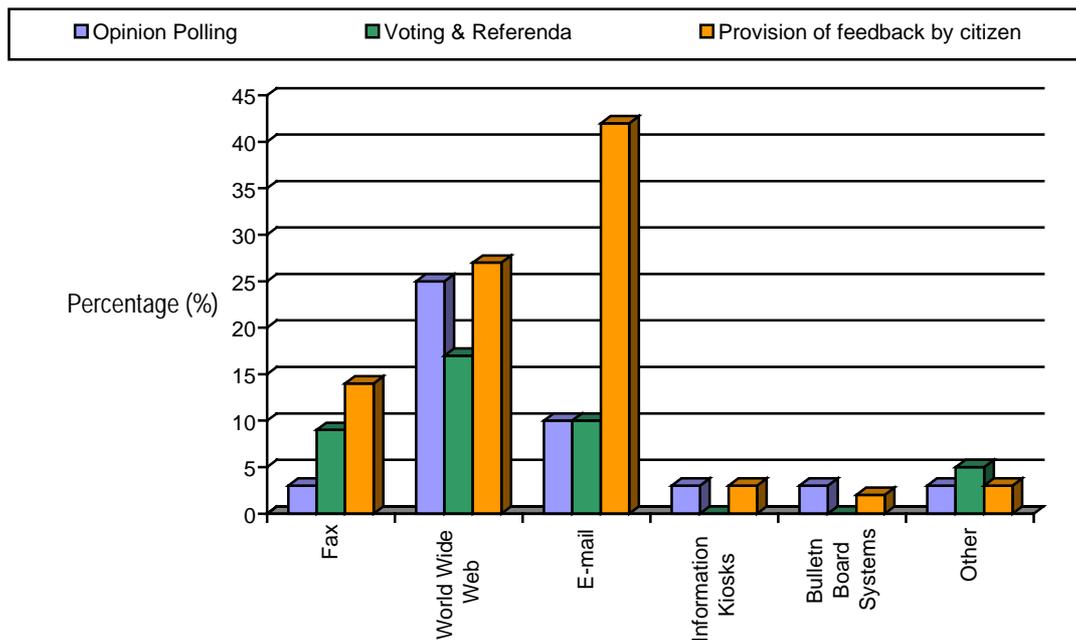


Figure 27: Technology used for the on-line participation of citizens (N=62)

In the case of providing feedback by the citizen, the World Wide Web is not the technology most used but e-mail is rather the most predominant. Nonetheless as with other application areas of government information and government services, the World Wide Web is the technology most used for both opinion polling and voting and referenda. For all applications, information kiosks and bulletin board systems are once again the two media least used.

## Discussion of Key Themes

### *Background*

There has been a significant literature over the past decade on the transition from the industrialised to the information or knowledge society. Governments world-wide have played a major role in the debate around the nature of the information society, and the roles that governments will be called upon to play. Many national governments have carried out major studies, often involving all stakeholders in today's society, into the needs for a national information infrastructure. The conclusions of these studies vary widely, sometimes having a technical focus and sometimes a social or cultural focus, reflecting the preoccupations of the country concerned. In almost all cases the issues being addressed require the co-operation of the private and public sector, academia, NGOs and individuals. A central element in the literature is the role of governments in the transition to the information society.

National governments appear to have four distinct roles to play in the information society.

1. Determining the policies and regulatory structures needed for a sustainable and competitive information or knowledge-based society.

This implies a leadership role and may involve the government in wide public consultation, the promotion of policies to attract investment, the raising of awareness of opportunities for the industry and society and often participation in joint ventures with industry and other governments. Most countries have adopted a co-operative and synergistic approach to the national approaches to the building of the physical and information infrastructure.

2. Delivering the programs and services of government to the citizen.

This involves the adoption and adaptation of communications and information technologies to the deployment of applications or services of government ministries (health, taxation, customs, revenue, agriculture etc). Since this implies direct contact with individual citizens (or perhaps an intermediary or a web site) it is dependent upon the penetration of computers and electronic access (telephone lines, Internet access) in the country.

3. Using the information infrastructure to enhance the internal administrative practices of government.

Information technologies are expected to contribute to the improvement of government operations and services, producing savings and enhanced quality of service. Individual government agencies, business and other entities can exchange information electronically, thus reducing paperwork and improving service. In this context, an information-management and data-sharing approach to IS is key to promoting one-stop shop concepts and cross-sectoral cohesion.

To realize these benefits significant financial investment in computers, software, and training is necessary as well as the re-engineering of legal, regulatory and administrative practices. Restructuring of society, such as the privatization of telecommunications, can often add significantly to the need for funding as governments now have to pay for services that previously appeared to be "free". Governments in most countries have traditionally owned and operated their telephone systems (PTTs) and expenditures on

telecommunications by government ministries were an "internal" source of revenue for the national treasury. In many countries, large ministries established their own networks for reasons of national security or network reliability.

In some countries there has been a blurring of the roles of their internal and external use of information technology and networks involving intranets, Internet and extranets (the use of government networks by non-governmental users).

#### 4. Interfacing with citizens in the democratic process of government.

(This is dealt with more extensively later in this chapter).

The combination of these roles places the national Government, in most countries, in the position of the major user of the information infrastructure nationally. Government is in the key position, with the help of industry, to capitalize on the opportunities offered by the emerging information/knowledge society. A major part of the role of government is its adaptation of the information infrastructure to all aspects of its work - defined in this UNESCO/COMNET-IT Survey report as "On-line Governance".

A basic consideration for all four roles of government is the status of the telecommunications networks and services within the country, since an information infrastructure is carried over the telecommunications network. The ability of the government to capitalize on electronic information and knowledge networks is directly dependent upon the health, effectiveness and sustainability of the telecommunications sector. Most studies of the information society assume, except for certain "grandfathered" programs, that the government does not itself operate communications networks - that is the role of the private sector.

With some notable exceptions, few countries have taken a national strategic view of government use of communications. The major exceptions at the national level were the United States and Canada, and more recently the United Kingdom and Australia where competitive service offerings have led to a more strategic view of government services. This is clearly an important consideration if governments are to play the leadership role expected of them in the emerging information society. There are various approaches to this question including central government ownership of its own networks, the use of common or shared government networks or the purchase of telecommunications services by individual ministries. These and other options have profound implications on the capacity of governments to capitalize on the benefits of "on-line governance" and to generate adequate revenues.

The United States, some 35 years ago, provided a common telephone network - the Federal Telecommunications System (FTS) for the use of government agencies and this has grown and expanded into other telecommunications services to become perhaps the largest contractual arrangement of its kind. An interesting feature of these arrangements is the requirement for federal agencies (with some exceptions) to use these services on a mandatory basis. The Canadian experience, through the Government Telecommunications and Informatics Services (GTIS), was somewhat similar to the US experience, although on a smaller scale. The national voice network, which leased services from the mandated telephone companies in various regions of the country, provided considerable savings over other options and was heavily subscribed. However, it has not been mandatory for departments to use the common services and, except for voice services, they have been able to use common services selectively, negotiating their own deals with the private sector.

The question of whether common services should be mandatory or not has been vigorously debated as at first glance it appears to be a reasonable way for governments to finance their information infrastructures. On the one hand, mandating ministries and agencies to use a government network

ensures a large purchasing power, the ability for ministries to get rock bottom prices, the opportunity to use government traffic to help create a national infrastructure and for industry to benefit. On the other hand, many major users can make a convincing case for leasing their own networks for reasons of national security, public safety and individual security and privacy. There are legal, human resources and financial considerations which have to be weighed in national decisions and often swing the pendulum away from centralizing government networks to a more open and competitive environment. .

Many governments have found that a strong basis for an information infrastructure that can sustain on-line governance requires a number of basic elements. These include:

- i) Planned network architectures including an integrated framework for the evolution of information technology in the national government in general and appropriate benchmarks and standards to ensure inter-operability and inter-connectivity across government information systems.
- ii) A realistic priority-setting among on-line applications, with email being the fundamental application for streamlining services and reducing costs.
- iii) A commitment to making electronic commerce a practical means for the government to conduct business.
- iv) In close cooperation with the private sector identifying public procurement as a major strategic tool to develop the government information infrastructure.
- v) Many countries have chosen to appoint a Chief Informatics Officer to provide overall guidance for the renewal and future sustainability of government on-line services.

The role of government as a major user of telecommunications and information technology is significant to the development of a nations infrastructure. By setting an example, the government can catalyze the development of innovative use of the infrastructure throughout the economy as well as serving its own needs in delivering services to its citizens. Popular perception is that E-Commerce can be a key area in this catalysis, with the benefits to SMEs (and consequently to national economies) being touted as a major opportunity. However, in order for information to be applied, a number of environmental components need to be present. These include:

- overt resources (money, skills, technical infrastructure)
- embedded/social resources (trust, motivation, knowledge)
- relevant raw data.

These elements are described further with particular reference to SMEs, but are often also relevant in broader contexts.

#### Overt Resource Inequalities Affecting Access

Accessing ICT-carried information requires a lot of overt resources including a telecommunications infrastructure to provide network access, an electrical infrastructure to make the ICTs work, a skills infrastructure to keep all the technology working, money to buy or access the ICTs, usage skills to use the ICTs, and literacy skills to read the content.

The poor simply do not have these resources. In a world where 80% of the world's population has no access to reliable telecommunications, and one third has no access to electricity, it is hardly surprising that the Internet reaches few poor people; more than half of the low-income countries' population is illiterate, with a far greater proportion unable to read English, the language that dominates digitised information.

Governments and donor agencies are working to provide the overt resources, but realistically the poor will not own the ICTs, and the poor will be very unlikely to control the ICTs or to use the technology hands-on in any significant numbers for the foreseeable future. The main strategy has therefore been to provide ICTs to intermediary institutions such as government agencies, NGOs and community-based organisations.

### Social Resource Inequalities Affecting Assessment and Application

Poor entrepreneurs need more than money, skills and infrastructure in order to make use of the data delivered by ICTs. They need other resources to interact with sources outside their own community, including (World Bank 1998, Panos 1998b):

- *'Source proximity'*. Data is created within a particular context and retains embedded characteristics of that context: it contains what its creators do know and do feel is important and misses out what they do not know or do not feel is important; Unless poor entrepreneurs come from the same context as the sources creating information, problems of miscommunication and misunderstanding can arise.
- *Trust*. Before they will accept data, recipients must trust both its source and its communication channel. For most entrepreneurs, sufficient trust to justify business decisions will mainly be created through personal contact, through interaction and, ideally, through shared context/proximity.
- *Knowledge*. Information creates knowledge, but knowledge is also needed to create information. It is knowledge that helps us to access information, by knowing where to find and how to use information sources. It is knowledge that helps us to apply information. For the poor, such knowledge is frequently limited to their local context.
- *Confidence and security*. In order to use new communication channels, recipients must have confidence and feel motivated to take a certain amount of risk. In general, because of their social circumstance and experience, the poor lack confidence and are risk averse.

### Resource Inequalities Affecting Action

Information supplied via ICTs has no value unless it informs decision making and action. Yet action implies resource endowment that have nothing to do with ICTs. Information received about a new supplier is of no value if the entrepreneur does not trust the supplier. Information about a new market is of no value if the entrepreneur cannot increase production to supply that market, through lack of capacity or aversion to risk. Information about new government tax rules is of no value if the entrepreneur cannot afford to pay tax. Inequality in endowment of both overt and social resources for action therefore keeps poor entrepreneurs poor regardless of whether information is supplied to them via ICTs.

Information (and, hence, information and communication technologies) is only one resource amongst many overt and social resources that are required for successful development of enterprise. Put another way, information is a necessary resource for poverty alleviation but it is by no means a sufficient one.

Equally - indeed more - important are factors such as skills, production technology, demand for outputs, plus other social resources. All of these have to be borne in mind when assessing the relative priority to give to ICTs in the development process.

### Lack of Relevant Data

As has been argued above, poor entrepreneurs get their most valuable information via informal information systems from those around them and like them. Unfortunately, the information from such systems can be inaccurate and is certainly incomplete. Formal information sources, however, can be just as bad in meeting needs as they are increasingly dominated by commercially-inspired data or trivia.

The Web, for instance, mainly provides the information-thirsty poor with a flood of 'noise': digitised, Westernised irrelevance.

In part, this is due to the inability of the poor to voice their demand for information and their inability to pay for supply of that information.

Where markets fail, national and global institutions may - and do - step in. Yet there are many problems here, in part because such interventions tend to be rather haphazard and frequently unsustainable.

### The Poor as Information Sources

There is a general assumption that the poor are merely recipients: of technology, information and of knowledge. Of course, this is not correct. Poor communities all produce their own information and knowledge. ICTs can play a positive role by allowing that information and knowledge to be more widely disseminated.

ICTs could be used to transmit information from poor entrepreneurs to donor and government agencies. The main reported ICT use, though, has been to transmit marketing information about small/micro-enterprise products and services to potential customers; typically via the Web to Western export markets (World Bank 1998, Heger 1998). However, there are far more one-line, rose-tinted vignettes of claimed success with ICTs than there are long-term analytical studies by independent researchers.

Technology only affects part of a much broader social process. Poor entrepreneurs must also have the capacity to generate relevant information about themselves, and to access and use the ICTs. Frequently they do not have this capacity, and they will again have to rely on intermediaries. At the other end of the transmission chain, someone must also be listening and able to act on what they hear.

Much of the discussion around ICTs and development is driven by hype, from the ICT community and the media, that makes ICTs an icon for modern development. The main development objective becomes bringing in as much technology to as many people as quickly as possible. The main development problem becomes inequality of access to ICTs. This push, however, needs to be tempered by an awareness of:

- development opportunity costs of the investments that this position promotes; investment in ICTs means not investing in other areas
- information systems and technology opportunity costs: radio and TV cover 75 percent and 40 percent of Africa's population, the internet a marginal 0.1 percent. The new wave of internet-enabled TV and mobile telephony may be in itself a realisation of this factor.

## Development Priorities for Information, ICTs and Poverty

One may outline the implications of this analysis as follows:

- the poor need knowledge to access and apply information and need resources for action; possibly more than they need access to new information
- they need information with a local context
- the poor need ICTs more to give them a voice, providing information from and about the poor
- they need intelligent intermediaries to use ICTs; ICTs currently have a greater enabling value in helping the helpers (intermediary institutions) than in directly affecting the poor
- the poor need community intermediaries to use ICTs
- the poor will only reap the fullest benefits of ICTs when they own both the technology and its related know-how. Intermediaries are a currently-necessary mechanism. However the current resource and contextual barriers to ownership by the poor are massive: far greater than those for connecting up intermediaries.

### ***Electronic Democracy in a Wired World: Electronic Governance vs. Electronic Democracy***

This Survey has looked at the means by which governments are moving to electronic governance. In this context governance can be seen as both a means to using new technologies to deliver services to the citizen and ways in which to change and improve the efficient methods of administration within governments themselves. Another element looked at in this Survey is the means as to how governments will increasingly be able to involve citizens in the democratic process of government.

At this stage of development few governments have effectively been able to involve their citizenry electronically in the democratic process. Many governments have been effective dispensers of information, which often passes as a means of enhancing the democratic process. There are many government initiatives seeking to help citizens to get online, seek feedback on government reports online, and develop listservs and discussion groups to elicit the views of the citizens. There are also many groups actively participating in online activities in the hope of influencing government policies. But for the most part, governments are far behind the activities of citizens online around the world, who see the Internet as a medium to foster, enhance and change the way citizens have traditionally engaged in the democratic process.

The story of the Internet and electronic democracy is a cautionary tale. Much of the enthusiasm and hope for new forms of democracy and citizen input into public issues, sound very like the gushing optimism expressed about the potential of television in its nascent years. It is not yet known if the potentials offered by the Internet will be met. Will the Internet become like television, an arid desert with only a small oasis of excellence? This is an important question because the potential is there for the Internet to become dominated by a few large, corporate interests, or subsumed by government regulation that could inhibit the freedoms offered by this new technology. At the moment the Internet is creating major change. One of these changes is in the ways citizens are engaging in the democratic process and beginning to change

the face of democracy.

In the United States and Great Britain governments are looking at setting up online voting. The British Electoral Commission recently announced that they would be looking into the feasibility of online voting. A similar announcement was made in California in January 2000. February 28, 2000 saw the meeting of the first Internet Voting Technology Alliance in Washington, D.C. Initial participants included: Safevote, of San Rafael, Calif.; VoteHere, of Kirkland, Wash.; Modulo Security Solutions, of Rio de Janeiro; International Foundation for Election Systems, of Washington, D.C., and e-Elections, of Oakland, Calif. The group met to get public funding for their activities. The group's goal will be, amongst other things, to develop the proper tools and protocols to ensure online voting is safe and secure for the citizen and is not subject to corruption or manipulation. But this is a tool for voting under the current system of democracy as we know it. People were able to participate online in this opening assembly at <http://www.ivta.org>.

Governments, for the most part, are far behind the public in developing tools for electronic democracy. There are some good initiatives, such as the web sites of the British Prime Minister, which seek to garner public comment, opinion and discussion.

There was also an online consultation run by the British parliamentary Select Committee on Public Administration. It was run from mid-November for one month, in connection with their inquiry into e-democracy and e-government. The online discussion centred on "innovations in citizen participation in government". The Committee sent out electronic notices, which were picked up around the world, asking people to send in their experiences in e-democracy and e-governance.

These are true steps towards electronic democracy. However, on the whole, governments tend simply to provide information on their web sites and use the Internet, and other technologies, to deliver services electronically. The prime example of this is the US White House site (<http://www.whitehouse.gov>) which is primarily an information tool and conduit to executive agency web sites. It was only in January 2000 that President Clinton announced that government had to be interactive with the citizen. What that form will take has yet to be announced.

The dispensing of information, without substantial input from the citizen, is not a real interactive transaction. Yet, the Internet in and of itself is an interactive medium. Individuals on the Internet understand this and, for growing legions of people, it is becoming a force that is changing the nature of democracy as we know it today.

But this is just part of the wider picture of developments in electronic democracy. In fact, individuals and groups are coming together online around the world to influence policy. Politicians are also using the web. In the United States every Presidential candidate has a web site. There are also alternative web sites by interested citizens or groups who want to have their say about the candidates. There are also other groups who are offering sites which will present in-depth analysis of the issues in the upcoming presidential and congressional elections as well as elections at the local and state level. Those wanting to check out the activities of the US Democratic party or the Republican Party can go to either: <http://www.democrats.org> and <http://www.rnc.org> . If you want in-depth details on the 2000 Elections in the USA you can go to: <http://www.Politicaljunkie.com> There are also many independent sites that either oppose the mainstream candidates, satirize the candidates, or offer alternative in-depth information and analysis of the issues. But the phenomenon of engagement in politics online is not restricted to the United States.

## *The Changing Shape of Democracy Today*

There are thousands of other individuals who are active online and attempting either to get more information from their government or to influence policy. The online world of democratic activism is growing around the world. This analysis looks at the emerging trends in electronic democracy, how citizens active online are changing the nature of democracy as we have understood it, and how governments are going to have to tap into this emerging trend. This section shows the distinction between online democracy, and what its participants are achieving, and electronic governance.

In the wired world, the online citizen is increasingly playing more and more of a role in the democratic process. There are now hundreds of groups involved, from the community and local level to the national and international stage, in some way working to have an influence on government policies and programs, and on societal issues of our age.

Because of these changes, the process of government will soon no longer be controlled from the top and micro-managed by a few. In the changing wired world, citizens are voicing their say. Governments may not necessarily be listening, but the thousands upon thousands of people engaging in discourse on the thousand and one issues of the day are certainly listening to each other. This is resulting in powerful currents of change which are only beginning to manifest themselves. Electronic democracy is not about citizens voting on a multitude of referenda as laid out by governments. Electronic democracy is citizens engaging in the political process through means chosen by individuals.

E-Commerce currently dominates the mass media as the main phenomenon of the Internet. But the real story lies in the changes being brought by the thousands of groups and people online around the world, who are engaged in some sort of civic activism, political engagement, or just plain discourse and debate, on the issues that are important to them.

The most evident manifestation of this was in Seattle in December 1999. The massive protests in Seattle over the World Trade Organization's (WTO) meetings demonstrated the power of the Internet in bringing people out to express their demands to be part of the process. These people were determined to have their say. Not only did they express their beliefs and ideas, but governments were forced to listen. There is some growing awareness in government that their old dynamics of secrecy, closed meetings, and invitations to the special few to be part of the process, are starting to fade. In Seattle we saw the first shot fired across the bow of the old world order of democracy as we have known it. What we are witnessing is an emergence from the traditional forms of representative democracy to a new form that has yet to be given a name. For the moment, we can call it cyberism, as an expression of a particular form of politics. But that is still an expression born out of the old paradigm.

The new democracy we see surfacing is more the expression of individual voices that congeal into a collective whole over ideas that the society of peoples online develop into a consensus. And while a consensus might be formed on major issues, people are still in a position to express their individual thoughts and ideas (even if they range from the erudite to the opinionated). In this emerging world we see the evolution of a true populist democracy: although people's ideas do not necessarily have to be acted upon individually, the means exist for individuals to communicate freely to an audience. That audience can be large or small, but it represents a freedom for the individual that has not existed up to this point in time. The mass media still hold the reigns of mass communication. It is still important to get that letter to the editor published so you can reach a wide readership. But with this new medium of the Internet you can write something and it will reach the level of interest in the audience out there.

In Seattle, the initial protests were organized off line and online. And it was the Internet that gave this movement the international momentum to make it the effective demonstration, and the somewhat collective voice of outsiders, that it became. It was the clarion call for democracy from voices across the world. It has become the symbol not only for the voices able to speak from the Internet, but of the fact that the citizenry has found the ideal tool by which they can bypass all the normal channels of government. This is not a small development at this stage in our history. Many people talk about the Individual being in control, or having great power because of the ability to tap into the world through the keyboard, but it is not certain if the real power is understood. It has mostly been identified as the power of the consumer to buy the product he wants, or read the online newspaper of choice. In fact, what has actually happened is that we have collectively opened a Pandora's box. And it really is too early to state exactly all the changes that will occur. It can be said with certainty that there is a powerful current of knowledge and ideas now circulating the world.

Another example of an issue that is spreading across the Internet is the recent announcement of the proposed merger between AOL and Time Warner. Discussions have started in the United States and Canada and are growing around the world. Anxieties are being expressed about the possible ramifications for free speech, censorship, creative freedom and diversity, when such a giant conglomerate emerges to dominate the media.

What once took months or years to turn into an issue now can occur in less than a day. This is the true power of the citizen. This is the story of the evolution of a truly populist democracy, an emerging democracy in which issues are being transformed from the hands of the few elite to thousands (and one day will be millions). It is like throwing one seed into the garden and from it a flower grows. Throw the seed of an important idea or issue out onto the Internet and it flowers thousands of times over. This is a key development in our evolution at this point in our history. Central to this development is the degree to which people can communicate, form opinions and judgement, and then act upon them. The Internet is a medium that allows ideas to flow among thousands of channels. People are empowered not because one can get onto the Internet and get a product, read a newspaper or research out some knowledge. That thinking is from an old paradigm succinctly expressed in the saying: knowledge is power. The new paradigm is the ability to talk back (true interactivity), dialogue and go to whatever source an individual wants to choose. This is not to say there are thousands upon thousands of people out there engaged in political activism. There aren't.

There are legions of people who are out there ruminating and thinking, or engaging in conversation (or whatever activity one chooses). Many of these people are not restrained by the dictates of mass media which tell us what we must read, what is the story of the day, or what we must listen to on the radio or watch on TV. None of these media afford the independence of operation that the Internet allows. This is another reason why the Internet is developing into such a strong, world political force, not captured by boundaries, time, space or distance. It is true that many in the world still very much reflect their religious beliefs, cultures, ethnic or political bias. But beyond that lies the opportunity to break away from the intellectual and emotional chains of the past and be free as an individual. And this is occurring on the Internet. However, even with these changes, there are still opportunities for governments themselves to benefit from the changes. There are also efforts by governments, worried about the potential freedoms a medium such as the Internet brings, to curtail both access and content on the Internet.

Because the Internet as a medium is becoming the tool through which the nature of democracy itself is changing and taking new shapes and forms, it is important that governments understand this phenomenon. Increasingly, public officials and elected politicians are going to be faced with not only an informed citizenry but a citizenry that wants to be engaged in the decision making process in some form

or another. An analysis of the numerous groups springing up on the Internet on a multitude of issues illustrates that there are voices out there that governments are going to have to tap into.

The Internet has brought about a decentralization of power. In the wired world, individuals can now make their own choices as to which authorities and information sources they will accept. This is leading to a greater democratization of knowledge, empowerment of the individual, and the potential for more informed interactions between the citizenry and organizations, including government. Moreover, since individuals now have ready access to a variety of information resources, organizations have to adopt new proactive measures to compile and disseminate information in a competitive information environment.

A citizenry that is able to seek and obtain information and knowledge from any place in the world through the Internet will, in all likelihood, also expect more from government.

## Conclusion and Recommendations

Much has been argued about the use of information technology and information systems in the process of governance. This research is an attempt at investigating the extent to which IT is being used by governments to enhance the process of governance. Academics and practitioners alike seem to be arguing that the divide between politicians and voters/citizens can be bridged by the intelligent use of information technology on the part of government. The concept of a 'wired government' seems to be the answer to connect the two parties, especially in places where distance is an issue. Nonetheless a remaining ingredient for the democratisation process remains. It is not enough to have citizens interacting with their virtual government; what about on-line interaction of citizens. The wired government only provides one answer to the problem but totally disregards the second issue of governance in the internet-era; this will only be fully addressed by fostering citizen to citizen interaction/communication within the broad content of an active civil society.

Providing Government on-line services is not the answer to preserving democracy, as some used to believe in the early nineties; yet more democratic information is available directly to citizens in electronic format than ever before. The provision of such information and its wide distribution is a sign that governments and the process of government has entered a new phase in its ever evolutionary existence. Case studies can be seen budding all over the world like for example The Moira Shire Council, in the state of Victoria in Australia, Murphysboro, Illinois and many other examples described in the Democracies Online web site (<http://www.e-democracy.org/do>).

Even though the distribution of information has never been so widespread this does not mean that governments do not have a proactive ongoing role to play. They remain duty bound to ensure the broadest possible access to formal participatory events. This means that online interactive events geared toward the general public should complement corresponding opportunities that are available to all regardless of their knowledge of or access to the Internet.

The democratisation process is just one aspect of the benefits achieved through the use of on-line Governance and service provision. Another important duty of Government is to provide its service in the most efficient and cost-effective manner possible. The use of on-line services can help Governments improve their service provision and to make this process more use friendly and user dependent. This in turn should increase the confidence of citizens in the processes adopted by Government.

This Survey shows a number of anomalies which will need to be addressed if "on-line governance" is to achieve its full potential.

In Part I, the responses to the questions on content, on-line information, services and participation do not, at first glance, show a significant take up of on-line governance services. However, a number of factors need to be considered:

- i) penetration of computers in the country concerned;
- ii) Internet access;
- iii) telecommunications cost (particularly in countries using measured calling);
- iv) lack of truly significant services; the average person has very few reasons to deal with government and transactions (e.g. vehicle licence, income tax submission) are of short duration and infrequent;

v) fears of lack of security;

vi) cultural resistance to using the new tools (older people may not feel comfortable using a telecentre where younger people are predominant).

These factors, among others, might indicate that the real target population for on-line services is low in developed countries, and correspondingly lower in the developing world.

## Part 2. Applications

The responses on enabling factors and main inhibitors are informative, yet show a bias to Internet and web type services. Since the major inhibitor is lack of infrastructure and resources, one would expect to see a greater focus on policies and initiatives to overcome these inhibitors. For example, investment policies, competition policies, customs duties (for the import of equipment) and telecommunications tariffs are all as relevant to the take-up of applications as the policies shown. Moreover, the single most important factor, disposable income available to purchase equipment and pay for services, is not addressed.

## Part 3. Industrialized and Developing Country comparisons

The enabling and inhibitors figures are consistent with the literature. It is interesting that both developing and industrialized countries mention the lack of resources as a major inhibitor. This has implications for the sustainability of on-line governance in both the developing and industrialized world. A comparison with other forms of telematics might be useful (e.g. multipurpose telecentres, tele-education, tele-health) to determine whether applications with a longer history might be able to provide case histories as to how to overcome this inhibitor. From the literature it would appear that tele-health has been the most successful application - perhaps suggesting that solutions are more forthcoming where the need is greatest.

In the context of democratisation facilitated by ICTs, there are numerous ways that governments at the local, regional and national level can facilitate these new forms of democracy that are emerging. One is to take the example of Canada. The Canadian government, through their Community Access Program(CAP) has a goal to establish over 10,000 public access sites in rural and urban communities across Canada. Launched in 1994, CAP has already established over 5,000 sites in approximately 3,000 rural and remote communities and is a key component of the government's "Connecting Canadians" strategy - aimed at making Canada the world's most connected nation." The program is now being expanded to include urban centres with populations over 50,000.

CAP matching funds of up to \$17,000 per site are available to eligible applicants such as educational institutions, public libraries, community organisations, and municipal and territorial governments. The community funds can include cash or "in kind" contributions such as facilities, equipment and staffing of public access sites.

This is a good model to be followed not only by national governments but international organisations. If we are to handle the digital divide between those who have the opportunities to be online and the vast numbers of people who cannot necessarily afford the costs of going online, it is going to be essential to level the playing field. In any populist democracy it is important that initiatives embrace all the people. At the moment it is estimated there are only between 150 and 200 million people online. These are small numbers where our world population has exceeded 6 billion people.

International organizations could also provide programs to educate people on usage of the Internet. Education then leads to individual usage. It will, naturally, vary from one individual to another but through knowledge of how to use the Internet people can be participants in this new trend in democracy as they see fit. Such programs can embrace many peoples around the world and ensure that the users who most benefit are not just those in the affluent, industrialized countries.

National Government should seek ways to engage their citizenry in the process of government. They can do this in many ways such as:

- making more information available online from government itself to ensure there is an informed citizenry;
- providing web sites that seek input from people on all manner of government programs and issues;
- developing list-serves and discussion groups on important national issues and other means to engage the citizenry;
- provide grants to organizations seeking online democratic activities
- develop local community projects that embrace all levels of society from the academic world, to businesses, large and small, to non-profit and volunteer organizations.

As indicated above the Internet is a medium that has allowed people to involve themselves in the democratic process in new and unique ways. Governments at all levels and international organizations will increasingly be impacted by these changes. Thus, there is also a need for awareness building within governments and international organizations of the changes that are occurring. This can be accomplished through educational and training programs.

A number of recommendations may be drawn from the above and other considerations/observations expressed earlier in this report. These may be categorised for convenience, as follows:

1. Policy-awareness is a key area:

The conventional forms of advocacy (such as policy seminars and publications) may have a continuing role but seem increasingly inappropriate or insufficient in the face of fast moving developments and the multi-dimensional relationships involved (telecomms, government services, business services, literacy, disposable income, etc). Much of the debate takes place within organised vertical sectors (telecomms, commerce, education, etc). Perhaps a shift to an integrated approach to ICTs and governance needs to be emphasised. The tools of advocacy can also benefit from some innovation (e.g. the promotion of peer networks for senior policy-makers, and politicians, engaged in telecommunications, science and technology, education, public services, etc. These may require the sponsorship of a credible international institution and a secure technology provider.

A significant activity within the policy area would be the development of National Information Infrastructures, in which a number of institutions are already active.

The resource-commitments made by governments to IT also need highlighting and expressing in some form for bench-marking purposes (for example, a recommended percentage of national budget at various stages of maturity: typically 2-4 percent?)

2. Governments and international institutions are encouraged to provide funding or other resources to academia and other institutions to conduct further research in various aspects of on-line governance and related issues, such as:

- a) the development of metrics to assist bench-marking in terms of, for example, IT infusion in government (building on the work by OECD), access rates per 1,000 population, the adoption of a number of legal provisions, etc.
- b) research in related areas such as the dynamics concerning political authority and citizens at the local level in the context of the uptake - or lack of it - of ICT facilities.

3. The Harmonisation of Cyberlaws, in itself a learning and sharing process, is increasingly a necessity in view of the increasing impact of globalisation and regional political or trading blocs. It is essential that the adoption of the appropriate legal infrastructure is stimulated (e.g. right of access and privacy) as this will, in turn, facilitate the development of on-line governance.

4. In negotiating the liberalisation of Telecommunications, Governments may extend the principle or requirement for Universal Access to ensure affordable tariffs for underdeveloped communities, for certain facilities such as community (tele) centres or for *bona-fide* disabled persons.

5. Innovative schemes may be promoted for the engagement of private enterprise at community level. Such schemes could, for example, engage local entrepreneurs to provide value-added (information) services using publicly funded infrastructure. In this context, a single-window for both government and private sector information would be beneficial.

6. It has been noted and argued elsewhere that, whilst direct citizen interaction is still a remote dream for most citizens, the empowerment through ICTs of their intermediaries in physical communities or in communities of interests is a realistic catalyst that is taking us one step further in the transformation of governance. Development and funding institutions - as well as governments and telecomms authorities - can play a role in facilitating the resourcing for such institutions (*bona-fide* NGOs, etc.).

This study has tried to provide no more than a snapshot of the current status. It is our belief that this aim has been reached, yet much more needs to be done. As argued earlier in this report this is an initial initiative which provides a limited amount of information. It is also a springboard for further investigation into the matter. The path has been set, it is now up to the current and new partners to add value to a hopefully on-going mechanism. The mention of partnership is, in this context, an important feature. The OECD for example, is developing complementary information regarding metrics on IT penetration in the public service of its member states and has also expressed an interest in further collaboration with this project. Such sharing of information is very well positioned to create synergies that are beneficial to all concerned and that can carry this project to higher levels. Similarly, a number of development institutions associated with the Global Knowledge Partnership (GKP) have expressed an interest in maintaining dialogue, initiated by UNESCO and COMNET-IT, consistent with the GKP's stated interest in the transformation of Governance, particularly as impacted by ICTs.

The future scenario for an on-going and sustainable research and dissemination activity could be one where:

- a web-based repository of national status and plans is dynamically and directly maintained by credible experts acting on behalf of the appropriate authority, under secure access rights

- a range of sophisticated search and statistical tools would be available for enquiry by researchers, thereby catalysing the development of sub-themes that might constitute the subject of further independent research by third parties
- the efforts of the development partners (eg. UNESCO/COMNET-IT) would shift to a role of advocacy (securing participation by as many nations as possible), quality reviews (an on-going assessment of the credibility of information being submitted), promotion with potential stakeholders (funding and development institutions) and enrichment of contextual or ancillary linkages and databases (e.g. linkages to web sites on national and international programmes, national statistics, ITU information, etc)
- structured on line fora, including listservs, to sustain dialogue between the project stakeholders and wider communities of focused interest. The creation and facilitation of peer to peer fora across government, with additional experts, will create a vibrant "best practice" network to assist world-wide development in this area.

For immediate purposes, the web site information found at [www.comnet.mt:8080/unesco](http://www.comnet.mt:8080/unesco) will be consolidated by COMNET-IT through

- improvement to the submissions received and securing of additional material
- linkages to ancillary/directly-related information

## Appendices

## Appendix A - Questionnaire

### Section 1 – General Information

1. Details of respondent: Name \_\_\_\_\_  
Address \_\_\_\_\_  
\_\_\_\_\_  
Country \_\_\_\_\_  
Telephone \_\_\_\_\_ Fax \_\_\_\_\_  
E-mail \_\_\_\_\_

2. Please indicate the national agencies/bodies consulted in completion of the questionnaire.

\_\_\_\_\_

#### Government Information

3. Has Government launched any initiatives to promote the use of informatics and telematics in government and public service?

- Yes  
 No (Please go to Question 4).

If yes could you list at least three of these initiatives

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_

Who is involved in these initiatives?

- Government  
 Private Industry  
 University  
 Other (please specify) \_\_\_\_\_

4. What is Government's budget for Information Technology?

	Currency	Budget amount	% of total Government Expenditure
National level			
Regional level			
Local level			

How has this budget changed in real terms cumulatively over the last three years?

- Increase \_\_\_\_\_ %  
 No change  
 Decrease \_\_\_\_\_ %

5 Does government have one or more official web sites (e.g. central government, different ministries/ departments)?

- Yes
- No (Please go to Question 6).

How many times was this/these web site(s) accessed in the last three months? \_\_\_\_\_

Comments: \_\_\_\_\_

Is there a policy to include a plurality of opinions and information sources on the web Site(s)?

- Yes
- No

If yes, in what manner? (Please give examples, e.g. on-line fora for citizens, space for political opinion groups, links to other web Sites) \_\_\_\_\_

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In which language(s) is the site presented? \_\_\_\_\_

Which of these are official languages? \_\_\_\_\_

6. What is the price of access to Government on-line information?

- All information free of charge
- Some information for free and other information against payment
- Information is only provided against payment

### **Overall Policy for Information and Communication Technologies**

7. Does government have a policy that shows its commitment to IT literacy? (please tick one)

- No policy exists
- Yes but still being discussed
- Yes and about to begin implementation
- Yes and partly implemented
- Yes and fully implemented

8. What efforts are being made so that more people will have access to on-line information and services?

- Installation of Public Kiosks
- Government subsidized Internet service provision
- Government subsidized computer purchases (including tax and customs exceptions)
- Others (please specify) \_\_\_\_\_

**Technology Access**

9. What proportion of government departments have access to the following?

Service	%
Internet	
Intranet	
E-Mail	

10. What percentage of the population has access to the technologies listed below in the locations indicated? Please add any comments in the space provided. Reliable information should be available from regulatory agencies and communication providers in your country.

	Home What percentage of the population has access to this technology at home?	Work What percentage of the working population has access to this technology at work?
<b>Telephone</b> Comments		
<b>Fax</b> Comments		
<b>Internet</b> Comments		
<b>Cable Television</b> Comments		
<b>Personal Computers</b> Comments		

11. Does your country utilize smart-card technology?

- Yes
- No (Please go to Question 12).

Please specify where this is used in the public domain (e.g. administrative services, education, health, etc.)

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**Enabling factors**

12. Does your country regulate **electronic data and/or digital media** with any of the following legislation?

<b>Legislation</b>	<b>No legislation</b>	<b>Legislation under discussion</b>	<b>Legislation enacted</b>
<b>Data protection</b>			
<b>Right of Access</b>			
<b>Copyright</b>			
<b>IT Misuse</b>			

13. What do you consider to be the main inhibitors to the development of on-line Governance in your country: (please tick the 3 principal inhibitors)

- Lack of infrastructure
- Lack of resources (please specify \_\_\_\_\_)
- Low levels of IT literacy
- Lack of awareness at policy level
- Low public incentive (minimal or unclear benefits)
- Low Internet penetration
- Other \_\_\_\_\_

If you would like to add further comments regarding inhibitors of on-line governance please use the space provided.

Please add further general comments in this space.

**Section 2 - On-line Information to Citizen**

Please complete the table below showing which on-line (see guidelines) applications are provided by government. If you wish to comment further please use the spaces provided.

Application	Stage of development	Level of utilization	Technology used
	At what developmental stage is the service?	To what extent is the service utilized? (see guidelines)	What technology is used by government to provide the service?
<b>Government Tenders (e.g. official purchase specifications, etc.)</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>Listing of Government Agencies and Government Officials</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>National Statistics (e.g. GDP/GNP and population)</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>National Events (e.g. national and public holidays)</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____

<b>Application</b>	<b>Stage of development</b> At what developmental stage is the service?	<b>Level of utilization</b> To what extent is the service utilized? (see guidelines)	<b>Technology used</b> What technology is used by government to provide the service?
<b>Employment Possibilities</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>National Archives (e.g. historical documents, administration records etc.)</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>Laws and Regulations</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>Public Service information (e.g. social security, health, public transport, education, libraries, etc.)</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____

<b>Application</b>	<b>Stage of development</b> At what developmental stage is the service?	<b>Level of utilization</b> To what extent is the service utilized? (see guidelines)	<b>Technology used</b> What technology is used by government to provide the service?
<b>Tax Information (both personal and business)</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>Budget Expenditure</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>Government Policy (e.g. white papers etc.)</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>Other (please specify)</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
Please use this space to add any comments regarding Section 2 – On-line Information to Citizen			

### Section 3 - On-line Services to Citizen

Please complete the table below showing which on-line (see guidelines) applications are provided by government. If you wish to comment further please use the spaces provided.

<b>Application</b>	<b>Stage of development</b> At what developmental stage is the service?	<b>Level of utilization</b> To what extent is the service utilized? (see guidelines)	<b>Technology used</b> What technology is used by government to provide the service?
<b>Payment of Bills (e.g. utility bills, tax, etc.)</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>Application Forms (e.g. benefits, licenses)</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>Fault Reporting (e.g. electricity fault reporting)</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>Other (please specify)</b>  Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____

If there are general comments on this Section, please put on a separate sheet

## Section 4 - On-line Participation by the Citizen

Please complete the table below showing which on-line (see guidelines) applications are provided by government. If you wish to comment further please use the spaces provided.

<b>Application</b>	<b>Stage of development</b> At what developmental stage is the service?	<b>Level of utilization</b> To what extent is the service utilized? (see guidelines)	<b>Technology used</b> What technology is used by government to provide the service?
<b>Opinion Polling</b>       Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>Voting and Referenda</b>       Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Other _____
<b>Provision of feedback by citizen</b>       <b>Are officials responsive to this?</b>       Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____
<b>Other (please specify)</b>       Comments	<input type="radio"/> Does not exist <input type="radio"/> Planning phase <input type="radio"/> Pilot project launched <input type="radio"/> Service available (if available, at what level?) <input type="radio"/> at local level <input type="radio"/> at regional level <input type="radio"/> at national level	<input type="radio"/> Low <input type="radio"/> Moderate <input type="radio"/> High	<input type="radio"/> Fax <input type="radio"/> World Wide Web <input type="radio"/> E-mail <input type="radio"/> Information Kiosks <input type="radio"/> Bulletin Board Systems <input type="radio"/> Other _____

## ***Appendix B - Guidelines developed for questionnaire***

These guidelines are intended to facilitate your reply to the questionnaire relating to on-line governance.

The questionnaire deals with a number of general areas assessing the accessibility of on-line information and services, general policy for information and communication technologies and enabling factors insofar as they might impact on-line governance. It then examines closely three main areas of development;

- on-line information
- on-line services
- public-input in the process of governance

We define on-line governance as providing citizens with access to computer mediated information, service delivery or dialogue in liaison with government at any level. It is not necessary that any telecommunication link be involved e.g. regularly updated stand-alone kiosks could fulfil an on-line government function.

For the purpose of this survey the notion of government will be extended to include all public services incorporating those of quasi governmental entities.

The questionnaire is designed to minimize as much as possible the time needed to fill it out. These guidelines explain the different parts of the questionnaire and show how they should be completed. We have put more general questions at the beginning of the questionnaire and the more precise questions at the end.

### Section 1 – General Information

This section is designed to collect information about issues which directly or indirectly support the development of on-line governance in your country. The questions are both 'closed' and open ended. The closed questions are relatively simple to answer; you only need to mark with a ü the appropriate response. The open ended questions allow comment whenever you feel this is necessary.

If there are questions which do not ask for comment, but to which you wish to add further information, you are encouraged to do so in the 'Comments' box after Question 12 or by attaching additional papers, suitably referenced.

Some questions (for example, Question 3) group a set of linked sub-questions together. If the initial question is not applicable to you then you need not refer to the following sub-questions and can move on to the next question.

Question 4 asks you to indicate the budget allocated by government to Information Technology and what % this is of total government expenditure. Please express the budget amount in your national currency and indicate the currency in the box provided.

Question 5 asks if government has an official web Site. It may be the case that more than one web Site exists in government, for example several departments or ministries may have their own web Site, in which case you should simply tick Yes. For the following sub-question asking how many times this web Site has been accessed, please give a figure for the total of all these web Sites. If you cannot supply all this information, please give the figure that you have and specify in the Comments space exactly what this refers to.

Question 10. The left column shows different types of technology that can be used for communication with government. For each of the technologies listed please indicate the % of the population having access at home and at work. Please feel free to add any Comments on each technology in the space provided. You should request this information from regulatory agencies or communication providers in your country.

Question 11 asks about the utilization of smart-card technology. This refers specifically to a plastic card (normally credit card format) containing a computer chip (microprocessor) able to communicate and process stored information. This does not include cards using magnetic or optical encoding which simply store data.

Question 12 asks you to indicate at what stage each of the listed legislations exists in your country. Again this question should be answered by clearly marking with a ü the appropriate answer.

## Section 2 – On-Line Information to Citizen

For each of the applications listed in the first column, four questions follow. For each of the questions you again need to tick with a ü the appropriate answer. Again a Comments section has been added for each of the applications.

In the Level of utilization column, you are asked to indicate the percentage of users or transactions (whichever is greater) making use of the on-line form of the application, relative to the total number of users or transactions (whether by on-line or traditional means). "Low" means less than 5% of the total, "Medium" means between 5% and 50%, and "High" means greater than 50%.

In the Technology used column, Information kiosks include any public information points being regularly updated (both on or off-line). Bulletin Board Systems include any special purpose electronic discussion or news groups open to specific communities for specific purposes; they are distinguishable from other electronic discussion groups (e.g. Usenet) by their local organization and management.

Please indicate any other existing application in the area of public information in the Other box provided. Space is provided at the end of this section for overall or general comments

## Section 3 – On-Line Services to Citizen and

## Section 4 – On-Line Participation by Citizen

The instructions given for Section 2 apply also to Sections 3 and 4. General comments may be provided on a separate sheet.

If you wish to add any additional papers with comments to the completed questionnaire, please specify clearly to which question your comments refer.

Thank you very much for your co-operation and I hope that these guidelines help you fill in the questionnaire. Should you wish to have further clarifications, please address your queries to:

Mr. Joshua Zammit

Tel: +356 223333 (reception)

2298 2322 (direct)

Fax: +356 220111

e-mail: joshua.zammit@magnet.mt

***Appendix C - Countries distributed according to region***

**AFRICA**

Angola  
Benin  
Botswana  
Burkina Faso  
Burundi  
Cameroon  
Cape Verde  
Central African Republic  
Chad  
Comoros  
Congo  
Côte d'Ivoire  
Democratic Republic of the Congo  
Equatorial Guinea  
Eritrea  
Ethiopia  
Gabon  
Gambia  
Ghana  
Guinea  
Guinea-Bissau  
Kenya  
Lesotho  
Liberia  
Madagascar  
Malawi  
Mali  
Mauritius  
Mozambique  
Namibia  
Niger  
Nigeria  
Rwanda  
Sao Tome and Principe  
Senegal  
Seychelles  
Sierra Leone  
South Africa  
Swaziland  
Togo  
Uganda  
United Republic of Tanzania  
Zambia  
Zimbabwe

Notes: i) not including the African countries among the Arab States, ii) all are developing countries

## ARAB STATES

Algeria  
Bahrain  
Djibouti  
Egypt  
Iraq  
Jordan  
Kuwait  
Lebanon  
Libyan Arab Jamahiriya  
Mauritania  
Morocco  
Oman  
Qatar  
Saudi Arabia  
Somalia  
Sudan  
Syrian Arab Republic  
Tunisia  
United Arab Emirates  
Yemen

Notes: i) not including Malta which is also in Europe, ii) all are developing countries.

## ASIA AND THE PACIFIC

Afghanistan  
Australia  
Bangladesh  
Bhutan  
Cambodia  
China  
Cook Islands  
Democratic People's Republic of Korea  
Fiji  
India  
Indonesia  
Iran  
Japan  
Kazakstan  
Kiribati  
Republic of Korea  
Kyrgyzstan  
Lao People's Democratic Republic  
Malaysia  
Maldives  
Marshall Islands  
Micronesia\*  
Mongolia  
Myanmar  
Nauru  
Nepal  
New Zealand  
Niue  
Pakistan  
Palau\*  
Papua New Guinea  
Philippines  
Samoa  
Singapore  
Solomon Islands  
Sri Lanka  
Tajikistan  
Thailand  
Tonga  
Turkmenistan  
Tuvalu  
Uzbekistan  
Vanuatu  
Viet Nam  
Australia, Japan and New Zealand

Notes: i) not including Russia and Turkey which are also in Europe, ii) all except Australia, Japan and New Zealand are developing countries.

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\* These countries which became UNESCO members in 1999, were not included in the survey.

## EUROPE AND NORTH AMERICA

Albania  
Andorra  
Armenia  
Austria  
Azerbaijan  
Belarus  
Belgium  
Bosnia and Herzegovina  
Bulgaria  
Canada  
Croatia  
Cyprus  
Czech Republic  
Denmark  
Estonia  
Finland  
France  
Georgia  
Germany  
Greece  
Hungary  
Iceland  
Ireland  
Israel  
Italy  
Latvia  
Lithuania  
Luxembourg  
The former Yugoslav Republic of Macedonia  
Malta  
Moldova  
Monaco  
Netherlands  
Norway  
Poland  
Portugal  
Romania  
Russian Federation  
San Marino  
Slovakia  
Slovenia  
Spain  
Sweden  
Switzerland  
Turkey  
Ukraine  
United Kingdom  
United States of America  
Yugoslavia

Notes: i) not including Tajikistan and Kazakhstan which are also in Asia, ii) developing countries: Albania, Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine.

## LATIN AMERICA AND THE CARIBBEAN

Antigua and Barbuda  
Argentina  
Bahamas  
Barbados  
Belize  
Bolivia  
Brazil  
Cayman Islands\*  
Chile  
Colombia  
Costa Rica  
Cuba  
Dominica  
Dominican Republic  
Ecuador  
El Salvador  
Grenada  
Guatemala  
Guyana  
Haiti  
Honduras  
Jamaica  
Mexico  
Nicaragua  
Panama  
Paraguay  
Peru  
Saint Kitts and Nevis  
Saint Lucia  
Saint Vincent and the Grenadines  
Suriname  
Trinidad and Tobago  
Uruguay  
Venezuela

Note: all are developing countries.

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\* This country which became UNESCO member in 1999, was not included in the survey.

### ***Appendix D - List of responding Countries***

List of responding countries:

Argentina  
Australia  
Azerbaijan  
Bahrain  
Belgium  
Brazil  
Bulgaria  
Canada  
Chile  
China  
Cook Islands  
Czech Republic  
Denmark  
Ecuador  
Egypt  
Estonia  
Ethiopia  
Finland  
Ghana  
Greece  
Hungary  
Iceland  
India  
Israel  
Jamaica  
Japan  
Jordan  
Korea  
Kuwait  
Latvia  
Lebanon  
Lithuania  
Luxembourg  
Malawi  
Malta  
Malaysia  
Mauritania  
Mexico  
Morocco  
Netherlands  
New Zealand  
Niger  
Norway  
Oman  
Pakistan  
Papua New Guinea  
Peru

Philippines  
Sao Tome and Principe  
Senegal  
Seychelles  
Singapore  
Sweden  
Switzerland  
Syria  
Tanzania  
Thailand  
Uganda  
United States of America  
Uzbekistan  
Viet Nam  
Zambia

## ***Appendix E - The case of Sweden***

Although Swedish society may be termed as very untypical of the developing world, some observations gleaned from the ICT-facilitated empowerment of local government during the 1990s make relevant reading, since some of the issues and the elements of human behaviour may be widely applicable.

Three pilot projects in Gothenburg entailed the creation of web sites with:

- administrative information concerning local council services
- current issues, concerning council policy proposals and news
- a debate forum, for moderated debates on policy (e.g. road planning) open to politicians and citizens
- an archives section, including past discussion and documents with text search facility.

An evaluation of the projects revealed only a modest impact and partial success, with about 40 accesses per district (15,000 population) and under a hundred contributions to debate in a year (mostly from citizens; negligible from politicians). Close examination reveals a number of "tensions":

- Tensions over Access
  - a) Cost vs. Value: self-sustaining debate and usage requires a critical mass, which is not yet present. Yet raising access levels means waiting for technology diffusion or pushing it through investing scarce resources. Kiosks were expensive and sometimes vandalised or damaged.
  - b) Politician vs. Citizen Access: insufficient funding implied neither of the two secured a critical mass
- Tensions over Content
  - c) Local vs. Central content: design and control was the subject of ongoing internal political contention
  - d) Government vs. Other content: officials felt that government-funded sites should only contain government related information. The alternative view was to include community information, including local shops and businesses. The former prevailed and the latter would have ensued a better hit-rate
  - e) Privacy vs. Right to Access Government information: the application of these two legal principles may lead to conflicts in some instances
- Tensions over Debate
  - f) Censorship vs. Openness: whilst freedom of expression is encouraged, the "psychological distancing" that occurs with computer communication led to extremes of expression/views that caused offence and halted debates

g) Politician involvement: necessity vs. hesitancy

Effective debate requires political participation. Politicians were generally reluctant to commit publicly and off the cuff, and to be pushed along by the potentially unrepresentative few who bother to debate on the Internet

h) Direct vs. Representative Democracy: generally speaking, it is not clear what such debates might be leading to: are they a re-enforcement of the politician's "tool-set" or are they tending to 'disintermediate' politicians?

Clearly, some of the above tensions will be mitigated over time as a critical access mass is attained and management guidelines are applied to resolve issues of content and control.

Understandably, one could take the view that if this is the feedback from Sweden (albeit from a few years back) the developing countries are a long way removed from impacting governance through ICTs. This may be true although the empowerment of intermediaries, such as NGOs, is now an undisputed phenomenon.

More direct citizen involvement in both services and processes impacting on governance may be a long term maturing scenario, embracing

- literacy
- disposable income
- convergence of telecommunication and media (intelligent TV and mobile telephony)
- telecommunication liberalisation and truly universal access.