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COUNTRY PROFILES OF E-GOVERNANCE

by

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

**United Nations Educational,
Scientific and Cultural Organization**

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TABLE OF CONTENTS

Introduction	1
<i>Background</i>	<i>1</i>
<i>Method</i>	<i>2</i>
<i>Some Observations on the findings</i>	<i>2</i>
1. Botswana	5
<i>Introduction</i>	<i>5</i>
<i>E-Governance</i>	<i>5</i>
2. Canada	9
<i>Background</i>	<i>9</i>
3. Estonia	14
<i>Introduction</i>	<i>14</i>
<i>Rapid development of information infrastructure</i>	<i>14</i>
<i>More attention to support activities</i>	<i>15</i>
<i>Efficiency and service orientation</i>	<i>15</i>
<i>Appendix – Summary of the e-Governance situation in Estonia</i>	<i>17</i>
4. Hungary	19
<i>Background</i>	<i>19</i>
5. India	22
<i>Background</i>	<i>22</i>
<i>Issues</i>	<i>24</i>
<i>E-Governance - A discussion note on the issues involved</i>	<i>26</i>
6. Jamaica	28
<i>Background</i>	<i>28</i>
<i>Public Access to Government Services</i>	<i>29</i>
7. Malaysia	32
<i>Background</i>	<i>32</i>
<i>Infrastructure</i>	<i>32</i>
<i>Enterprise</i>	<i>33</i>
<i>Human Capacity</i>	<i>33</i>

<i>Content and Applications</i>	33
<i>Strategic Compact</i>	34
<i>Electronic Government</i>	39
8. Malta	42
<i>Introduction</i>	42
<i>E-Governance</i>	42
9. Mauritius	47
<i>Introduction</i>	47
<i>E-Governance</i>	47
<i>Appendix: Some of major e-Governance projects (Mauritius)</i>	51
10. Mexico	56
<i>Background</i>	56
<i>E-Government/Governance</i>	56
<i>E-Mexico Project</i>	60
11. Morocco	61
<i>Background</i>	61
<i>Achievements</i>	62
<i>Development programme</i>	64
<i>Postal services</i>	70
<i>Information technology</i>	71
12. New Zealand	75
<i>Background</i>	75
<i>Programme delivery</i>	77
13. Republic of Korea	82
<i>Korea's Action Plan for Electronic Government</i>	82
<i>Implementation of electronic government</i>	85
14. South Africa	90
<i>Background</i>	90
<i>Creating the Enabling Policy Environment</i>	92

15. United Republic of Tanzania	94
<i>Background</i>	<i>94</i>
<i>E-Government</i>	<i>95</i>
 <i>Annex: Questionnaire for the Survey.....</i>	 <i>97</i>

Introduction

Background

The term Governance may be described as the process by which society steers itself. In this process, the interactions among the State, Private Enterprise and Civil Society are being increasingly conditioned and modified through the influence of information and communication technologies (ICTs), constituting the phenomenon of e-Governance. Examples of these shifts in dynamics are exemplified by:

- the use of the Internet by Civil Society, NGOs and professional associations to mobilize opinion and influence decision-making processes that affect them
- the increasing electronic delivery of Government and commercial services and information
- the electronic publication of draft legislation and statements of direction for public feedback
- on the infrastructure side, the increased adoption of e-enabled community centres, the liberalization of telecommunication markets and trends towards web-enabled mobile telephony and digital television are facilitating this evolution.

E-Governance is thus a wider concept than e-Government which is the use of ICTs in the dissemination and services of government. Following the COMNET IT/UNESCO Global Survey on On-line Governance published in 2000 (UNESCO document CII-2000/WS/09, see <http://www.comnet.mt/unesco/>), the Commonwealth Network of Information Technology for Development (COMNET-IT), in association with and with the financial support of UNESCO, has developed national profiles detailing current status and developments in this area. Whilst impacts of e-Governance in the commercial, NGO and professional areas are covered in these studies, the main focus centres around specific Government initiatives, such as:

- the development of cyberlaws
- the liberalization of telecommunications
- plans for e-Government
- plans for the development of an Info-Society
- the deployment of community e-centres
- instances of public feedback to statements of direction, draft legislation and so on
- web-sites of Government agencies, particularly if these offer value beyond a public relations image.

In this study, we use the terms "e-Governance" and "e-Government" instead of "on-line governance" and "on-line government" because we are effectively convened with all ICTs, not only application of remote access through telecommunications.

Method

The fifteen country abstracts compiled in 2001 provide an initial snapshot for the selected countries chosen to represent different situations in each of UNESCO's region.: in Africa (Botswana, Mauritius, South Africa, United Republic of Tanzania), in the Arab States (Morocco), in Asia and in the Pacific (India, Malaysia, New Zealand and Republic of Korea), in Europe and North America (Canada, Estonia, Hungary, Malta) and in Latin America and the Caribbean (Jamaica, Mexico). Research work was initiated by a high-level, semi-structured questionnaire (see Annex) mailed to known high level contact-persons in most of these countries. As work progressed, however, it became apparent that the consistency of responses in terms of scope, depth of treatment and presentation required significant additional work. Web-based sources and published material - such as national IT strategies and White Papers were used significantly as supplementary information. This, in a sense, further exacerbated the problem of consistent treatment. One conclusion that may be drawn - possibly subject to some debate - is that the structured written form may be increasingly inadequate and difficult to adhere to for comparative studies in today's information-diverse and fast moving- rich environment. There remains nonetheless, a critical need to package information in this area, since for most people browsing the Web remains a bewildering and often frustrating exercise, due to a number of factors such as inadequate infrastructure, access costs, technical parameters or restrictions within the users' organizational environment and the sheer complexity of navigating the information hierarchies on the Web. These factors would seem to indicate CD-ROM as a value-added medium. Taking advantage of the inherent convenience of storage and searching within repositories contained on a CD-ROM, maintaining currency and the dynamic nature of the information environment may be reconciled in on two ways:

- the option to "click" on web-references on a CD-ROM and obtain instant access to the live Web-site (given an Internet-enabled PC)
- managing periodical releases or re-issues of a CD.

These methods are expected to form an increasing part of future tool-kits possible updating of this study and similar comparative studies. In the meantime, the results of this study are being disseminated in machine-readable form on the COMNET-IT website (<http://www.comnet.mt/unesco/>)

Some Observations on the findings

Although the case studies are too extensive and diverse to enable a full analysis here and are thus presented for the evaluation and appreciation of the reader, a few major trends discussed by the author are presented here.

The "push" for public service reform has brought in its wake the pervasive harnessing of ICTs to achieve declared administrative and social goals. Some of the key features driving this reform can be identified as:

- public pressures for increased accountability and value for money in public service operations
- international agency and peer pressures for progress in areas such as civil rights and effective financial management
- progressive decentralization and devolution from Central Government to regional offices, local authorities and in some instances, contracted private sector service-providers
- increased public awareness and expectations resulting from the pervasiveness of the media, both national and international.

There may be some variations in the perceptions, if not the definition, of e-Government and its manifestations. Whilst it is generally acknowledged that the term implies an electronic interface to the citizen, there may be a danger of attributing an exclusive interpretation to this scenario. Such a narrow interpretation risks turning e-Government into an expensive "veneer" or dressing, over inherent inefficiencies and redundant processes.

The emerging consensus viewpoint is that the real challenge in administrative systems reform is the inculcation of attitudes that acknowledge data and information to be a corporate resource - and therefore shareable and subject to standards - as well as introducing process and regulatory changes that fly in the face of established hierarchical decision-making structures. Also, since resources, particularly with emerging or less developed economies, are at a premium, sustainable rates of change as well as rate of pay back on investments for e-Government are an issue. Whilst sections or sectors of the economy may be clamouring for the facilities of e-Government, large proportions of the population perceive conflicting priorities and are not likely to be in a position to exploit these facilities if they existed (due to affordability, access, language and literacy barriers). In this regard, the potential role of intermediaries assumes greater significance. In many societies, however, the progressive strengthening of these institutions (such as local councils or committees and NGOs) is itself a slow maturing process. Deliberate programmes that recognize the potential contribution of these intermediaries to complement the over stretched and at any rate inadequate structures of central government merit development.

For Government, the mere transfer of back-office processes to an electronic customer interface, no matter how effective the information-management and the process re-engineering, risks a limited pay back unless contexted within national cross-sectoral processes as well as the "information" of society through sectoral policies and facilitation measures for the harnessing of ICTs. Trade facilitation, for instance, could be interpreted restrictively if limited to a streamlining of Customs and possibly some other authorizing departments. Handling agents, traders, banks and insurance companies all form part of the national system that cuts across both Government and private sector. Similarly for Health services and other areas (GIS, etc). The challenge for co-ordinated development and improved governance therefore is not limited to the traditional boundaries of government. Arguably, the private sector - and thence civil society - might have an equal stake in the definition and implementation of ICT

enabled systems. In the inculcation of an ICT-orientation in the various socio-economic sectors, only the more mature governments see a role in transition - beyond the provision of efficient administrative systems - to a proactive catalytic and facilitation role, engaging society and private sector in partnerships for the innovative application of ICTs to commercial and self-help activity. A good example is Canada's franchising of arrangements extending to its 8,000 public access centres for commercial or social interests.

On the infrastructure front, the liberalization of telecommunications progresses at a steady pace, but a number of consolidation issues lag behind. For example, in several instances, the lack of a national Internet exchange subjects an inordinate amount of traffic (and revenues) to international operators.

Interestingly, one comes across several instances of countries articulating, as part of their vision, the opportunity of becoming a regional hub for ICT expertise, thereby ignoring or perhaps playing down the fact that the sustainability of quality services to the meet of exponentially growth of national demands is a major issue in itself. Also, in an increasingly networked world, every country is a hub, with multiple external and internal interfaces. Perhaps the reality is that hubbing is an intrinsic prerequisite for economic and social performance in the emerging world order. Islands and Small States seem to constitute a special case, with unique challenges and opportunities. The traditional issues of economic vulnerability and geographical isolation are exacerbated in the digital era by lack of critical mass in terms of service provision and sweeping globalization. And yet these countries are facing the greatest opportunity, in relative terms. Government in these environments is often effectively a single-layer central administration, and there is an opportunity to tap into wider virtual markets. Access to information and education through ICTs is potentially vast, relative to the national supply, and planned seamless information and technical infrastructure building are within relatively easy reach. All this enables a leap-frogging of social and economic development into the digital age, given the political and managerial leadership and foresight.

1. Botswana

Introduction

Botswana was formerly British protectorate of Bechuanaland and adopted its new name upon independence in 1966. The economy, closely tied to South Africa's, is dominated by cattle raising and mining. It is situated in Southern Africa just north of South Africa. It is completely landlocked and has a semiarid climate, warm in winter and hot in summer. The land is very rich in natural resources and the terrain is predominantly flat to gently rolling tableland with the Kalahari Desert in the southwest.

Botswana has a population of about 1.5 million and is a parliamentary republic. The GDP in 1999 was 5.7 billion dollars with a real growth of 6.5% and 47% of the population below the poverty line. The economy is structured with agriculture still providing a livelihood for more than 80% of the population but supplies only about 50% of food needs and accounts for only 3% of GDP. Subsistence farming and cattle raising predominate. The sector is plagued by erratic rainfall and poor soils. Diamond mining and tourism also are important to the economy. Substantial mineral deposits were found in the 1970s and the mining sector grew from 25% of GDP in 1980 to 38% in 1998. Unemployment officially is 21% but unofficial estimates place it closer to 40%. The Orapa 2000 project should have been the main force behind continued economic expansion.

The early history of the people and territory of Botswana is still being uncovered, as archaeologists sift evidence from legend. Indications of settled communities go back as far as the fourth century. Before that, the territory was sparsely populated by hunter-gatherer communities of the San people. Major settlements took place in the early 16th century. British missionaries arrived in the 19th century. Botswana Paramount Chiefs Bathoen, Sebele and Khama "the Great", sought British Government protection against the Boer threat in the last quarter of the 19th Century.

Today Botswana is working hard to strengthen its ICT network yet the statistics show that there is still considerable work which needs to be carried out. 1999 statistics show that Botswana had 77 telephone mainlines per 1000 population and 31 personal computers for every 1000 population. It also had 9 Internet hosts for every 10000 people.

E-Governance

The size and population of the country are two aspects that may present some challenge in the deployment of Information and Communication Technology in Botswana more so since return on investment tends to increase with population density. The other challenges faced by the country are similar to those faced by other developing countries in that it is faced with rural-urban population migration and is largely dependant on expatriates in key professional positions. For the acquisition of ICT facilities the country is also highly dependant on the developed countries. In addition to this, David Magang, Botswana's Works, Transport and Communications

minister said that making the Internet available is one of the biggest challenges currently faced by the country. He said that although the Internet market is fully liberalized in Botswana, most of the users are currently corporate institutions and government organizations and that Internet penetration is low both in urban and rural areas, and it should be the stakeholders, including the government, who should promote the use of Internet more in rural areas. The possible reasons for this besides a poor infrastructure is the high cost on Internet connectivity including connection charges and subscription fees and telephone charges for dial-up access. He said a preliminary estimate indicates that to date (May 2001), Botswana has 30,000 Internet users compared to 10,000 in 1999. And currently there are nine licensed Internet service providers and six licensed data gateway service providers.

Recently, the Botswana Telecommunications Corporation (BTC) set up an ISP called Botsnet, mainly with the idea of providing service to Botswana companies that want to get to the Internet. They have set up standard mail and a Botsnet Web server. They offer some special features, like online registration, access to HTML Mail, and a way to search the Botswana telephone directory. Botsnet intends to expand to give users some news channels, a chat board and even a way to set up personal Websites. They will also be offering e-commerce services.

Botswana has an established national development planning process with the current one scheduled to end in 2003. In 1999 Botswana had no national ICT strategy but the Government had its ICT Vision 2003 which basically said that:

- Botswana will have made significant and positive steps towards becoming a regional leader in the exploitation and utilization of IT within its Government administration. In addition, Government will have played the leading role in helping the private sector to embrace IT in the interests of national objectives.
- Quality IT systems will be implemented in key Government sectors where competitive advantage can be gained over regional Nations or where increased revenues or savings can be realized to help fund the IT Vision.
- IT will be supported by a workforce which has been well trained to carry out its duties and responsibilities in IT. In addition, senior officers will be well versed in the critical issues for successful IT management.
- A Data Communications Infrastructure will be in place to allow Ministries and Departments to share information and to transfer data electronically amongst themselves in a secure and managed environment.
- IT systems will be in use in key areas to improve Government services to the Private Sector and the Public and to reduce instances of excessive queuing and wasted time.
- Common IT systems will be in place across all Ministries for the management of key resources and activities.
- Each Ministry will be developing and generating its own relevant Information databases, providing decision-makers with up-to-date and accurate management information through computer workstations. In addition, Ministries will be working closely together on IT initiatives of mutual interest.

- Each Ministry will be largely in control of running its own IT systems, with its own dedicated IT support unit working closely with GCB, and will operate within a framework of agreed policies, standards and guidelines.
- Government will be interchanging information electronically with Local Authorities, the Private Sector and other external bodies in a managed and secure environment.
- The volume of paperwork flowing between Ministries and physically stored in registries will be reduced and greater emphasis will be placed on the electronic storage of data and its subsequent retrieval on computer networks.
- A Botswana Centre for Geographic Information will be established to make best use of existing information and to optimize future information sharing and management.
- Government will be working closely with the private IT services sector to ensure quality and continuity of service in the required areas and will appraise them of future plans to help them develop their business activities.

In order for the successful implementation of the above strategy to happen a number of issues would need to be addressed successfully. These issues include:

- Getting the top management into adequate level of ICT awareness to ensure meaningful participation in the implementation
- Setting implementation priorities and time scales
- Estimating Implementation costs and benefits
- Assessing the staffing implications
- Ensuring alignment of this strategy to the National and Local government ICT strategy.

Government has no plans at present to interact electronically with the Citizens of Botswana. The prevailing view in the public sector is that while Botswana has an enviable telecommunications infrastructure both in terms of reach and diversity of products, there is insufficient access to the technologies (Internet) by the ordinary person on the street to justify the cost of investing in the development of e-portals as a key method of reaching the citizen for the delivery of service. This is borne out by the low (compared to USA and the first world) telephone density and even lower access tool (Personal Computer) density. For now, civil servants believe that using traditional methods of service delivery whether these are counter services, or any other public sector service, are more appropriate to reach the optimum number of citizens. Development of E-Government has tended to be restricted to back office systems targeted at specific groups e.g., development of comprehensive business support systems for the members of parliament.

There are however, plans to develop infrastructure (government Data Network) to support normal back office systems, as well as high bandwidth applications such as distance learning, telemedicine, and appropriate use of video conferencing in the next two years. The plans are approved for implementation in the current development plan of the country but have not been given much publicity as the clients of the infrastructure are intended to be mainly government departments.

Plans are also afoot to provide a wide coverage of access to the Internet in the public school system as government realizes that for its citizens to compete effectively in the

global village, the nation must start to invest on availing technology skills right from the primary school level.

2. Canada

Background

Canada is part of the North American continent and is considered to be a world leader in the field of innovation in the Public Sector and Government. To paraphrase the Clerk of the Privy Council and Secretary to Cabinet in his speech at the Assistant Deputy Ministers Forum, when it comes to a state that you start receiving email from your mother at work you realize that there is no turning back now. The steps towards e-Government in Canada started in the late 1980's through the use of e-mail, in 1991-92 government departments and programmes had their first web presence, in 1994 the Information Highway Advisory Committee (IHAC) was set up. IHAC had a mandate to assist government in understanding how information management and information technology is changing economies and societies. The IHAC tabled reports and recommendations in September 1995 and September 1997 and these documents have guided government decision making and have enable Canada to emerge as a world leader in the adoption and use of information management and information technology. In 1995 Green Lane was established on the Information Highway, in 1997 the vision for connectedness was set up, in 1998 the six pillar connectedness agenda was launched on a national level.

The Speech from the Throne in October 1999 set a goal for the Government of Canada to become a "model user of information technology and the Internet" and by 2004 Canada should be known as the Government most connected to its citizens around the world. By this time Canadians should be able to access all government information and services on-line at the time and place of their choosing.

A lot has been done but where is Canada today and where does it want to go? The Public Service of Canada needs to get better at digitizing information. The websites belonging to federal departments and agencies are not always well organized or linked to each other. It needs to begin making inroads to modernize service delivery and to start delivering services in manners that make sense to Canadians and it also needs to start looking at innovative manners to implement and use e-Government such as for example the use of online auctions as happened for the two bands of the Radio Spectrum or the Leadership Network site (<http://www.leadership.gc.ca>). The way forward is to try and bring all the parts into one coherent whole and this is being done through two main initiatives. The first called *Service Canada* aims for a single window access to government services, by telephone, the web and face-to-face with multiple channels always as a back door. The second called *Government On-line* is an SFT initiative in which by December 2000 all departments had an online presence with information on programmes, services and key forms. A comprehensive list can be found on http://canada.gc.ca/depts/major/depind_e.html which gives direct links to the primary Websites of Government of Canada departments and agencies, as well as links to Websites maintained by organizations for which various departments and agencies are responsible.

What are the benefits to Canadians? In its adoption of Information and Communication Technology in the process of Government, Canada looked towards

its citizens to help in the design of e-Government. This methodology is characterized as citizen centred government and it is a vision that recognizes the different ways that people interact with their government:

- Citizens as taxpayers who expect value and results
- Citizens as clients who expect accessible, quality services and
- Citizens as participants in the democratic process.

It is the challenge of the Canadian Government to enable its citizens to explore all the three aspects of their citizenship. The approach to achieve this goal is outlined in the document Strategic Directions for Information Management and Information Technology. This document outlines, in a comprehensive manner, the direction and opportunities geared toward a more collaborative, integrated model of delivering government services and programmes. It outlines a series of priorities that will lever government's significant Information Management – Information Technology investments towards a more integrated, collaborative model of government. Each priority area is supported by detailed workplans with clearly defined milestones.

In facing the challenge the Canadian Government analyzed the changing landscape in which it operates. A number of principles emerge. The first is that technology, globalization and the rise of the digital economy are changing our world. The second is that in tandem with the rise of the digital economy is the growing understanding of the citizen as the principal driver of change. The third is the recognition that in the digital economy knowledge is a key resource and how well knowledge is created, managed, shared, transmitted and stored is of growing importance. The fourth is an emphasis on how Information Management and Information Technology as key strategic resources are changing the human resources landscape.

This takes us to a second issue which is that of the change in governing in a digital world. It is the vision of the Canadian government to allow citizens to choose how they wish to access information and services. Electronic service delivery should be accessible to all people around the country irrespective of their income, language or disability. To enable this electronic service delivery the federal government has devised a strategy. The key elements of this strategy are (i) a government-wide information management-information technology infrastructure that provides a secure and trusted environment to connect with citizens and the private sector, (ii) a world-class government information management-information technology workforce and (iii) successful adoption of integrated governance frameworks to guide information management-information technology investments, manage risks and set standards.

In discussing the above one should not get the impression that the Government of Canada is still beginning to provide services through electronic means. It offers an impressive range of services and information on-line such as those shown below:

The Canada Site is a gateway to all federal websites and provides one stop access to electronic directories and many commonly requested forms and publications. This site receives as many as 7 million hits each month.

The Canadian Health Network brings together the resources of over 460 Canadian health-related organizations to provide members of the public and health intermediaries access to a unified source of valid, Internet-based health information, geared especially towards Canadians.

The National Job Bank which is available at kiosks across the country and through the Internet. This job bank lists job openings in communities across Canada. Other such services are **The Electronic Labour Exchange**, **CanLearn Interactive** which is a resource to explore education and training opportunities and **Youth Resources Network Canada** which brings together career information, programmes and services for young people aged 15 to 30.

EFILE which allows tax professionals who are approved electronic filers to prepare and deliver income tax returns electronically.

There are various other services such as travel and culture with sites for the **Consular Services**, the **National Film Board of Canada collection on-line**, **Access to Canada's heritage collections**. In addition there are also environment related resources such as **Green Lane** and **Millenium Eco-Communities website** and resources related to services for business such as **Canada Business Service Centres**, **Incorporating a Business**, **Patent applications**, **Export information** and **Export services**.

Looking ahead there are a number of other services being developed like a revamp of the Canada Site, a national health information highway, the application for benefits and all related transactions, filing of taxes, on-line passport renewal, national park reservations, one-stop access to information on the environment and others.

By the end of 2000 the Canadian Government had to reach the following targets:

- Up-to-date, accurate, bilingual information on key programmes and services available on-line.
- Commonly used forms available to download and print.
- The ability to contact departments through the Canada Site.
- The Canada Site will continue to be revamped and organized around citizen needs and topics of interest. A technology and policy framework will be in place that protects the security and privacy of Canadians in their electronic dealings with government.

Whereas in the next few years the following deliverables are expected:

- Key federal programmes and services – the ones that matter most to Canadians – will be available on-line. Clients will be able to complete secure and interactive transactions on-line. Secure and interactive electronic forms will be available.

- Technical and content support will be provided through various help services. The service will have predictable response times based on published service standards.
- An easy to use, advanced search capability will be available on the Government of Canada portal and all federal department and agency websites. Clients will be able to find information and services even if the exact name of the programme or service is unknown. Common search principles with similar navigation rules will be implemented across all federal websites, and all sites will have a common look and feel.
- One-stop access points (or portals) available through the Canada Site, with information and services organized according to types of activity, areas of interest and common citizen needs. Plans are already underway to develop portals for seniors, consumers, Aboriginals, the environment, and innovation resources for small- and medium-sized enterprises.
- Innovative partnerships. The Government On-Line initiative will place increased emphasis on on-line service delivery partnerships with provinces, territories, municipalities, businesses, volunteer organizations and international partners.

In the beginning of this profile a statement was made about change being driven by the citizens who are eventually the service receivers. In order to have gone a full circle the results from a recent Price Waterhouse Coopers survey give us the state of play in the current scenario in Canada. Just to report some of the results from a presentation made by PWC on Lessons Learned about e-Government in Canada it says that:

- Poorer, older, less educated Canadians will not have access.
- Canadians have begun using government on-line with one-third of Canadian Internet users accessing government services but mostly for access to information rather than applying for a service or filing a tax-return.
- Canadians are using government websites because it is more convenient in that it takes less time, its easier and simpler, no need to physical travel, etc.
- Canadians accessing Government websites want all services on line even those not used regularly.
- Canadians are ready to carry out online transactions with the number of Canadians doing Christmas purchasing online quadrupling.
- Canadians want integrated government portals with 86% saying that single website allowing them to access a broad range of government services would be helpful.
- Provincial governments have a key role to play in the attraction of users.

- Security remains an issue with users.
- Implementation should be planned in waves.

In view of this the work carried out by the Canadian Government can be seen as a good blueprint on which other Governments can plan their electronic service delivery.

3. Estonia

Introduction

Estonia has made significant steps towards the information age and several processes initiated earlier are starting to bear fruit. The government has been able to assign about one percent of its budget to information technology development in the public sector for eight consecutive years now. This has brought PCs to the desks of more than 90% of employees of ministries, authorities, inspectorates and other government institutions who need to work with computers.

The Estonian government has replaced paper documentation prepared for its sessions with digital documents and launched an Internet-based system for government sessions. As from this year all Estonian municipalities are connected to the Internet. A national network of public Internet access points is also taking shape.

Last year, the Digital Signature Act was approved by Parliament. This gives the basic legal framework for the development of e-commerce.

Rapid development of information infrastructure

PeaTee, the backbone network for government institutions started in 1998, has now matured to reach its planned volume. The number of government institutions and their subdivisions to be connected to PeaTee has passed the 550 mark (ie more than 10,000 computers). About 80% of these entities enjoy the benefits of 2 Mbps or even 10 Mbps transfer speeds. Connection costs have steadily decreased at the same time.

The rapid success of PeaTee has driven new developments in information infrastructure. The KulaTee (Village Road) programme of rural data communications, kicked off at the end of 1998 with preliminary studies, yielded the first leased line connections to municipalities last year. Project completion, which meant a minimum of 64 kbps leased line capacity to each of the 245 existing municipalities, was in late 2000. The only obstacle to keeping this schedule may be lack of funding. Although the government has listed KulaTee as one of its priorities, this has not spared the programme from budget cuts.

KulaTee also offers the possibility of providing Internet access to several schools and opening new public Internet access points at the municipalities or libraries. As part of networking the public libraries, leased-line public Internet access points have been opened at more than 60 libraries all over Estonia. They are equipped with new computers and printers acquired through the public procurement process. It is worth mentioning that KulaTee has brought together a number of government institutions, commercial entities and organizations. A national cooperation system has been formed, led by a working party in each county and a central programme council. For libraries, the project partners are the Ministry of Culture, the Estonian Informatics Centre and county governments which are jointly organizing the work.

The end of the year 2000 saw the end of the special monopoly rights of the Estonian Telephone Company.

More attention to support activities

A backdrop for building communications networks is active work in the supporting areas of IT standardization, data security and language technology. During the past three of years, the IT standardization committee has published more than 30 Estonian IT standards.

A new edition of the standard Requirements on Information Technology in the Estonian Language and Cultural Environment was completed in early 2000. This should encourage hardware and software vendors to adapt their products to Estonian requirements. The same goal is served by language technology activities, preparing semi-manufactured language resource products for all software vendors. Software vendors are being encouraged to put more effort into Estonian products, even if this will not promise immediate profit. Many software vendors dealing with Estonian language products actually acknowledge that this business may provide a good return on investment. There is a sufficient number of Estonian computer users already – about 40 per cent of the 1.4 million population.

In the field of data security, a draft document of security classes has been drawn up, complete with a set of the basic measures to be taken. Manuals have been published for top management and IT personnel, to help them secure emerging information systems and increase their reliability.

The Estonian government has devoted serious attention to copyright protection of software, including legalization of programs in use.

Efficiency and service orientation

IT solutions will help government institutions to streamline their work, share information faster and concentrate on producing the information and offering the services that are vital for the citizens of Estonia.

The system of state registers in Estonia is quite complicated – there are many registers, the same data is often gathered over and over again for different needs, quality of data is sometimes low, etc. To improve the situation the register of databases was implemented. This registry of data repositories, implemented last year at the Estonian Informatics Centre, has greatly improved cooperation and cross-use of data between repositories. The register of databases is one part of the main development project called "Registers Service Layer" launched in 2001. Establishment of a joint service layer on the basis of Internet technology has opened the possibility of offering different e-services on the basis of different state databases. The first pilot projects have successfully been completed.

At the same time, government institutions are preparing for a transition to electronic business as prescribed in the document management programme initiated by the State

Chancellery. The Digital Signature Act, passed in 2000 by the Parliament, provides a foundation for the use of digital documents with exactly the same legal consequences as their paper counterparts. In addition to the present availability of official forms on the Internet, people also have the option of filling them in and submitting them through the same channel (the Estonian tax authority already accepts tax declarations submitted electronically). This popular service is already used thousands of times every business day. We will soon witness successful remote communication between the government and the citizens, without undue delay or cost, now seems to be within reach.

Information and services of all government institutions are now provided through a single integrated portal - the State Web Centre (<http://www.riik.ee>), which is a path to the home pages of all government institutions. Through this single window, people should be able to access all institutions and clerks and get solutions to as many problems as possible. The operator of the information server promptly routes user queries to the right clerk.

As the next step, the current institution-centric approach should be made even more problem- and service-centric. This calls for effective cooperation between all government institutions and the emergence of common operating principles and rules. The main obstacle may prove to be the legacy management structure that stems from rigid power hierarchies and favours bureaucracy. The challenge is to develop modern management structures, based on cooperation networks and cross-institutional information processing mechanisms. The planned administration reform will hopefully accommodate that.

Requirements for information publicity are also taking shape. Freedom of Information Act stipulates both requirements for government institutions to inform the public about their performance, as well as methods of how people should be able to access this vital information. Thus, every institution has to create a digital document registry that can be accessed at any time by any computer user via public data communication networks. This act and others like it will fill several serious holes in current legislation and thereby certainly help to open up various aspects of decisions made by the government, including perhaps some that, for some reason or another, have been concealed from the public until now.

Appendix – Summary of the e-Governance situation in Estonia

Information Policy

The principles of the Estonian Information Policy were approved by the Parliament of Estonia on May 13, 1998 (<http://www.eik.ee/english/policy>) This policy document gives a proper framework for actions toward the information society.

Action Plan

The Information Policy serves as a basis for an Action Plan, which in turn is the basis for all government organizations to plan and start different projects and programmes. The Action Plan is discussed once a year in the Government of Estonia and it has been approved first on April 1998 (<http://www.eik.ee/english/policy/plan.htm>).

The Coalition Agreement

The February 1999 Coalition Agreement (<http://www.riik.ee/government>) of the Reform Party, Pro Patria and Mõõdukad (Moderates) forming the Government Coalition describes some actions based on the Information Policy.

IT management organization

According to the amendments to the Government of Republic Act recommended by the government and adopted by the Riigikogu (Estonian Parliament) in June 2000, the Ministry of Communications is coordinating the work of the state information systems. In all ministries, county governments and state organizations IT development and maintenance is managed/coordinated by IT managers.

The main implementing and advisory bodies are:

- Department of State Information Systems, State Chancellery (from September, 2000, Ministry of Transport and Communications) - <http://www.riik.ee/infosystems/>
- Estonian Informatics Centre (a state agency) – <http://www.eik.ee/english>
- Estonian National Communications Board - <http://www.sa.ee/sa/eind1.htm>
- Inspection of Data Protection – <http://www.dp.gov.ee>
- Estonian Informatics Council (acting from 1997 as a government committee)
- <http://www.eik.ee/ein/> available in Estonian; about its activities see in English
- <http://www.eik.ee/english/1999/>
- Tiger Leap Foundation – <http://www.tiigrihype.ee/english>

Some basic facts and indicators

Total number of conventional phone lines per 100 inhabitants - 35.4

Total number of mobile phone subscribers per 100 inhabitants – 31.5

Mobile telephone transmission networks cover 99% of Estonia's populated area

Number of people having used the Internet in the last six months – 400,000
(28% of the population)
Number of users of online banking systems – 180,000 (13%)
RIPE host count by DNS domains (real) – 33,280 (July 2000)

4. Hungary

Background

The Republic of Hungary has a population of around 10 million people, following the end of the second world war Hungary became part of the Soviet dominated Eastern European block and its government and economy were refashioned on the communist model. During 1956, increasingly nationalist opposition, pushed the Government to announce its withdrawal from the Warsaw Pact, and this led to a massive military intervention by Moscow. During the Gorbachev era Hungary led the movement to dissolve the Warsaw Pact and steadily moved toward multiparty democracy and a market-oriented democracy. After the fall of the USSR in 1991, Hungary developed close political and economic relations with Western Europe and is now being considered as a potential member of the European Union.

As regards telecommunications, historically, Hungary has had an underdeveloped communication network. Until 1989 telecommunications used to be a state monopoly and was bundled up with traditional postal services and broadcasting. In 1990, the first transformation came about. The company that had the monopoly for these three services was split into three. The second transformation came around with the Telecommunications Act that became effective in the summer of 1993. This Act essentially established the theoretical framework of the current structure of telecommunications and accelerated the reform in the telecommunications sector. The future for telecommunications in Hungary is as yet not clearly charted, like many other countries, due to the fast rate of change in this sector. Yet as more services become liberalized and the termination of exclusivity of services, which will last until 31 December 2001, comes into effect, an exciting time for the Republic of Hungary is on the horizon.

Hungary has realized that a planned investment in information technology and its supporting infrastructure is required for the development of the information society. The effects of such an investment together with the benefits of the information society makes the return on such investment worthwhile. The birth of a global telecommunications network and the convergence of telecommunications, computer engineering and entertainment electronics technologies open up new prospects for global trade in information services. In the course of this process, telecommunications itself is becoming part of information technology, and its services have an increasingly 'intelligent' content. This infrastructure should be capable of connecting any user network run by businesses, institutions or private individuals, and suitable for intelligent data processing. In addition to this the Hungarian Government has created a Commissioner for ICT within the office of the Prime Minister with two main lines of action related to the establishment of an Information Society National Action Plan. The first line of action is called the Szechenyi Plan which is an ambitious initiative for mid-term national economic development and has a time horizon of six years. The yearly budget for 2001 and 2002 allocated is approximately 1 billion US dollars and Government expects a similar contribution from the private sector. This plan has seven priority areas called programmes. In each programme there are several sub-programmes. One of the seven programmes is dedicated specifically to the

development of the information society and information economy. In this programme, there are five sub-programmes, covering the areas of e-Government; improvement of the availability and access of IT resources; creating the foundations for the e-economy, enhancement of information culture, improvement of accessible contents, improvement of quality of life and rising awareness. A second line of action related to the establishment of an information society plan is to publish a National Strategy for Informatics. This document is intended to serve as the basic guideline for the development of the Information Society in Hungary.

There are several other ongoing activities. The first pilot project on Certificate Authority and Digital Signature system started in October 2000 at the Ministry of Interior. The Ministry of Interior issued new personal identification card and driving licenses harmonized with the EU recommendations and standards of the member states. The system is based on a nation-wide IT network, connecting 254 offices in municipalities. The offices are situated at the local governments and supported by the Ministry of Interior. The offices are one-stop contact points between the citizens and Government. The local governments and other authorities can use the wide area network for various transactions on the intranets and the Internet as well.

The Ministry of Environmental Protection established a website that provides information on the state of the environment. Also, a fully operational network for the collection, processing and monitoring of environmental data in Hungary that will be fully compatible with the European Environment Information and Observation Network (EIONET). There is a national database of substances damaging the ozone layer, too.

The digitalization of Hungarian authors' literary works (in the framework of Neumann Digital Library and Multimedia Centre) is in progress. Furthermore, the establishment of the National Audio-visual Archive is in progress, too. The development of high-speed Internet access for National Cultural Institutions (in co-operation with the National IT Infrastructure Development Programme/NIIF) continues.

The John von Neumann Computer Society (NJSZT) has joined the European Computer Driving License (ECDL) Foundation in 1997. There are more than 150 accredited Test Centres, co-ordinated and controlled by NJSZT. There are more than 30.000 candidates and more than 16.000 completed ECDLs. The Hungarian Quality Assurance System for ECDL Centres is recognized as international best practice. The ECDL Programme is accredited by the Ministry of Education for the Further Education Programme for Teachers

Government has pledged the use of information technology for its operation and its primary aim, in the legislative institutions and the central and local agencies of public administration is to standardize existing systems in five to ten years. It wishes to upgrade the most important registration systems to meet modern standards. (The records involved in this scheme cover data on personal identification, business, social security, tax and customs affairs, real estate, motor vehicles and criminals). This scheme may result in direct savings of billions of forints, while its indirect effects may generate an even greater increase in revenue. Government is also trying to co-ordinate the use of up-to-date information processing methods in the preliminary phase of decision-making (handling and flow of documents, availability of data for

control by decision-makers, data protection, etc.) in that it may help ease the burden on decision-making bodies, reduce the excessive influence of the specialized institutions and accelerate the decision-making process

Hungary's presence in international fora and organizations will also require that it become connected with the telecommunications and information processing systems of the EU member countries (for instance, the European Nervous System [ENS]) and in common with a number of EU states, a long-term modernization objective of Hungary is that both private individuals and enterprises should be able to communicate with government agencies and other authorities by computer, without the need for printed documents (tax affairs, official certificates, access to non-classified government information, etc.). On a legal front Hungary should take legal measures to protect government information processing systems (the legal force of electronic documents and their archiving, rules for the acquisition of information, the accessibility and protection of data bases, consequences of unauthorized access, etc.).

On the level of public information processing systems which include education, research and culture, in the next 10 to 15 years all schools, libraries and research institutes should be enabled to establish computer links with one another. Direct access to international networks may help schools and universities retain their more qualified staff. It is also envisaged that the Hungarian citizen would be able to exercise his democratic right directly from the home through the use of his PC.

On a business level these systems should concentrate on the background services that improve the general conditions of economic activities (banking and credit transactions, electronic accounting systems, real estate trading services, capital and commodity market information, data bases, etc.). The Government should lay particular emphasis on the protection of personal rights, copyright and business know-how, not only in the traditional fields of civil law, but also in the new branches of administrative law which are increasingly important for the business community (for instance, the monitoring system for public services rendered under concession agreements).

With regards to the enabling infrastructure the telephone capacities of the country can be expanded at an annual rate of about 15 per cent and about thirty-one telephone lines are available for every 100 inhabitants. It can safely be predicted that by the 2010s TV and radio transmission and postal services will be close to European standards. In other areas of telecommunications and information processing, market forces should guarantee more rapid development.

5. India

Background

In India, the challenges for the application of IT to the processes of government are articulated as the attainment of government that is:

- simple
- Moral
- Accountable
- Responsive and
- Transparent

The Department of Electronics has been tasked with translating this into reality by:

- harnessing advances in IT to restructure Government, Citizen and Business interfaces with the objective of better governance.
- establishing institutional mechanisms to facilitate initiatives towards synergistic utilization of IT as an enabling tool for efficiency and effectiveness in public administration.
- targeting to achieve at least 25% of the government dealings & services to be delivered electronically through computers, telecommunication and TV within 5 years.

Measures proposed or underway to this end include:

- Developing the institution of Nodal Officers both within the Ministry of IT as well as corresponding Departments in the Government of India for quick initiation and transfer of suitable technologies and packages enabling Electronic Governance.
- Leveraging resources of various Ministries/Departments & Public Sector Institutions to enable adoption & adaptation of objectives of electronic delivery
- Encouraging development of similar mechanisms and dedicated institutions at the State level.
- Encouraging various Constitutional Bodies to adopt EG as a tool for more effective delivery of services and administration.
- Addressing privacy concerns through a continuing commitment to the data protection and Internet security methods both in the Public and Private domain.

Specific objectives have been articulated, as follows:

- 1) Identify priority functional areas in every Ministry/Department to be taken up as early candidates for e-Governance
- 2) Make an inventory of existing applications/packages both (domestic and international) facilitating e-Governance.

- 3) Initiate moves to encourage Central and State Governments to link databases to the public domain.
- 4) Initiate and develop Data Warehouses in every Ministry & Department.
- 5) Leverage resources and activities in the various State Governments for Data Base building activity.
- 6) Initiate and develop pilot projects in applications that are currently not available so as to reap the full benefit of IT.
- 7) Develop and integrate suitable models in areas of Electronic Governance where systems are being developed independently by Central or State organs.
- 8) Encourage both Central and State Governments to prescribe knowledge of computers as an essential qualification for recruitment/promotion at various levels.
- 9) Ensure wide participation of existing staff in computer literacy programmes.
- 10) Develop systems for seamless transfer of information between offices dealing with public administration both in the Central as well as the State governments
- 11) Set up and or facilitate specific communication networks for the Government sector up and or
- 12) Assist Central and State Governments in the identification and implementation of suitable hardware and software packages for Electronic Governance.
- 13) Establish links worldwide with institutions engaged in similar activities so as to optimize the interchange of ideas & experiences.
- 14) Initiate amendments in Central and State Acts, Rules and Regulations under various departments and ministries to put in place IT and Web enabled Citizen Services.
- 15) Establish organizations for advising Government regarding development of strategies for use of Information Technology by Government so that latest technologies and best practices are harnessed.
- 16) Develop special pilot projects on Paperless Government-On-Line through an extensive use of Electronic Forms and Data Entry Interfaces enabled by of web and Internet technology.
- 17) Build convergence into connected Services Delivery programmes.
- 18) Develop commercial and governmental systems for issuing and managing digital signatures/electronic signature smart cards.

- 19) Identify measures for suitable protection of data during compilation and transmission and against alterations by using a combination of security measures.
- 20) Launch the 25% target of Electronically-delivered services widely and enable its monitoring
- 21) Establish Industry Consultative Committees (ICC), Citizen Consultative Committees (CCC) and Ministries Consultative Committees (MCC) to provide fora to various users and implementation groups and organizations to contribute towards the 25% goal and beyond.
- 22) Develop existing Facilitation Centres already established in various departments for One Stop Shop (OSS) giving One Click Link (OCL) to all information required by the citizen through convergent use of linking and a multiple data entry mechanism.
- 23) Coordinate activities of Information Technology - Citizen Interface set up by the National Task Force on Information Technology and Software Development, as also the High Powered Committee on Improving Efficiency in Government through use of IT.
- 24) Establish Government Information Services (GIS) and facilitate the setting up of National Information Infrastructure.

Issues

While initiatives have been emanating from various directions, they are sometimes deemed to be at cross-purposes and so repetitive and wasteful. The National Task Force has also made several recommendations in this regard. Accordingly critical issues need to be clearly delineated and solutions worked out. A close analysis reveals that there are three fundamental issues to be addressed:

Technology Issues

- Hardware related
- Software related

A number of organizations both in the Centre and the States have taken initiatives to develop hardware and software platforms to address the challenge of e-Governance. The issues which have been consistently highlighted in these efforts are:

- Use of IT for delivery of public services has been intensely employed in developed economies for quite some time now. Therefore, as such, there exists a large inventory and repository of appropriate technological platforms with which to perform public functions in a cost and time effective manner;
- However due to difficult availability of these technology applications on a common platform, the efforts that are being made in various Organizations/Ministries/Departments are often at cross purposes; therefore,

instead of having synergistic initiatives, these efforts may cause financial, technical and organizational mismatch.

The e-Governance initiative would have to address these Technology Issues/Objectives by:

- Identifying functional areas in every Government organization which need to be taken up for e-Governance objectives
- Identifying the appropriate hardware platforms and software application packages for cost effective delivery of public services
- Making this knowledge repository widely available through appropriate Demo- Mechanisms
- Offering a Basket of these models to the States, Departments both in the Centre and the State, which could be suitably customized as per location and work-specific requirements.
- This offer is to be supplemented by incubating and initiating efforts in this direction by various organs of Government
- Amendment of State laws through study and consultation.

Management of Change related Issues

- Political issues
- Employee related issues

This issue of Management of Change, which would be quite rapid at times, is a fundamental challenge to be addressed by the practice of e-Governance. This would involve:

- Delivery of public services like Utilities, Rural and Urban development schemes through EDI, Internet and other IT based technologies would necessitate procedural and legal changes in the decision and delivery making processes as well as institutions;
- Fundamental changes in Government decision management;
- Changes in the decision making procedures in terms of decision making levels and delegation of authority;
- Mandatory changes in legal provisions to give effect to the technology objectives;

Accordingly the Issues to be addressed relate to:

- Mandatory organizational and institutional changes affecting both people and methods at all interfaces of the Delivery Chain
- The need for acceptance of Changed Processes to be properly understood, internalized, adopted and improved to enable full advantages of the technology being adopted
- De-layering of the decision making levels leading to re-engineering and appropriate sizing of the decision making machinery
- Training and acclimatization of personnel at all levels more so at the lower rung of Government management organizations

- Loss of vested interests and assumed power as well as authority both amongst the legislature and the executive

Funding Issues

While e-Governance could have very laudable objectives and ambitious Work Plans, these have to be weighed in terms of available resources both in the Plan sector and outside it. It is here that leveraging of ongoing projects can be made more cost and value effective with the use of IT in a modulated fashion without any critical incremental costs. The Private sector resources have to be also carefully dovetailed with their commercial interests and those of the Government to provide Value Added Services. The Kiosks by themselves can bring in little in terms of better delivery of Services, unless the same are made economically viable and of demonstrated use to the stakeholders.

E-Governance - A discussion note on the issues involved.

During the last few years there has been major initiatives among different Governments towards ushering in Information Technology and its tools in the functioning of Government. The emphasis has been on providing better services to citizens and in improving internal productivity. It has been widely accepted that IT implementation in Government is a most difficult process and hence requires careful planning and formulation of strategies for effective implementation. The experiences of individual state in this regard needs to be understood and shared to evolve meaningful strategies.

The first point to be noted is the need to use local languages in the IT implementation process. It is heartening to note that, particularly because of the pioneering work done, the technology is now very much available. This by itself could give a major boost to IT implementation efforts. However, in the national context it is essential that a clear strategy be in place to have access to local level databases maintained in regional languages as well as to use appropriate interfaces to aggregate such data. Here, a focused effort would have to be made in improving the technologies for transliteration. Similarly, an effort would have to be undertaken for perfecting the Optical Character Recognition (OCR) technology for local languages. This is critical as an effective OCR technology is required to convert the data that is scanned and stored in local languages into meaningful and workable databases. This could also help in substantially simplifying the efforts at content generation and data warehousing.

The second point to be noted is on the scope of IT implementation within Government. Most states have focused on computerization of individual activities per se. This leads to mere automation of the existing manual work and could lead to a situation where an activity done by 20 persons would get done by 20 computers and 20 persons running them. Of late, the fallacy of such an approach is being realized. The emphasis is on conducting system studies to understand the work flows involved in each of the activities and attempt computerization of such work flows. This results in certain levels of simplification and rationalization and even an improvement in productivity. However, here also the basic issues involved in delay and red tape

within Government are not adequately addressed. Even in computerization of workflows, there will be a need to update the data periodically. In the event of each individual completing the work assigned to him, even in the present system delays would not have occurred. It will be extremely naive to assume that the updating of data would be regularly and periodically done just because the system is computerized, In fact, in the workflow computerization model there is a very real danger of substantive investments being made in hardware, application software and even in training and still the issue of prompt and regular updating of data not being effectively addressed. In the above context, it is clear that substantive administrative reforms would have to precede attempts at e-Governance. In other words, the emphasis will have to be on simplifying procedures, rationalizing processes, restructuring Government and then use IT to institutionalize such changes. However, this is easier said than done. It is in these circumstances that attempts at e-Governance based on creative and effective uses of relational databases needs to be attempted. In this approach, the data requirement for decision making are identified and emphasis is on structuring the relevant databases. IT implementation would have to be planned in such a manner that each transaction would automatically be derived from the database and in turn would update the database. For this, apart from the creation of databases there is also a need to network individual service delivery point or workflow processing points. A minimized structure of such a database would have to be first decided and a relevant network first created. Subsequently, additional modules to databases and add on networks would have to be created and integrated. What should be attempted is the mapping of physical resources as well as the voluminous data available across various government departments into a relational data structure and manipulating the same as suited to different levels of Government machinery for their functions related to service rendering and planning. This is nothing less than the concept of ERP applied to Government.

At the national level two major initiatives are required.

- The first element of such an initiative will be to define a uniform citizen code at the national level. Once this is done each state may be asked to arrange its databases with one field earmarked for this code. This would facilitate easy retrieval of data and integration of databases at any point of time. The second element of such initiative would be to ensure that the databases that are going to be generated as part of the census operations may also be digitized and made available for building up citizen databases. This would possibly require amendments to the census act and it is suggested that a thorough study may be made to identify the uses of such data in building up comprehensive databases immediately.
- Another element that needs to be effectively addressed is the issue pertaining to dissemination of information gathered through investments in science and technology. A case in point is the information collected by remote sensing which could be of immense use in estimating the availability of resources and qualitatively alter the planning process. An effort to identify similar repositories of data and information relevant for providing better services to citizens through e-governance and a strategy for the desegregation of such data and its dissemination needs to be urgently formulated.

6. Jamaica

Background

The Government of Jamaica has made the integration of information technology into the Jamaican economy a high priority and a strategic imperative. It aims to promote Jamaica as a Caribbean hub for IT activities and investment. A three-pronged approach envisages transformations in human resource development, in infrastructure and in the enactment of an enabling legislative and policy framework. A Cabinet sub-committee for IT is steering the process, together with a newly set up Central IT Office (CITO). The former Ministry of Industry and Commerce now has "Technology" added to its name and government has publicized its intention to generate 40,000 IT-related jobs in the coming three-year period. Strategic and other measures being adopted in the short term include:

- the annual allocation of 2 to 4 per cent of the national budget to IT initiatives
- catalyzing Ministry tactical plans, with an emphasis on education, for the harnessing of ICTs in the various socio-economic sectors
- the introduction of a strong IT component in the Public Sector Modernization Programme
- accelerating the introduction of computer labs in educational institutions
- facilitating private sector initiatives to dramatically increase public access to the Internet
- create a Chief Information Officer position within each Ministry
- the establishment of a transparent regulatory framework, adaptable to the emerging e-business environment and covering areas such as privacy, intellectual property and digital signatures
- a system of investment incentives to spread IT activities geographically across Jamaica
- the development of an appropriate infrastructure to facilitate the delivery of government services.

In addition, a series of high-profile pilot projects are being undertaken to demonstrate the benefits of IT in the short-term. These projects are intended to further the goal of universal access and emphasize public access to information. The post office network is earmarked for the delivery of a wide range of community services, such as on-line health-care, weather and disaster preparedness bulletins, the marketing of products and agricultural extension services. Expansion of this infrastructure will also facilitate

greater public access to government services, communication with government agencies, Parliament and parliamentarians, thereby reinforcing the democratic process.

Long-term goals include:

- the creation of a nation wide public IT network which is competitively priced, utilizes multiple sources and relies on the private sector
- the provision of efficient government services to the public through the use of IT
- the use of IT to increase international trade
- the adoption of e-commerce for Government functions, as a stimulus to private sector take-up. The latter will also be facilitated through the provision of the infrastructural components for the take-up of e-commerce and e-business, particularly by SMEs.

Public Access to Government Services

Currently, the quality of service to the public is deemed as poor and is characterized by: (i) cumbersome procedures; (ii) long delays; (iii) unsatisfactory resolution of problems faced by clients; (iv) high private costs of compliance with laws and regulations; and (v) discourteous behaviour.

The Jamaican public sector displays characteristics commonly found in most established bureaucracies. Rigid laws and regulations govern Public Sector entities. Compliance with these laws and regulations takes precedence over achieving organizational objectives. In turn, this reduces responsiveness to emerging situations and discourages innovation.

Decision-making is hierarchical and most decisions get pushed up the senior level. Many senior level officials regard themselves as policy makers, controllers or regulators, rather than facilitators.

In addition, both managerial and operational business in the public sector need re-engineering. Most of the current business processes were established decades ago and continue unchanged. In spite of major changes in the external environment and the role of the public sector, business processes have not been restructured. Many business processes that could be completed in one-step or location are fragmented between different organizations or different sections within a given organization.

However, the Government has begun to make important changes in the operations of public sector institutions to improve efficiencies through a Public Sector Modernization Programme.

The Public Sector Modernization programme is being funded by the Government of Jamaica, the World Bank, and the British Department for International Development and the European Union. The aim is to modernize 17 pilot agencies and 3 pilot

Ministries, in order to enhance efficiency and improve performance, as well as the quality of service provided to the public. Ten pilot agencies will be transformed into Executive Agencies, with greater responsibility for service delivery, financial management and human resources management. Executive Agencies will be rewarded for realizing efficiency gains, improving effectiveness or realizing revenue increases. Conversely, sanctions will be applied for poor performance.

Other aspects of the public sector programme include: i) privatizing or contracting out Government services in cases where these services are better performed by private providers; ii) reforming the Government procurement system to improve transparency and efficiency; iii) the establishment of computerized information systems in the public sector to improve financial and personnel management. The next phase of the programme envisages extending the reforms to the entire public sector.

Under the National IT Strategy the relevant goals state that:

- a) The Government of Jamaica plans to provide its citizens with efficient government services through the use of IT.
- b) Networks will be established to allow access to government services from libraries, post offices, banks, hospitals and other public locations. The Government will coordinate the locations access, presentation methods, and sharing of resources. The key focus is to have citizens throughout the country, even in rural areas, be able to find and receive information and services from different government organizations consistently and easily.

Actions towards this end include:

- a) Delivery of two types of services: i) providing information to the public, and ii) allowing transactions to be performed. Early emphasis is to be placed on the former, i.e. provision of information to the public. The Minister of Commerce and Technology will establish a goal to provide a certain percentage of information services to the public within the next three years. For example, 25% of information services will be provided by the year 2003.
- b) Identifying a set of government services suitable for electronic self-service. Enough progress has been made in other countries in the area of electronic government to permit identification and widespread deployment of a core set of commonly requested government services that citizens can initiate and complete in a single electronic session.
- c) Expand locations where public can access information and obtain public services. To ensure that all citizens have equal access to technology, establish a network of kiosk or computer systems that provide Government information and services in prominent locations in each region of Jamaica. or broaden access to the rural communities, IT needs to be placed where the public can use it in convenient community locations, such as libraries, post offices, banks, hospitals, and other government offices. For example, rural public libraries can be networked with main libraries to expand the services that are available to the public throughout the country.

- d) Use partnerships to obtain support, knowledge, loans, computers, services and training to further the development of the IT industry in Jamaica. Develop partnerships with industry, universities, and multi-lateral and multi-national organizations. Partnerships are vital to achieving strategic IT goals. These partnerships facilitate major culture changes throughout the government. Public and private sector partners work together to provide more efficient and effective government services.

7. Malaysia

Background

Malaysia has embarked on a number of measures to ensure that information and communication technologies (ICTs) play a vital role in that society. The nation was selected as one of the case studies in the prestigious Report of the Digital Opportunity Initiative¹. The Report notes Malaysia's comprehensive policies that are being developed to encourage ICT use in various sectors of the economy, as well as to accelerate the growth of the ICT sector. Trade and investment policies, such as financial and non-financial incentives, a fair trade system, and import and export duties, promote local and foreign investment. With the privatization of the government telecommunications department in 1987, and the formation of the National Telecommunications Policy (NTP) in 1994, the market has now been fully liberalized. The Malaysian Government's Master Plan for the telecommunications industry provides guidelines for competition, interconnection charges, tariff rates and network development. At the end of 1995, all operators signed interconnection agreements with Telekom Malaysia to provide seamless communication regardless of carrier, though most carriers have not signed agreements among themselves.

The computer and software markets have also been fully deregulated, though restrictions exist on participation in government bids, and there are equity requirements for setting up manufacturing facilities. These barriers do not pose an insurmountable barrier to competition, but encourage the establishment of joint ventures and local distributorships with Malaysian companies.

Infrastructure

The Malaysian Government has invested heavily in world-class infrastructure. Malaysia's Multimedia Super Corridor (MSC) is designed to create an ideal environment for ICT-related production as well as provide the backbone for an information superhighway. The network contains a high-speed link (10 Gb/s network) that connects the MSC to Japan, ASEAN, the US and Europe, and is capable of supporting extensive public administration, education and business applications. The intent of the superhighway is to provide quality access to global information as quickly and easily as possible. Simultaneously, the Demonstrator Application Grant Scheme (DAGS) is intended to facilitate social and economic progress through the innovative use of ICT. It provides funds for citizens to access the opportunities associated with the MSC and to be involved in multimedia development.

The telephone penetration rate—as a measurement of the ICT readiness of the country—rose from 16.6 percent to 23.2 percent between 1995 and 1999, while fixed lines in the rural areas rose from 5.2 percent in 1994 to 11 percent in 1999. Malaysia

¹ Accenture, Markle Foundation, UNDP. "Creating a Development Dynamic", Appendix

is aiming to continue the establishment of basic telecommunications infrastructure, with plans for 250 Internet access points, 250 mobile phones and 500 fixed lines for every 1,000 people within the next 5 years. This is in addition to the development of other primary physical infrastructure, such as power supply, transportation, airports, office buildings and extended business areas.

Enterprise

As a result of fair trade and investment policies, foreign direct investment in Malaysia reached US\$6 billion in 1997, but then dropped to US\$3.8 billion in 1998 due to the Asian economic crisis. In 1999, flows of foreign direct investment again increased by 31 percent and GNP rose 5.4 percent—much faster than initially forecasted. This increase was led by manufacturing, particularly in ICT-related electronics (for export), and this sector is now the key driver of growth in the economy. In 1999, the contribution of the ICT sector to GNP was approximately 36.5 percent.

A number of incentives and projects are underway to foster entrepreneurship and business efficiency. The government provides both financial and non-financial incentives to Malaysian businesses. Financial incentives include zero income tax for a period of 10 years, R&D grants, and a 100 percent investment tax allowance on new investment in the MSC. Non-financial incentives include unrestricted employment of foreign knowledge workers, no restrictions on global capital, and limited restrictions on ownership.

Human Capacity

The growing economy has created a demand for skilled knowledge workers and professionals. Skilled labor is still in short supply, especially in the ICT sector and manufacturing industries. To address this issue, the Malaysian government is investing in a high-quality, comprehensive education system designed to meet the demands of the evolving workplace. At the Multimedia University, for example, new skills such as information and knowledge management, as well as programming applications, will be incorporated into the education and training curriculum. Several additional efforts have been made to increase ICT literacy. The Computer In Education (CIE) Programme has provided computer laboratories to 90 secondary schools and 20 primary schools. Between 1996 and 1998, about 1,230 teachers were trained to conduct the CIE course. Computer Aided Design and Computer Aided Manufacturing (CAD and CAM) courses were also taught in secondary technical schools.

Content and Applications

Malaysia has made a concerted effort to provide relevant content to technology users through a number of specific initiatives: for example, Agritani is developing a portal that serves agriculture communities, including farmers, agriculture agencies, consultants, and agriculture service providers; and Cybercare enables orphanage communities in Malaysia to share news, barter goods, train volunteers and increase administrative efficiency.

E-commerce initiatives are helping to provide Malaysian businesses with more efficient access to input and product markets, both locally and globally. For example, MyBiz, an e-commerce platform designed for small and medium enterprises helps facilitate collaborative marketing by linking 300 companies including 26,000 employees in a business community network. The same platform can be used to make procurement processes more efficient and effective.

Strategic Compact

Malaysia's leadership recognized the need for a cooperative partnership to achieve its development objectives and its ambitious vision. To leverage and coordinate public, private and community sectors, the National Information Technology Agenda (NITA) was developed as a major strategy for national development. The National IT Agenda (NITA), launched in December 1996 by the National IT Council (NITC), provides the foundation and framework for the utilization of ICT to transform Malaysia into a developed nation. The NITA vision is to use ICT to transform Malaysia, across all sectors, into an information society, then a knowledge society, and finally a "values-based" knowledge society.

The necessity for a strong **ICT infrastructure** has been recognized by Malaysia who has built up its capability in ICTs to improve its capacities in every field of business, industry and life in general. Currently Malaysia is in full gear to meet the challenge of globalization by enhancing the nation's competitiveness, through the infusion of knowledge in all production-based industries and steering toward a knowledge-based economy. One key initiative aimed at fast tracking Malaysia into the information age is the Multimedia Super Corridor. Two smart cities have been developed within this corridor, namely Putrajaya and Cyberjaya. The MSC envisions the harnessing of multimedia to help spearhead economic development for Malaysia to achieve developed nation status by the year 2020. The address describes the hard and soft infrastructure that has been put into place. This includes, for example, a fibre optic backbone network covering 360 kilometres. The Government has put in place a legal framework, and institutional framework with coordinating mechanisms and a set of ICT policies and guidelines. National and state ICT councils have been established. The National IT Council (NITC) represents the highest ICT forum that acts as a think tank and advises the Government on national ICT strategies. The NITC is chaired by the Prime Minister. No matter how good a domestic infrastructure is in place there is a need for a regional or perhaps even global ICT framework to deepen cooperation and to regulate the now borderless world.

Challenges faced by government in the midst of ICT convergence are seen to be:

Political

From the political dimension, the three most significant challenges are managing a borderless virtual world, the erosion of control and disempowerment of the technologically poor states.

Security

Poor enforcement of ICT security policies and systems with inadequate security features may result in security incidents such as thefts and espionage of government and corporate information and illegal access to personal information. Cyber attacks can also paralyse a country's defence and even cripple key sectors of a country's economy.

Socio-Cultural

The ICT revolution has resulted in a shortage of skilled knowledge workers and the 'brain drain' to more developed countries. There is also a widening gap between IT 'haves' and 'have-nots' across nations and within nations ie between rural and urban areas and between the younger and older generation. Another challenge is the 'hollowing' of culture, which is the erosion of values and ethics through mass global culture pervading the Internet and electronic media.

Economic

Globalization has further aggravated the existing unequal distribution of wealth and income, creating imbalance, leading to polarization. Keeping abreast with the ever-changing ICT trends comes with a high cost. Countries which are slow in grasping the opportunities provided by the latest technology such as e-Commerce, will be at a serious disadvantage.

In order to respond to the challenges highlighted, government and the public service need to undertake the following initiatives:

Strategic ICT Planning

Several countries have undertaken initiatives to come up with their Strategic ICT Plan for example UK has its UK Online, Singapore with its Singapore One and its IT 2000 Masterplan. Malaysia has its NITA (National I Agenda) and the MSC (Multimedia Super Corridor) project and recently has come up with its K-Economy Masterplan.

Reinventing of Government

There is also a need to transform current government processes in order to improve services. Malaysia has embarked on various initiatives to reinvent Government processes such as e-Governance Flagship Applications, empowerment of the State and Local Governments and the setting up of a special committee to oversee the whole government ICT initiatives, that is the Government IT and Internet Committee (GITIC).

Human Resource Development

The lack of trained IT and knowledge workers to support application diffusion in both the public and private sector is a major challenge in efforts to expand the use of IT in the country. As such the Malaysian government has adopted various strategies to enhance ICT literacy and skills. Some of the initiatives undertaken include:

- Establishment of computer labs in schools
- Establishment of new private higher education institutions
- Allocation of special funds for ICT training by the Human Resource Development Council

In addition, the Smart School initiative under the MSC project, also responds to the need for Malaysia to make the critical transition from an industrial to a knowledge-based economy.

The Malaysian government has also undertaken a special study on IT Manpower requirements to support the application and diffusion of IT. The study focuses on several important components including human resource requirements and occupational classification of public sector IT personnel, the effectiveness of IT training programmes and the relevant online IT services to industry users.

Enhancing Security

Issues surrounding security of ICT systems have also become a major concern. Hence to ensure a conducive and safe electronic environment, the necessary steps in enhancing ICT security has to be undertaken. In tandem with what other countries are doing, the Malaysian government has undertaken the following measures:

- Establishment of an ICT Security Division in MAMPU
- Appointment of ICT Security Officers in agencies
- Establishment of the Government Computer Emergency Response Team (GCERT)
- Publication of the Malaysian Management of ICT Security (MyMIS) Handbook

At the national level, a number of initiatives have also been undertaken such as the establishment of the National ICT Security and Emergency Response Centre (NISER) which provides for skill development and consultancy services relating to ICT security and establishment of Malaysian CERT (MyCERT), established to tackle security issues for the private sector.

Bridging the Digital Divide

The issue of digital divide is one that is common across most countries. The Malaysian government has also undertaken numerous programmes to reduce this phenomenon such as:

- The "Medan Infodesa" programme which provides training and hardware to rural communities by the Ministry of Rural Development
- The "Internet Desa" programme by the Ministry of Energy, Communication and Multimedia which involves supplying of computers to provide free Internet access to rural communities
- The K3P (Kumpulan 3 P – Pendengaar, Penonton, Pembaca) programme initiated by the Ministry of Information, which has set up centres called "Pondok Harmoni", equipped with PCs and Internet access
- Setting up of eServices kiosks at both community and public areas

- Provision of government services via Interactive Voice Response (IVR) which can be accessible through telephones

Reviewing the Legal Framework

The development of IT and multimedia without the parallel development of laws can result in abuses and in turn discourage the use of such technologies. The use of The Internet has raised a few concerns and issues namely:

- Integrity and security of information
- Legal status of online transactions
- Privacy and confidentiality of information and
- Intellectual property rights

Taking cognizance of these issues, the Malaysian Government has already approved and passed its own set of cyberlaws :

- Digital Signature Act 1997
- Computer Crimes Act 1997
- Telemedicine Act 1997
- Communications and Multimedia Act 1998

The Personal Data Protection Bill is also currently being drafted and the existing Copyright Act is being aligned to the electronic environment.

Promotion of e-Commerce

Governments should take cognizance of the fact that the Internet has changed business rules and the way business is being conducted. E-Commerce activities are expected to give rise to new economic development opportunities and in the process produce different impact to businesses and organizations. Amongst Malaysia's efforts to promote e-Commerce include:

- Conducting an e-Commerce readiness assessment to identify the gaps and map appropriate strategies
- Supporting e-Commerce through effective legislation and
- Encouraging local manufacturers to pursue e-Commerce

Three major policies and strategic directions are to be undertaken by the government in order to move towards a K-based society and economy, namely:

New policy and regulatory framework to promote the development of the communications and multimedia sector and industry

The development of the digital technology and the emergence of new products and services require a new policy and regulatory framework to be formulated in order to promote the development of the new digital convergence industry, referred to as the Communications and Multimedia industry. This new industry is the integration of the telecommunications, IT as well as broadcasting industries.

The Communications and Multimedia Act 1998 and the Malaysian Communications and Multimedia Commission Act 1998, provide a new policy and regulatory environment for the development of new types of services such as provision of

application services and provision of content application services that are technology neutral. The regulatory environment is also a less licensing environment with the introduction of industry forums to promote a self-regulatory environment.

Strategies for widening access and content development

The government has adopted a four prong strategy to widen access and this includes Universal Service Programme, more liberal policy on licensing, moving towards cost-based tariff and leveraging on new technologies for network rollout.

With a rural penetration rate of only 11.7% for basic fixed line communications services, the government is targeting to increase it to 17.5% by 2005 to ensure availability of access to new e-Government and e-Commerce applications to a wider section of the Malaysian society. A total of RM 2.2 billion is needed for the Universal Service Programme of which RM 1 billion will be provided by government for rolling out of infrastructure to rural schools and other government agencies. Another RM 1.2 billion will be contributed by industry for widening public access to rural and other under-served communities. Complementing these efforts are the measures to be undertaken by a number of government agencies and community groups to address the problem of the digital divide.

Recognizing that prevailing contents are mostly western-based and the need for increasing local content, strategies have to be developed to provide incentives for local content development and web hosting. For this purpose, the MECM has been allocated RM 10 million to promote the development of the local content industry.

Policies for building trust and confidence in e-transactions

E-Government and e-Commerce applications will only have wide usage if the general public has trust and confidence that their transactions are reliable, secured and that their personal information will not be misused. A number of policy initiatives currently being undertaken to address this issue are:

- Formulation of a national security policy framework
- Legislation to protect personal information
- Promoting the positive use of the Internet; and
- Harmonizing current laws to facilitate new ways of transacting through the electronic media

With regards to the telecommunication industry, some of its contributions towards fulfilling the national vision are:

Building National Communications Infrastructure

This can be achieved through the implementation of efficient communication media (wired / wireless) and transmission modes (narrowband / broadband) as well as improvement in education facilities such as on-line education and smart schools. Acknowledging the fact that digital divide exists and has to be addressed, steps are

undertaken to bridge the gap through the implementation of Universal Service Provision and e-Community projects.

Providing Global Communication Links

Global communication links have been improved through access to global satellite facilities such as cable and satellite systems as well as the Internet gateways (IDC, ARIX) and international exchanges (PSTN). Other services provided include COINS global and mobile international roaming.

Facilitating Knowledge Development

In the area of knowledge development, efforts have been undertaken to improve and increase training facilities such as the establishment of the Multimedia University, training centres and colleges. Research and development and the aspect of Intellectual Property Rights have also been given emphasis. Participation and sponsorship from industry has itself become a national agenda of which the issue has been discussed in various industry forums.

Further actions that need to be addressed in order to support the National Communications and Multimedia Agenda, amongst which are:

- Raising awareness for ICT adoption
- Enhancing network infrastructure
- Improving policy and regulations
- Enhancing operational efficiency
- Capacity building
- Adapting appropriate e-commerce technology, harnessing technical and operational standards and striving for sustainable technology transfer.

Electronic Government

Malaysia's e-Government programme aims at reinventing how the Government works as well as improving the quality of interactions with citizens and businesses through improved connectivity, better access to information and services, high quality services and better processes and systems. Of the six e-Government pilot projects being implemented, four of them have gone 'live' at their respective pilot agencies. These include the Project Monitoring System (PMS), e-Procurement, Generic Office Environment (GOE) and the services projects. The Human Resource Management Information System (HRMIS) and the Electronic Labour Exchange System or ELX are currently under development and will be rolled out in the near future.

The implementation of e-Government has taken a holistic approach encompassing elements such as applications, networks, security, process reengineering, operations and support, change management, and skills and knowledge. In moving forward into the future, four guiding principles have been identified namely: collaboration between the public and private sectors, sharing of data and information, customer satisfaction and information and data security.

There are currently 6 pilot applications, multiple websites and on multiple platforms. In the future, more and more services will be included in the Government e-Services portal and there will be greater sharing of data and information through the adoption of concepts such as single point of data entry, data integration and single sign on. An issue faced is whether the Government should standardize on the use of a single platform or product for the whole of Government or whether to allow the current use and adoption of heterogeneous platforms/products as long as they can inter-operate with each other. Another issue concerns the implementation of the second wave of e-Government applications which should have started two years ago but have been delayed due to delays in the implementation of the first wave of applications. While the e-Government programme is being implemented, Government computerization continues in other agencies.

A service provider has been appointed to provide wide area connectivity to all agencies implementing e-Government via an intranet called the E-Governance*Net. The issue facing the Government is that many agencies have already implemented their own networks using the services of other providers. Migration of agencies to the new Federal Government Administrative Centre in Putrajaya has compounded the complexity of the communications issue as these agencies require connectivity to other agencies within Putrajaya and to the outside world. There will therefore be gradual migration of agencies to the E-Governance*Net, a more cost effective implementation approach to developing application systems which are more 'bandwidth' friendly, and the use of new communication and network technologies.

Regarding the issue of security, Government has established an IT Security Policy as well as adoption of smartcards and the public key infrastructure. In the future, more awareness, enforcement and standardization activities will be carried out.

In the reengineering of processes, current e-Government applications have implemented automation and streamlining of current processes which may result in new roles and responsibilities for certain personnel. In the future, applications will be built with more customer focus, departing from function-based type of processes. This will entail the elimination of boundaries, restructuring of organizations, establishment and adoption of common procedures with continuous improvement embedded.

As ministries and agencies move to Putrajaya and as more and more agencies implement e-Government applications, there is invariably an increasing need to share resources. The Government is in the process of establishing a Shared Services Outfit or SSO which provides centralized facilities such as Help Desk, Command and Data Centre, Networks and Enterprise Systems Management. The major challenge lies in getting buy-in from agencies willing to share resources as well as in utilizing the services that will be offered by the SSO. The future points to greater IT coordination and support with upgrade policies, service contracts or service level agreements (SLAs) with service providers, and maintenance procedures.

One of the biggest perceived challenges faced in implementing e-Government is the 'people' problem – that is, in getting their buy-in, support and commitment. As such, implementation of each of the e-Government application is inevitably linked to a cohesive change management programme involving its three main tenets namely transition management, communication management and benefits realization. The

future success of e-Government lies in the ability to sustain change where success is measured and a change in mindset/culture has occurred.

Finally in the area of skills and knowledge, Government has established dedicated project teams to implement the various applications with the consortia appointed. However, it has been found that transfer of technology from the consortia to the Government team members has not happened as desired. This situation is at times attributed to the non-availability of the technology recipients, and the fact that the consortia may be too focused on getting their applications finished on time.

8. Malta

Introduction

Malta is a small island state with a population of 400,000 people. In 1987 the Government embarked on a large-scale modernization programme which among other things focused on putting the Island on the world-map of information technology. The change programme within the public sector was spearheaded by a new agency acting as a change agent and an IT enabler and the first Information Systems Strategic Plan was published. Much has been done and still more is planned to be done. All ministries and government departments are connected to the Malta Government Network, known as MAGNET for short, and a large proportion of public officers have their own e-mail address and Internet access. Government also has its own official website and plans are in hand to transform this website into a portal with the capacity to support e-Government initiatives.

E-Governance

In its white paper on the Vision and Strategy for the Attainment of e-Government published in October 2000, the Office of the Prime Minister outlined its vision and strategy to attain e-Government in Malta. It is made very clear from the outset that such a vision can only be implemented if both the Private and the Public sector contribute to it. Government should act as an enabler, creating the right environment through a proper legislative framework and institutional set-ups. Government will also implement e-commerce solutions in its business- oriented activity. The Private sector on the other hand should be able to support, supply and implement the solutions that would be in demand throughout all sectors of the economy. Government's vision for the creation of a Maltese Information Society and Information Economy is underpinned by a number of principles which are:

- All Maltese will have the opportunity and the means to participate in the Information Society and the Information Economy irrespective of their financial, social or educational circumstances;
- Government will actively promote the creation of the Information Society and the Information Economy via the provision of transactional on-line e-Government Services;
- Government will provide the necessary policy, institutional and regulatory framework that is required for the successful proliferation of electronic commerce;
- Businesses will be encouraged to adopt electronic commerce;
- The achievement of computer literacy by all sectors of the population will be actively pursued;

- The necessary measures will be taken to build up a critical mass of Information Technology specialists that will be required to sustain the growth of the Information Society and the Information Economy.

The creation of the Information Society and Information Economy in Malta would transform Maltese society in a manner which would result in service improvement, universal access to education, a thriving economy, affordable communications of the highest standards and a country which is among the front-runners in the Global Information Society.

As already argued above the achievement of the Information Society and Information Economy in Malta requires the building of the national capacity to sustain this development. This is envisaged to happen through partnerships between the Public and the Private Sector.

Government will build the legal and regulatory framework through a number of Bills:

- The **Electronic Commerce Bill** which provides a secure legal basis for electronic communications, contracts, signatures and transactions, and establishes the framework for Certification Authorities and their regulation;
- The **Data Protection Bill** which will ensure the protection of data, in order to protect the rights of individuals vis-à-vis personal information; and
- The **Computer Misuse Bill** which criminalizes offences relating to the misuse of computers and related equipment.

In building the national capacity Government is faced with a number of other challenges such as the promotion of a widespread uptake of the Internet by businesses and households which is one of the major challenges Government has to face in the creation of the Information Society and Information Economy in Malta. Together with this Government has to:

- convince the Private Sector to invest in the adoption of e-Commerce solutions;
- accelerate and upgrade those initiatives aimed at producing IT specialists in order to fill the shortage of labour supply that the country faces. This is planned to be achieved again through a partnership with the Private sector and by the implementation of strategies for a mixture of IT literacy in schools, life-long learning, vocational training and tertiary education;
- explore initiatives set at promoting universal use of the Internet. This could be achieved through three potential initiatives which are the dissemination of e-mail on a national scale, the creation of a Malta Internet Exchange and a National Free Maltese Internet;
- develop a high quality and affordable telecommunications infrastructure which could be achieved through the maximization of the current infrastructure and the

liberalization of the telecommunications industry, a process that has already started and is at an advanced stage in Malta.

The achievement of the Information Society and Information Economy in Malta requires a champion to drive the initiative in a focused and concentrated manner. A number of bodies in Malta have been created in the past with this in mind and the White Paper mentioned above identifies the Information Society and Economy Commission as this driver. This commission has been set up with the following terms or reference:

- Identify quantifiable benchmarks for the development of an Information Society and Information Economy in Malta and monitor the achievement of these benchmarks on an annual basis;
- Promote the creation and development of an Information Society via the appropriate training initiatives both within and outside the ambit of formal educational structures;
- Recommend initiatives and programmes relative to training and human resources in specialized IT-related professions in order to support the Information Society and Information Economy in Malta as well as build an IT industry in Malta;
- Propose the necessary legal framework that is required for the regulation of all forms of electronic communication;
- Develop and implement awareness programmes on its own and in conjunction with Government entities and the Private Sector, that are targeted at all sectors of the community and that will focus on the benefits and opportunities of the Information Society and Information Economy in Malta;
- Recommend measures to increase access to information and communication technologies at homes, schools, businesses and public offices, including measures aimed at those in the disadvantaged groups;
- Recommend measures to Government and working with its institutions for and towards the attainment of the Information Economy;
- Establish working groups and task forces to highlight specific sectoral issues with respect to the Information Society and Information Economy and develop and propose recommendations for action;
- Work with Government entities and the Private Sector to encourage Information Society and Information Economy initiatives in the delivery of the public services and information;
- Monitor trends in IT legislation overseas and recommend legislation that will establish a framework for the attainment of an Information Society and Information Economy in Malta;

- Align national objectives in the attainment of the Information Society and Information Economy with those of the European Union, to which Malta aspires to accede in the short-term.

It is envisaged that all e-Government Services will pass through one on-line portal. The portal is seen as the interface that brings together the services offered by Government with its users and will be made up of a-three tier architecture. Access to the Portal should be through multiple channels and service provision through the portal would be characterized, among others, by having access from a wide range of locations, a 24 hours 7 days a week service, seamless one stop-shopping for a range of Government Services from a number of Government Departments and increased efficiency.

Key to the success of the Information Society and Information Economy in Malta is the security by which on-line transactions can be made. The portal would address a number of key features related to security and these are:

- Secure authentication and data encryption processes and prevention from unauthorized use;
- A multi-step authorization process using private data stored in a Public Key Infrastructure (PKI)-protected vault on the e-Government portal to achieve equivalent levels of information entropy to that provided by the private key used for e-signing;
- The super-registration of data by clients, on a voluntary basis, into a personal PKI- protected vault on the e-public service portal for data items such as digital photographs, income details, family details, phone contact details, roles in organization etc. Access by government systems to the data in this vault would be totally under client side control. The super registration process would also be used for PKI registration;
- Data-protection compliance and multi-step authorization processing, which will be carried out at the e-Government Portal by using the episode knowledge base and data held in the personal vaults;
- Electronic signing of HTML forms of XML or XSL files which are transferred to the e-Government Portal;
- Electronic signature requirements for all interactions between the e-Government Portal and back-end systems;
- Message digests for all client-side interactions that should be archived to deal with any contract or service delivery issues that might arise later on.

The Public Key Infrastructure (PKI) already mentioned above is the technology currently being adopted worldwide for the provision of on-line security and personal

authentication. Whereas in other larger countries several certification authorities exist and a need for cross-certification is required, the Maltese scenario is such that a simple scaled down version of Government PKI is used.

The provision of e-services can be conveyed through several routes with direct access from PC over the Internet being the most obvious channel. Yet other factors of social inclusion and public convenience would point to the utilization of alternative channels. The exploration of these other alternative channels is required because of a relatively low level of Internet penetration (penetration rate in Malta is around 10%) together with unsatisfactory and expensive Internet service provision. The alternative channels mentioned above are mobile telephony, value added services through normal telephony, interactive TV, kiosks, over the counter service and call centres. The services provided are also varied and consist of the provision of information, transactional e-services, electronic commerce and e-democracy. Currently a number of services are already available or pilot projects have been launched. Services that are already available are the listing of Government tenders, Government Agencies and officials, national events, employment possibilities, public service information, budget expenditure, laws and regulations and government expenditure. These services are normally provided through the World Wide Web or Email but the level of utilization is either moderate or low. A number of other initiatives are being launched or planned. These are the provision of national statistics, national archives, tax information, payment of bills, application forms, opinion polling and the provision of feedback by the citizen.

The establishment of the Information Society and Information Economy requires a focused effort and requires that the concept is accepted and adopted by the people who will be using it. The White Paper mentions the development of a communications strategy to achieve this goal. Financing of the Information Society and Information Economy is mainly dependent on Government yet other external sources such as the European Union and large international players in the field of IT should be explored.

9. Mauritius

Introduction

Mauritius is situated in the south-west of the Indian Ocean, 2000 km from the east coast of Africa. It is of volcanic origin and has been formed millions of years ago following two series of volcanic eruptions, separated by a long period of erosion. Volcanic activity has, however, completely ceased in Mauritius. The island has an area of 1,864 sq. km and is almost entirely surrounded by coral reefs. Mauritius has a maritime climate, tropical during summer and sub-tropical during winter.

The island had for a long time remained unknown and uninhabited. It was probably visited by Arab sailors during the Middle Ages, and on maps of about 1500, it is shown by an Arabic name 'Dina Arobi'. In 1598, a Dutch squadron, under the orders of Admiral Wybrand Van Warwyck, landed at Grand Port and named the island Mauritius, in honour of Prince Maurice Van Nassau, "Stathouder" of Holland. The first Dutch settlement lasted only twenty years. Several attempts were subsequently made, but the settlements never developed enough to produce dividends and the Dutch finally left Mauritius in 1710. They are remembered for the introduction of sugar cane, domestic animals and deer. Abandoned by the Dutch, the island became a French possession when, in September 1715, Guillaume Dufresne D'Arsel landed and took possession of this precious port of call on the route to India. He named the island Isle de France, but it was only in 1721 that the French started their occupation. The French stayed on the Island till 1810 until a strong British expedition was sent to capture the island due to raids by the corsairs on British trade ships. A preliminary attack was foiled at Grand Port in August 1810, but the main attack launched in December of the same year from Rodrigues, which had been captured a year earlier, was successful. The British landed in large numbers in the north of the island and rapidly overpowered the French. The British administration, which began with Robert Farquhar as governor, was followed by rapid social and economic changes. One of the most important events was the abolition of slavery in 1835. The planters received a compensation of two million pounds sterling for the loss of their slaves which had been imported from Africa and Madagascar during the French occupation. The abolition of slavery had important repercussions on the socio-economic and demographic fields. The planters turned to India, from where they brought a large number of indentured labourers to work in the sugar cane fields. Cultivation of sugar cane was given a boost and the island flourished, especially with the export of sugar to England. Economic progress necessitated the extension and improvement of means of communication and gradually an adequate infrastructure was created.

Today Mauritius has a population of 1.2 million with a GNP per capita of US\$3950 and a GDP in 1999 of US\$4.2 billion.

E-Governance

The Presidential address at the opening of the First Session of the National Assembly lays down the agenda of the new government and in his speech of the 3 October 2000

to the Third National Assembly the President stated that the development of information technology and telecommunications has been given top priority. Quoting the President

Government is fully conscious of the importance of the "new economy" of information and communication technology and the opportunities which it affords to countries like ours. Government will develop the Information Technology and Communications industry to increase national wealth, create new opportunities and jobs.

Extensive deployment of information and communications technology will promote and democratise access to information. An intelligent village will be set up as a digital free zone to accelerate the development of the IT industry. The necessary incentive schemes and improved facilities will be provided to attract foreign investment.

The use of IT in education is central to supporting the development of an efficient workforce for sustaining economic growth. Computer-aided learning facilities will be put in place right from the pre-primary level. Partnerships and alliances will be devised with local and international technology leaders to attract high calibre IT professionals to support and drive the net economy.

The existing legal framework will be reviewed and consolidated to provide for the emergence of a knowledge society, and to create the right environment to boost the growth of the IT industry.

In addition, an IT Promotion Agency will be set up in order to market and promote Mauritius as a centre of excellence for information technology and telecommunications.

Government will lead the way by bringing its services closer to businesses and the people by implementing the concept of one-stop non-stop delivery channel. It will further leverage on existing infrastructure by setting up information kiosks in public areas including a modernized postal service to offer customized and value-added e-services.

The way to e-Government was initiated in 1996 with the Government on the Internet project which had as its main objectives to put all Ministries on the web. The websites of these Ministries consist of information on the aims, objectives and services provided by the Ministry to the public. Most of the Ministries provide regular updates concerning new acts, publications and events. Despite the lack of interactivity on these sites, the access rate to these sites has been increasing with time

The Government is paving the way to an e-Government through numerous projects already undertaken. Such projects are Government on the Internet which is a portal to all Ministries/Department websites initiated in 1996 and to date each Ministry has a regularly updated website. The Contributions Network Project implemented under the Ministry of Finance, comprises the setting up of an electronic one-stop shop for all payments and contributions of the private sector to Government. The electronic submission of Income Tax and VAT returns is operational since May 2000. The Tradenet project has been operational since 1994 under the Ministry of Finance. This

system deals with the electronic authorization by customs for delivery of goods, the electronic submission of sea manifest by shipping agents, electronic declaration & processing of bills of entry and the transfer of containers. The Government Data Centre (GDC) aims at creating a "Connected Government" through which public sector will communicate and work together more effectively and where services will be delivered to the public and private sector electronically in a timely manner. The GDC will have the responsibility of implementing electronic delivery of government services. In the long term, a full fledged GDC will offer the following services to public sector institutions from a central location wherever possible: Internet Access, E-mail, e-Government Services, Government Call Centre, Helpdesk for technical support, Intranet Services, Server Co-location facilities, Consultancy Services, Web Design and Development Services. Other projects are the Electronic Transfer of Deeds, while e-mail for the civil service, electronic procurement and electronic processing of permits are examples of future projects. A list of major projects which are operational and those which are being implemented are attached in the appendix to this profile. On April 20 2001, Cabinet has taken note of the proposed amendment to the Industrial and Vocational Training (Imposition of Levy) Regulations 1989 to make provision for employees to submit their returns electronically to the Ministry of Social Security, National Solidarity & Senior Citizen Welfare and Reform Institutions.

In addition to this, Government has furthermore laid stress on the e-Government issue by its commitment to lead the way by bringing its services closer to businesses and the people by implementing the concept of one-stop non-stop delivery channel. It will further leverage on existing infrastructure by setting up information kiosks in public areas including a modernized postal service to offer customized and value-added e-services.

On 5th February 2001, a high-powered ministerial committee on ICT, chaired by the Prime Minister, was set up. Three taskforces set up under the aegis of this committee are 'Cybercities & Business Parks' headed by the Deputy Prime Minister and Minister of Finance, 'E-Education' headed by the Minister of Education & Scientific Research and 'e-Government' headed by the Minister of Information Technology & Telecommunications.

In the implementation of e-Government projects the stakeholders are varied and include Ministries, Departments and other external agents depending on the project. The private sector, professional associations or NGOs are involved and examples of this partnership can be seen in the projects such as the Servihoo Portal which has as its objective to be the portal for the Republic of Mauritius, is a Telecom Plus initiative and provides personal email hosting, interactive chat, electronic greeting cards, e-commerce sales, forums, polls and guest book, another initiative is the Virtual Mauritius which is an e-commerce platform to sell services including online shipping, real estate, insurance and entertainment and another initiative is the Virtual Appeal Clip managed by an NGO called SPES and it depicts skills training using ICT to create a new generation creative and productive workforce from the marginalized illiterate kids at risk to themselves and to society.

The implementation of this online activity has also brought about a number of lessons. It is clear that in the implementation of projects the commitment of top level people

and that of users, standardization for better interconnectivity and practical security guidelines and policies to ensure a seamless but secure e-Government system together with collaboration among the players for information sharing are critical enablers of e-Government. On the other side of the coin are the issues that needed to be dealt with and for Mauritius these were managing the change especially with the users, ensuring that the commitment from top level people remained constant at all stages of the project, dealing with the legal changes to enable computerization and enhance standards for future integration and upgrades.

Appendix: Some of major e-Governance projects (Mauritius)

Projects already operational

<i>Ministry/Department</i>	<i>Project Description</i>	<i>Operational since</i>
Judicial, Supreme Court, Headquarters	Computerization of follow-up of cases lodged till delivery of judgments Retrieval of past judgments by using Zyindex Text retrieval system	Sep. 1994
Judicial, Supreme Court, Headquarters	Digital Court Recording System. Computerization of Court Hearings (Recording and retrieval of Court Hearings at Supreme Court)	Jun. 1999
Judicial – New Court House	Computerization of activities of the Intermediate, Industrial & District Courts	June 2000
National Assembly, Reporting Section	Computerization of the Reporters' section and the library so as to enable members of Parliament to access previous National Assembly's Debates.	Nov. 1998
Public & Disciplined Forces Service Commissions	Computerization of Competition Section	Mar. 1995
	Computerization of Scrutiny, Personnel & Registry sections	May 1997
Electoral Commissioner's Office	Computerization of Register of Electors, Staff Management & Election	Dec. 1992
Local Govt. Service Comm.	Computerization of Competition & Implementation Sections	Feb. 1999
Prime Minister's Office, Police Department	Computerization of Passports & Immigration Services	Jun. 1992
Prime Minister's Office, Police Department	Computerization of records of people filed at Anti Drug Smuggling Unit	Jun. 1997
Prime Minister's Office, Police Department, Central CID	Computerization of management of fingerprints and criminal records at Central CID (AFIS)	Feb. 1999
Prime Minister's Office, Pay Research Bureau	Computerization of the Pay Research Bureau	Dec. 1998
Prime Minister's Office, Meteorological Services	Computerization of the weather forecasting division.	Dec. 1997
Prime Minister's Office, Home Affairs Division	Computerization of Residence Permits, Citizenship & Visas, Property Restriction Act & Registry sections. Link to Passport & Immigration Office	Dec. 1999
Ministry of Finance	Contribution Network Project. This comprises the setting up of an electronic one-stop shop for all payments and contributions of the private sector to Government. The electronic submission of Income Tax and VAT returns is operational May 2000. This will be extended to cater for contributions to NPS/NPF/IVTB	May 2000

Ministry of Finance, Customs & Excise Department	TRADENET Phase I – Electronic authorization by customs for delivery of goods	July 1994
	Phase II – Electronic submission of sea manifest by shipping agents	Jan. 1995
	Phase III – 'Customs Management System' Electronic declaration & processing of bills of entry	July 1997
	Phase IV – Transfer of containers	July 2000
Ministry of Finance, Income Tax Department	Computerization of activities of the Income Tax Department	Dec. 1999
Ministry of Finance, VAT department	Computerization of new Value-Added Tax (VAT) system	Sep. 1998
Ministry of Finance, Revenue Authority	Electronic link with revenue collection departments - VAT, Income Tax and Customs	Jun. 2000
Ministry of Finance, Accountant General	On-line system for Pension, Passage, Mission, Vote control, Financial Accounting & District cashier systems.	Aug. 1999
Ministry of Industry, Commerce and International Trade	This project consists of the implementation of an industrial database, a registry system, a stock system and a finance system	Nov. 1998
Ministry of Agriculture, Food Technology and Natural Resources	Computerization of Personnel and Stores	Nov. 1998
Ministry of Social Security and National Solidarity, Senior Citizen Welfare and Reform Institutions	Computerization of the contributions Branch – contribution from employers/calculation of pension points	1993 (Reviewed in 1999)
Ministry of Social Security and National Solidarity, Senior Citizen Welfare and Reform Institutions. Mauritius Prisons Service	Computerization of Stores, Registry, Personnel, Finance and Detainee Information System	July 1994
Ministry of Social Security and National Solidarity, Senior Citizen Welfare and Reform Institutions	Computerization of retirement, widows, invalids, orphans pensions, industrial injury and Medical Unit	Dec. 1997
Ministry of Local Government, Rodrigues and Rural and Urban Development. Rodrigues Administration	Computerization of central administration at Rodrigues (Stores, Registry, Payroll and Personnel, Administration, Finance)	Dec. 1999
Ministry of Public Infrastructure, Land Transport and Shipping - Central Stores and Plaine Lauzun Mechanical Workshop	Upgrade of stores computer system	Mar. 1997 (Fort Georges)

		Apr. 2000 (Plaine Lauzun)
Ministry for Civil Service Affairs and Administrative Reform	Civil Service Human Resource Management System. Phase I: Creation of Personnel Central System at the Ministry – Query of data & General Service Staff	Dec. 1999
Ministry of Labour & Industrial Relations. Work Permit Division	Computerization of the activities of Work Permit Division	July 2000
Ministry of Foreign Affairs and Regional Cooperation	Computerization of Registry, Personnel and Administration	Feb. 2000
Ministry of Health and Quality of Life - Central Supplies Division	Computerization of stores activities	Jul. 1994
Ministry of Health and Quality of Life - Jawaharlal Nehru Hospital	Integrated hospital & patient care system. Computerization of all the sections at Jawaharlal Nehru Hospital	Feb. 1996
Ministry of Health and Quality of Life - Central Health Laboratory	All the sections of the Central Health Laboratory have been computerized. This involves recording of requests as well as results of tests.	July 1998
Ministry of Economic Development, Financial Services and Corporate Affairs	Computerization of license, cash, companies, partnerships, trusts, offshore & search procedures	Sep. 1997
Ministry of Economic Development, Financial Services and Corporate Affairs	Setting up of a Local Area Network system with Statistical Information Database at Central Statistical Office Headquarters	Dec. 1997
Ministry of Housing and Lands	Cartography Modernization Project. Installation of specialized equipment (Digitisers, plotters, powerful computers) mainly for the production of high quality maps & plans	April 1997
Ministry of Housing and Lands	Computerization of Administrative and Archives modules	Mar. 2000
Ministry of Youth & Sports	Computerization of allocated stores of Ministry.	April 1999
Ministry of Youth & Sports	Computerization of youth, sports and administrative sections	July 2000

Projects under implementation

Ministry/Department	Project Name	Project Description
Judicial - Supreme Court	Remand Video Link - extension to Rodrigues	Use of video-conferencing for implementing remand/bail and case hearing video link between the New Court House, Prison Departments and Rodrigues District Court
Judicial - Supreme Court	Computerized Legal Database	Computerized library system for judgments and legislation
Judicial - New Court House	Digital Court Recording System	Extension of Digital Court Recording System (DCRS) to Intermediate, Industrial and all District Courts including Rodrigues
Prime Minister`s Office, Cabinet Office	Setting up of a Local Area Network	Implementation of Text Retrieval System for retrieval of Cabinet decisions Registry System
Prime Minister`s Office, Police Dept.	Computerization of Administrative Functions	Computerization of Administrative Functions (Personnel/Stores/Personnel Emolument)
Prime Minister`s Office, Police Dept.	AFIS Phase 2	Connection of remote Police Divisions and Police Stations to Crime Records Office
Prime Minister`s Office, Civil Status Division	Computerization of the Civil Status Division	Computerization of registration of birth, marriage & death at the Civil Status Division. It will eventually become the Central Population Database
Ministry of Finance, Registrar General Department	Computerization Project – Phase 1	Computerization of Case Hypothecaire System
Ministry of Finance, Registrar General Department	Computerization Project – Phase 2	Conversion of existing land records (From Registers & Repertories & deeds) into digital, electronic transfer (EDI) of new notarial & other deeds to the Land Registry
Ministry of Finance, Customs & Excise Department	On-line Replication	On-line data replication between live server and backup server
Ministry of Industry, Commerce and International Trade	Computerization of Import and Export Divisions	The electronic issue of Import permits & Export permits are being computerized. To be in line with TradeNet System Phase V.
Ministry of Agriculture, Food Technology & Natural Resources	Computerization of Livestock	Computerization of Livestock Technical System, Services & Control & Regulatory.

Ministry of Social Security, National Solidarity & Senior Citizen Welfare and Reform Institutions	Computerization of the Local Offices	Computerization of the different activities of the Local Offices Registration of claims for basic & contributory pensions Registration of claims for social aids, check with previous claims to eventually make payments Activities of the welfare section Activities of visiting section
Ministry of Public Infrastructure, Land Transport and Shipping. National Transport Authority	Computerization of the National Transport Authority	Computerization of Registration, Licensing & Carrier and Cashier & Motor Vehicle Licence Sections of the National Transport Authority
Ministry for Civil Service Affairs and Administrative Reform	Civil Service Human Resource Management System	Replication of Personnel System at Ministries/Departments
Ministry of Health & Quality of Life	Integrated Healthcare Management System	Computerization of Ministry of Health and Quality of Life. Upgrade of system at Jawaharlal Nehru Hospital and replication at Sir Seewoosagur Ramgoolam National Hospital.
Ministry of Health & Quality of Life	Computerization of Area Health Centres	Implementation of an integrated system for the activities of Area Health Centres
Ministry of Housing and Lands	Computerization Project for Ministry	State Land & Lease System, Planning Application Monitoring System, Land Acquisition System and Revenue System
Ministry of Information Technology and Telecommunications	Government Information Infrastructure	Setting up of a common information infrastructure for Government organizations
Ministry of Information Technology and Telecommunications. Postal Services	Computerization of Postal Services	Computerization of Counter Services & Post Office Savings Bank (POSB)

10. Mexico

Background

Mexico has an area of 2 million square kilometres with a 9000 km coastline and a climate that varies from tropical to desert.

By the early 1300 AD, the Aztecs established roots on an Island in lake Texcoco, site of present day Mexico City. In 1521 the Spanish explorer Hernan Cortez captured and razed the Aztec city, building a Spanish city in its place. In 1821, Mexican revolutionaries captured Mexico City and broke all ties with the Spanish crown. The city was occupied by the United States in 1847 during the Mexican War and by France for four years starting in 1862.

Heavy fighting ensued from 1910 to 1915, the years of the Mexican Revolution. The end of the Revolutionary movement marked the beginning of a period of dramatic social changes which led to the creation of the Mexican Constitution of 1917. Widespread land reform and nationalization of the country's basic industries were achieved during the 1930's.

The last 60 years have been characterized by industrial expansion, rapid population growth and political domination. In the first six years of the 1980's development slowed down as a result of a recessionary world economy. Vast austerity and strict debt restructuring measures were a direct result of that decade for the Mexican economy.

In the past few years, the Mexican government has carefully tried to steer a new and prosperous Mexico in the direction of becoming a first-world economy. However, and despite the efforts in allying itself as partner in trade with Canada and the United States unexpected political and economical events in the early 1990's have conspired to delay achievement of this goal.

Today Mexico has a GDP of 484 billion with 4% growth in 1999. It has 23 Internet hosts for every 10000 population, 112 telephone mainlines per 1000 population and 44 PCs per 1000 population. The population stands at around 100 million and it has a growth rate of 1%. In the year 2000 Internet hosts numbered 41 per 10,000 population.

E-Government/Governance

The Public Sector in Mexico faces issues similar to those faced by other public sectors around the world and these are issues of transparency, lean government, deregulation, private-public partnerships, efficiency, e-Government, etc. In addressing these issues e-Government is seen as a tool for the development of a better public sector for Mexico.

The Government of Mexico has initiated a number of initiatives that have placed it on the map of e-Government. Some notable projects relate to access to government information. The pilot project Mexico On Line is developed by the President's Office.

Its goal is to diminish the distance between the citizen and the government by involving the former in the public decision-making with a 24 hours a day 7 days a week digital broadcasting channel, working interactively with Internet users, crossing the country's geographic boundaries and allowing every connected Mexican in the world to be in touch with his/her Government. This channel is only the first step in a long-term Citizen's Participation Plan, which eventually will intensify online consultations.

The creators of Mexico On Line aim to break the old paradigms about the citizen-government relationship. By using the new technologies they seek to foster a democratic participative culture, where citizens can express their opinion, ask questions and solve their problems relating to governance/government.

To date, there has been a provision of information, interactive facilities and routing of citizen concerns to the appropriate authorities. In the future, the service seeks to enhance its credibility, introduce opinion polling and provide consultation for public policy formulation.

The broadcasting channel can be found in the President's Web page which also downloads free software for its use. At present the channel provides three main features:

- Live broadcasting of the programme "México en Línea" (a "phone-in" discussion programme)
- Broadcasting of the President's Programme
- The radio programme transmitted by the President every Saturday is broadcast on this channel at the same time.
- 24-hour Channel
- The remaining transmission time is dedicated to Mexican music and public campaigns supporting the federal government's programmes.

Another initiative is direct access to laws, regulations, official documents and government programmes, electronic systems for the procurement of Government, a social security system and the use of information technology in the educational sector.

The Mexican Government also intends developing further the use of IT systems in order to improve the quality of service provided to citizens, carrying out studies to establish norms and standards for the application of IT in the provision of services to the citizen. The new tax administration system is one such programme available on the Internet whose objective is to modernise and strengthen tax administration, ensuring that tax collection is carried out in an opportune and effective way. Another project is that of the federal register of transactions which is a project developed by SEDOCAM and which incorporates the various transactions that are carried out by departments and various entities within the Public Sector. SEP has also developed a system, Tele-SEP, which consists of a system of transactions and services, public directories and general educational material contained in one database and also accessed by one telephone number or through the Internet.

The Ministries of the Federal Public Administration all have an Internet site that describes the services offered to the citizens, the organizational structure, directory of the principal civil servants and the most important activities carried out. A large majority of local governments have a website which is used to consult information related to the different economic activities of the different governments, their industry, tourist attractions as well as state information. The Government of Nuevo Leon State is directly incorporating the concept of e-Government. It is now offering the electronic payment of motor taxes and it is announcing that in this year the payment of house taxes, commercial taxes, water services, driving license renewals and general citizens enquiries will be available through the Internet. The Mexican City Government better known as the Federal District provides not only information but also uses the benefits of commercial electronic banking to pay motor taxes and performs opinion polls about governance issues.

In terms of consultation processes, a good example is Mexico's Citizen's Consultation and Participation System for Science and Technology.

Soon after the presidential elections of July, 2000, "transition teams" were set up for different public issues. Their main goal was to define and plan the direction that the new government was to take on each topic. The Science and Technology Transition Team considered the use of the Internet for public consultation.

The goal was to create an effective way of communication between the Transition Team (the authority) and the science and technology community to foster its participation, exchange of experiences and knowledge as well as its proposals about new projects. The Transition Team pursued the scientific community's participation recognizing that the planning and decision making require a permanent consultation with all the actors involved.

The Participation System on the Internet allowed the reception, classification, discussion and publication of the proposals made by the members of the science and technology community. It offered flexible catalogues for the classification of proposals, forums for discussion and a virtual library with statistics related to user's profile. The user could get information about previous proposals for his/her better participation, choose a topic, send a proposal and take part in a discussion forum. Besides, it gave him/her the option of making public his/her participation. Even though at the beginning it was only designed for the scientific community. It was later extended to the whole citizenry. Unfortunately, despite the positive experience, the system was not retained beyond its initial consultation phase.

Another significant project was that for Citizen's Consultation for the 2001-2006 National Development Plan.

The 2001-2006 National Development Plan (PND) represents the main Federation's planning instrument which contains not only the government's principles but also its objectives and strategies. It is the central document for the whole federal public administration and is legally approved by Congress.

In December 2000, at the beginning of the new presidential period, a planning system was organized to promote citizen participation in a nation-wide programme whose purpose was to involve citizens in the drafting of the 2001-2006 National Development Plan. Public servants in Government saw in this process a formal mechanism to note citizen's opinions, proposals and expectations about some relevant development issues at different levels: federal, local, municipal, family and even the individual level.

Citizen participation was possible via mailed surveys and the Internet. Additionally, the Ministries organized citizen meetings in which outstanding academics and opinion leaders participated. Proposals were collected on about 110 national issues classified under the three most important government areas:

- Human and Social Development
- Growth with Quality, and
- Law and Order

A total of 117,040 questionnaires were received by the Internet and mailed surveys, and 196,854 proposals were withdrawn from them. The Internet page built for the PND extended the possibilities of participation, speeded the registration of opinions, and permitted the participation of Mexicans living abroad, who submitted over 43,000 proposals.

The citizen's participation process represented a significant commitment by society and Government. Suggestions were gathered and analyzed and many of them were included within the PND's objectives and strategies. All the proposals were sent to the different public agencies for their analysis and possible inclusion in the PND. Furthermore, all actions taken by society and government to work out the PND will provide important elements for institutional regional or local plans, thus furthering the PND's goals.

There has been some concern that the compilation and integration of the proposals received were not clear to the public, because citizens were not able to verify if their proposals were being used, and if so, how. The offices responsible for the reception and management of the proposals within each Ministry are not publicly known either.

There are also some relevant cases of online consultation at the local level.

A pilot project of online consultation is being conducted in Estado de México (State of Mexico, <http://gem.edomexico.gob.mx/portalgem/sectores.htm>). The state government designed a Participation Programme for the Modernization of Fiscal Law for the year 2002, with the purpose of receiving by the Internet comments, suggestions and proposals for a legal reform at state and country levels.

Another consultation process is the Consultation Forum for the Creation of a State Attorney for the Protection of the Environment. Inputs will be received by the Internet and through other media. All citizens are invited to participate, as well as environmental organizations, universities and society in general.

On the private and NGO sector side there are a number of websites that focus attention on Mexican Political, Social, Economic and Government Issues the most common of which are those related to the media. The website of the biggest Mexican Telephone Company, Telmex, shows the main political and government news and presents a daily opinion poll about what they consider the relevant issue of the day. The second largest biggest TV Mexican company, Television Azteca, also has a similar website to the former one.

E-Mexico Project

The Mexican government has adopted an ambitious plan to reduce the digital divide that exists in the country through the development of a national system called e-Mexico, that will allow the greatest possible part of the population to have access to ICTs (<http://www.e-mexico.gob.mx>). The purpose of this initiative is to enable citizens to communicate among themselves, with their government and with the rest of the world.

The e-Mexico national system has as its main target to offer access to a series of contents and applications in the matter of education, health, commerce, tourism, government services and other community services, in order to contribute to quality of life as well as offering more opportunities to companies and promoting faster and more equitable development for all regions and communities, especially the most needy areas.

The e-Mexico national system will provide sufficient telecommunications bandwidth to small communities to allow simultaneous Internet access for a minimum number of computer terminals in each community, as well as additional telephone lines so as to provide higher quality telecommunication services at lower prices. In the first phase of this project, 2400 communities will be covered, to which in a second phase 10,000 points of presence will be added.

Although the Federal Government is providing leadership and substantial economic support for the project, e-Mexico is a grid of distribution and information in which ministries, schools, libraries, researchers and individuals as well as private operators are participating. It is intended as an integrating project of technological and operator convergence, linking existing public and private networks to generate synergy and advantages to benefit society.

11. Morocco

Background

Telecommunications, postal services and information technology are a key sector of the Moroccan economy and are considered of vital importance for the achievement of the government's main growth, job creation and disparity-reduction targets. Major institutional reforms have been carried out in this area.

The Secretariat of State for Postal Services and Information and Communication Technology is the government agency that has been assigned the mission of bringing Morocco into the information age, promoting the development of a competitive and dynamic telecom industry in order to ready Morocco for the challenges of the 21st century, and making postal services more competitive by improving their management methods and bringing them up to the highest international standards. For this purpose, the Secretariat plans to:

- Ensure access to telecom, postal and IT services for Moroccan businesses in order to improve their competitiveness. The Secretariat considers it critically important that optimal conditions of timing, quality and price be met in satisfying business demand for such services. The range of available services must also be wide enough to meet the expressed demand.
- Ensure access to modern means of communication and information for the disadvantaged and inhabitants of remote areas. For this purpose, the Secretariat is working with other appropriate government agencies to define objectives with respect to land-use planning and universal telecom and postal service, with a view to guaranteeing sufficient coverage of needs at a reasonable cost to the general public and to operators. It is working to put in place the necessary mechanisms to ensure that providers of postal and telecom services can carry out their public service mission effectively and in a manner that is responsive to public needs.
- Promote modernization and efficiency in the government administration and particularly in public institutions that provide social services in the fields of education and health care, by expanding their access to information technology and developing their capacity to use IT effectively.
- Improve the overall performance of postal services and increase their financial self-sufficiency by developing all segments of the postal market (new, higher-quality services, long-term improvement of the quality of all services) and enhancing productivity.
- Gradually liberalize the postal market, streamline regulations and offer the private sector opportunities for greater participation.

- Grant postal operator BAM sufficient financial and commercial independence to make it a modern, dynamic business operating in an increasingly competitive environment.
- Promote the development of postal financial services in order to give a larger segment of the population access to financial services (savings, credit and insurance products), particularly in the country's most remote rural areas; to mobilize savings and use them to stimulate private investment and the development of financial markets; and to diversify the postal operator's sources of revenue at a time of growing liberalization of postal services, redefinition of the State monopoly in the area, and transformation of BAM's legal status.
- Support the emergence of new economic activities in Morocco based on IT development and use.

Achievements

Institutional achievements

The legislative and institutional framework for postal services, telecommunications and information technology has been overhauled. The changes include:

- Morocco's signing of to the World Trade Organization (WTO) Agreement on Basic Telecommunications, of which it was one of the main architects;
- The enactment of Act 24/96 in August 1997, allowing competition in all segments of the telecommunications market and the privatization of the historic carrier. The Act provided for the separation of postal and telecom operations through the creation of a public postal institution (BAM) and an independent telecommunications company (IAM). It also established a telecommunications regulatory agency (ANRT) reporting to the Prime Minister.
- The enactment of 15 decrees and executory orders under Act 24/96. With respect to interconnection, an executory decree established general principles for interconnection, a dispute settlement mechanism, required elements of interconnection contracts, and general technical and pricing principles for interconnection services. Other executory decrees regulate leased lines and introduce a list of value-added services that may be provided following a simple declaration to the regulator.
- The adoption of an "information technology development plan", which was finalized and made public.
- The "on-line government" initiative, aimed at linking all departments and their staff, was announced by the Government Council on October 28 and should be fully operational by the end of 2001.

- The "e-commerce initiative" was launched with the drafting of regulatory texts on electronic data exchange and electronic signatures, and approval for three Moroccan companies to provide e-commerce services on national platforms.
- A bill on intellectual property, with a specific section on information technology, was introduced in Parliament.

At the same time, significant progress has already been made toward full liberalization of telecommunications and opening up the industry to the private sector, including:

- The granting of a second licence for mobile telephone services using GSM technology to a consortium led by Telefonica of Spain and Portugal Telecom, in August 1999;
- The granting of two licences to operate GMPCS networks for the provision of digital paging and localization services, as well as telephony, fax and data transmission, in the first half of 2000;
- The granting of three licences for VSAT telecommunications networks, in March 2000.
- The approval of more than 1,800 Internet service providers (ISPs) and Internet cafés, many of which are subsidiaries of EU-based operators.
- The decision by the Moroccan government in January 2000 to fully liberalize the telecom industry by 2002.
- With respect to postal services, authorization for four private firms to offer attractive products that meet market demand for fast, reliable international delivery of documents and parcels.

Infrastructure achievements

Considerable effort has already been made toward achieving the objectives listed above. With respect to telecommunications, the number of telephone lines increased from 260,000 at the end of 1987 to 1.5 million in 1999. The average waiting time for installation of a line has been cut from 80 months to 1.4 months (including rural areas). The transmission network's capacity has increased from almost 4,000 to 466,000 circuits, using primarily fibre-optic technology. The use of SDH fibre-optic technology and the near-total digitization of transmission and switching systems have substantially improved network reliability and now support an expanded range of services including videotex, ISDN, Internet and high-speed links. The number of automated rural communes has increased from 65 to 1,058, or 82% of the 1,297 rural communes. The number of payphones increased from 484 at the end of 1987 to 36,000 at the end of 1999, 83% of which are managed by private operators.

As of January 2001, there were over 2.7 million subscribers to NMT-450 and GSM-900 cellular systems, which cover the main roads and the administrative centres of all

the prefectures and provinces of the Kingdom. The near-total digitization of transmission and switching systems, and the development of new networks, have noticeably improved service quality and reliability.

The Internet, introduced in November 1995, is spreading slowly but surely. There are now over 1,800 ISPs and Internet cafés, with over 200,000 subscribers to Internet service and steady growth in the Internet café market.

There has been explosive growth in computers since 1991 as a result of lower prices and lower import duties, which were cut from 42.5% to 17.5% on January 1, 1996. Moroccans own an estimated 200,000 personal computers, for a penetration rate of 0.7%. Annual sales vary between 40,000 and 50,000 units.

The number of computer firms is estimated at over 800; they employ an estimated total of 4,000 people and have annual sales of about 3 billion dirhams (DH).

Initiatives to improve the management of postal services are also in progress. The creation of Barid Al-Maghrib (BAM) in 1998 established a platform for sustainable improvement in order to enhance the effectiveness of postal services. BAM has produced a corporate strategy and investment plan for the 1999-2003 period. A study is being conducted to recommend appropriate business structures and systems to support efficient implementation of the strategic options.

New products have appeared and new partnerships have been established to offer more and higher-quality financial services. The expanded network of points of sale, consisting of 2,400 retail locations, offers partners (banks and insurance companies) an attractive opportunity to reach new regions and new customers who are not being served at present.

Management of postal cheques and of the national savings bank has been computerized, delivering steady improvements in service. New IT-based fund transfer services have been introduced, including electronic money orders and access to the Eurogiro network for foreign transfers. New domestic express mail services have been launched (Poste rapide nationale, Rapid'j and Rapid'H). Pilot cyber-mail sites have been installed at post offices and universities. For the second year in a row, BAM reported healthy earnings (approximately 92.7 million DH in 1999, compared with 55 million DH in 1998).

Development programme

The programme the government plans to implement covers telecommunications, postal services and information technology.

Telecommunications

The Secretariat of State is of the view that achievement of its telecommunications objectives demands stepped-up liberalization and an expanded role for the private sector, which will require an ongoing effort to adapt regulations to the sector's needs.

Development of telecom infrastructure

Since telecommunications is a key sector and an engine of economic growth in Morocco, the objective is to increase competitiveness and promote the development of a competitive, dynamic telecom industry that can bring Morocco into the information age.

Therefore, the Secretariat of State intends, among other things, to:

- Promote the development of the telecommunications infrastructure required for new multimedia applications;
- Extend access to telecom services to all segments of the population and to all parts of the country;
- Expand the telecom market;
- Promote competition in all segments of the telecom market;
- Revise the regulatory framework for telecommunications services to allow the use of alternative infrastructures and strengthen the competitive environment, so as to spur development of the telecommunications market;
- Ensure availability of and access to business services that can increase business competitiveness;
- Strengthen Morocco's role as a regional telecommunications platform.

To this end, the following actions will be taken.

Extension of fixed public telecommunications network

Despite the broad geographic reach of the fixed public telecommunications network and coverage of all the rural commune seats and many other centres, sustained effort is still required in order to increase teledensity, particularly in rural areas and the urban periphery.

The government's target in this area is a telephone density of at least 10% by 2005 and 15% by 2012.

Public telephones are to increase from 1.14 per 1,000 people at present to 2 by 2005 and 4 by 2012.

The service quality target, as measured by the malfunction reporting rate per subscriber per year, is 20% by 2005 and 10% by 2012.

Extension of cellular network

Mobile telephony is the segment of the telecommunications market that is posting the strongest growth rates and generating the most value-added.

To meet the growing demand for cellular services, efforts will be made to increase network density, diversify services and improve service quality.

The network density target calls for coverage of all the main roads linking the provinces and the prefectures.

The service quality effort will focus on improving coverage in the urban periphery and inside buildings in urban centres.

The diversification objective is to expand the line of services to include data transmission, Internet access and messaging.

Because of the spectacular growth of mobile telecommunications and demand for broadband multimedia services, the establishment of third-generation (IMT-2000) cellular systems must be accelerated. The government's objective in this area is to make frequencies available for such systems and to put in place a system for granting licences and defining licence content.

Development of national high-speed telecommunications infrastructure

In order to create a telecommunications infrastructure capable of carrying the flow of traffic for services that require high transmission speeds, such as high-speed Internet, videoconferencing, radio and television broadcasting, and applications such as medical imaging, the government has set the following medium- and long-term objectives:

- Continue rolling out high-speed transmission and switching networks;
- Step up the migration of public fixed telecommunications networks to IP-based systems;
- Link all PBXs to a backbone;
- Extend high-speed access "to the doorstep" of all administrative and business customers in the medium term and of all residences in the longer term;
- Establish alternative infrastructures;

- Conduct a feasibility study for a national multiservice satellite system.

Internet

Since the Internet is increasingly becoming the standard for the exchange of all types of economic, commercial and cultural information, the government plans to promote wider Internet use.

In addition to extending the telecommunications infrastructure, certain measures need to be taken specifically to support Internet development:

- Improve terms of access to and interconnection with public telecommunications systems for ISPs;
- Extend the MARWAN academic network, a high-speed information system designed to promote research and training;
- Develop national content on the Internet;
- Computerize the schools and introduce IT into education at all levels;
- Increase the number of graduates in the field and retrain unemployed graduates in IT;
- Implement the "on-line government" programme;
- Set up public telecentres with Internet access;
- Use IT as a land-use planning tool by launching digital city projects and developing local portals and a unifying national portal;
- Develop national e-commerce platforms.

Expansion of rural service

-Developing telecommunications infrastructures in rural areas will help stabilize the population, provide access to basic services, improve agricultural production and promote the emergence of non-agricultural activities.

The objective here is to achieve teledensity of at least 3.5% by 2005 and 7% by 2012, and to install at least one payphone in every community with a population of more than 250 by 2005 and in every community with a population of more than 100 by 2012.

Linkage to global systems

Linking Morocco to global cable and satellite systems will provide the country with a complementary, secure and diversified infrastructure for services (voice, data and

image) and global connectivity, and will strengthen its role as a leading regional platform for telecommunications.

To do this, the government intends to implement a policy to facilitate linkage to global systems for Moroccan operators.

Universal service and wide access to basic telecommunications

To promote the welfare of vulnerable populations and reduce regional disparities, the government plans to carry out the following initiatives in the medium and long term:

- * Set price caps for universal service;
- * Introduce measures that address the following objectives:
 - Expand local calling areas in order to gradually reduce disparities in access to the fixed public network between residents of large urban centres and subscribers to small- and medium-capacity systems;
 - Reduce the rate gap between local calls and domestic long-distance calls;
 - Introduce special rates for people with disabilities, the elderly and low-income people to provide the following benefits:
 - Lower subscription rates;
 - Connection charge payable in instalments;
 - Adapted communications interfaces for people with disabilities (e.g. voice dialling, TTY);
- * Expand and adapt universal service to keep pace with technological change and user requirements.

Strengthening the role of the private sector

Having taken the first major steps of opening up telecommunications services to the private sector and to competition, the priority now is to allow private investment in Itissalat al Maghrib (IAM), the main public telecommunications operator. The government believes this is necessary to enable IAM to position itself effectively in the fast-changing domestic and international telecom markets. An international call for tenders was published in October 2000 in order to select a strategic partner; as a result, Vivendi has acquired a 35% interest in IAM. The transaction will be followed by a public offering of a portion of IAM's stock on international and domestic equity markets. The public offering should help integrate IAM into the world telecommunications market, develop the domestic capital market and strengthen our presence on foreign markets.

To support this process, the government took several measures prior to the call for tenders to choose a strategic investor:

- Publication of the revised interconnection agreement, which IAM offers to all new entrants and competitors to ensure consistency with international best practices and with pricing systems in other competitive markets;
- Definition of the principles of the universal service and land-use planning system, particularly how it will apply to IAM in the long term and during the transition period which will follow the current situation, in which IAM is the only provider of these services.

Accelerating the liberalization process

The government is of the view that increased competition will yield faster growth in the telecommunications industry as a whole and improved performance. It has therefore decided to speed up the process of liberalization in telecommunications services so that the industry will be completely open in 2002, under rules that are transparent and fair to both new and existing operators.

The following specific measures are planned in order to further liberalize the telecommunications sector:

- Expand the range of services that can be offered by simple declaration;
- Process all additional GMPCS licence applications;
- Grant telecommunications licences in late 2001 for trunked radio systems;
- Issue a telecommunications licence in 2001 for the marketing of non-voice systems nationwide and another for non-voice long-distance services; voice services will follow in 2002;
- Issue two licences for international telecommunications covering all the services that will be offered in 2002;
- As stipulated by its licence, the second GSM operator will be authorized to build its own domestic infrastructure immediately and to provide international service using its own facilities starting January 1, 2002;
- More generally, the government intends to grant other licences in order to guarantee users a choice between different operators in all market segments, with a view to total liberalization of the telecom market by 2002.

Improving the regulatory framework for liberalization

While the quality and credibility of the regulatory framework for telecommunications were clearly demonstrated by the successful issuance of the second GSM licence, the Secretariat of State believes the following improvements are necessary:

- Amend Act 24/96 in order to (a) allow the national telecommunications regulatory agency (ANRT) to set graduated penalties for violations of the Act, regulations and licences; (b) replace the ANRT's *a priori* controls with *a posteriori* controls; (c) finalize the separation of the national postal and telecommunications institute (INPT) from the ANRT;
 - Ensure consistency between the Competition Act and Act 24/96, and take the necessary steps to permit a smooth transition from specific telecommunications regulations to general competition regulations as the telecom market becomes truly competitive;
- Ensure that the ANRT conducts public consultations and publishes its decisions, including rationale, so as to increase regulatory transparency.

Postal services

For postal services, the Secretariat of State's objective is to offer citizens in all parts of Morocco high-quality service at the lowest price. It is planning major reforms in the sector in order to increase BAM's competitiveness and efficiency, gradually liberalize the sector, and enable postal financial services to more effectively mobilize small *savings*.

Postal sector strategy

There is enormous market potential for superior-quality postal services. Direct marketing, which is not highly developed but which is starting to grow in Morocco, will depend strongly on a reliable postal system covering all parts of the country and reaching all citizens. The mail generated by direct marketing is the fastest growing segment of the postal industry in most countries. Parcel delivery is also a fast-developing line of business; the growth of e-commerce is fuelling a boom in mail orders, creating strong opportunities for parcel delivery services.

To capitalize on the potential of the Moroccan postal market, the Secretariat of State has launched a study to determine the key elements of a national postal policy, with special attention to:

- Gradual introduction of competition in postal services and greater private sector participation;
- Clear definition of the public postal service's obligations—scope, cost, implementation methods, financing mechanisms;
- Identification of the measures required to enable BAM to adapt its internal structure in order to prepare for competition and possible private investment.

Based on the results of this study, a new Postal Act and other appropriate legal provisions may prove necessary.

Postal business strategy

BAM, the main postal operator, will continue modernizing its services and improving its operational performance. Having developed a comprehensive, forward-looking strategy, efforts are now focussed on establishing a business strategy and an investment plan in order to transform traditional administrative structures into a modern business organization.

With its new structures and new systems in place, BAM should be equipped to implement its action plan and improve its operating methods so as to adapt its management to the imperatives of an increasingly competitive environment. A study now under way will make appropriate recommendations in this regard.

Another project will deal with the best approach for delivering high-quality service to rural and underprivileged areas in the most effective manner. Innovative models such as franchising systems and mobile postal units will be carefully analyzed and pilot projects will be launched.

Postal financial services strategy

To complement BAM's restructuring project, which is now in progress and which includes a component on the development, modernization and diversification of financial products and services, a specific study on the national savings bank (CEN) and the postal cheque centres (CCPs) will be conducted.

This study will touch on all aspects of financial services, including:

- Strategic study of savings collection and development;
- Strategic study on investing the collected funds;
- Study of the most appropriate institutional framework for the development of these services; a number of options will be studied, including the creation of a postal bank;
- Study of the impact that independent management of the funds would have on institutions that now have CEN and CCP deposits.

Given the implications of the study results for existing institutions, particularly when it comes to the use of deposits, this study will be conducted jointly by all the stakeholders involved, including the Ministry of the Economy, Finance and Tourism; the Secretariat of State for Postal and Information and Communication Technology; and BAM.

Information technology

Information technology is vital in modern society and must therefore be considered a strategic sector that makes a significant contribution to economic and social

development. The Secretariat of State's priority is to promote IT applications in (i) education and training; (ii) government administration, through implementation of the "on-line government" initiative; (iii) the upgrading of businesses; (iv) culture; (v) closing the digital divide; (vi) supporting decentralization and land-use planning.

Adoption of legal and regulatory framework

Building an information society, the main goal of any telecom development policy, requires an appropriate legal and regulatory environment which creates confidence and provides a framework for the use of information technology, and which is capable of adapting to fast-paced technological change. The Secretariat of State's action programme in this area consists in improving and adapting legal and regulatory texts related to:

- The protection of privacy, by instituting disclosure and authorization procedures for the creation and use of personal files, and an entitlement for citizens to access their files and make corrections;
- The confidentiality and security of electronic communications and transactions;
- The evidentiary weight of electronically transmitted data and electronic signatures;
- Consumer protection;
- Adaptation of the tax system and customs code to e-commerce.

Data standardization

The development of advanced information exchange systems and the networking of databases and information systems necessitates the standardization of data and protocols, in accordance with international standards.

The availability of technical standards and standardized data would enable businesses and administrations to improve their organization, their information systems and their databases, and facilitate the introduction of electronic data exchange mechanisms.

Before embarking on the standardization process, the government is conducting a study in order to establish a standardization body, which will conduct the standardization process (establish standards), co-ordinate the standardization of information by administrations and professional organizations, develop standardized databases containing public or sectoral information, and define the encoding and the formats for the exchange of electronic data.

On-line government

The government will use IT as an instrument to modernize Morocco's administration. The objective is to promote information access and exchange between the administration, citizens and businesses through on-line processes.

Efforts in this area will be directed toward:

- Integrating common services and applications;
- Realizing economies of scale;

- Introducing standard data exchange procedures;
- Ensuring data security;
- Bringing the administration closer to citizens;
- Outsourcing some operations.

Upgrading businesses and e-commerce

The spread of information technology in business, particularly SMEs, is an important issue for Morocco's economy. The development of networks, mobile communications and multimedia, and the use of these technologies by business, is not just a matter of productivity enhancement but also an opportunity for businesses to conquer new markets or to make themselves stand out from the competition by developing new services related to their products, which will help generate growth and jobs.

Since e-commerce helps spur the introduction of IT by businesses, the Secretariat of State is working to facilitate access to and use of e-commerce by means of appropriate incentives, including tax incentives.

At the same time, the agency is preparing a legal and regulatory framework designed to build confidence and create conditions conducive to the promotion of e-commerce.

The agency is particularly interested in promoting, in partnership with the chambers of commerce and crafts, the development of virtual trade shows that offer services and products in areas such as tourism, handicrafts and agriculture.

Decentralization and land-use planning

- IT is unquestionably a useful instrument for integrating and developing land-use policy, deconcentration and decentralization;
- The main objective in this area is to ensure better distribution of communication and information infrastructures and equitable access to those infrastructures in terms of technical conditions and pricing.

For this purpose, the Secretariat of State will implement a strategy organized around the following priorities:

- Creation of community telecentres providing all segments of the population with access to communication and information services, including the Internet, on the most economical terms, and reducing the isolation of rural areas. The government's objective is to open a community telecentre in each commune;
- Creation of a conducive environment for the development of distance services such as distance education, telemedicine and remote information services.

The Secretariat of State plans to promote their use, in partnership with local communities, by creating "city portals" in order to: (i) publicize local economic, cultural and tourism potential; (ii) facilitate information access and exchange at the

local and inter-regional levels; (iii) promote the development of distance services; and (iv) develop virtual commercial showcases for local products.

Presentation of the cultural heritage

The movement toward an information society provides an opportunity to strengthen Morocco's cultural identity through digitization of the cultural heritage and its dissemination, which can be increased exponentially through the use of IT. The heritage digitization policy will pursue the following objectives: (i) create electronic archiving systems at the administrations; (ii) promote public access through (iii) digitization of heritage collections and the general library and archives; and (iv) creation of multimedia cultural spaces.

Education and training

The far-reaching impact of IT in the fields of education and training calls for a strategy and action programme in order to:

- popularize IT tools in educational institutions;
- introduce basic computer training in primary and secondary schools;
- generalize computer training and Internet use in all institutions of higher learning;
- increase the number of connections supported by the MARWAN network in order eventually to link up the entire education and training system.

This programme must be accompanied by measures to increase the student capacity of training institutions in disciplines related to information and communication technology. In addition, another programme aimed at retraining unemployed graduates in IT trades and educating government officials and employees in multimedia tools and the Internet has been launched.

12. New Zealand

Background

The government of New Zealand published its vision for e-Government in May, 2000. This recognizes that the key forces of change - including globalization, the rise of knowledge economies and new technology - are transforming the relationship between government, business and society. Public attitudes and expectations of government in more mature societies are changing quickly and the government acknowledges that it must change the way it relates to the public it serves. Indeed, the creation of e-Government is perceived as a key to New Zealand's future social well-being through its focus on better understanding and meeting individual New Zealander's needs and creating opportunities for greater public participation in government and democratic processes. In addition, at a third of that country's Gross Domestic Product, government activity constitutes a large part of the economy. In this context, value for money looms as a very significant objective. A number of examples of e-Government are already in evidence in New Zealand.

They range from the New Zealand Government Online website (<http://www.govt.nz>), to being able to register a new company on the Internet (<http://www.companies.govt.nz>) or to getting comprehensive statistical information about New Zealand from Statistics New Zealand's website (<http://www.stats.govt.nz>).

The task for the Government is to build on these individual initiatives and develop them into a comprehensive plan for achieving the benefits of e-Government more widely on behalf of all New Zealanders. The planned development of e-Government aims to improve the ability of all people to participate in the democratic process. But, left to develop by itself, e-Government has the potential to create new divisions in society between those who have the skills and tools to use the new technologies and those who do not.

E-Government is expected to improve government in four important ways:

- *It will be easier for people to have their say in government.*

For example, the introduction of new administrative measures will be subjected to public feedback through electronic means.

- *People will get better services from government organizations.*

For example public transactions can be done round the clock and from geographically remote locations. This will be of particular benefit to those thousands of New Zealanders who do not live in the main centres of population. This will improve flexibility, speed and access to government services, and will lower the cost of government.

- *People will receive more integrated services because different government organizations will be able to communicate more effectively with each other.*

For example, reporting an incident or change in domestic circumstances would be shared between different institutions, and a person need only go through that process once instead of several times.

- *People will be better informed because they can get up-to-date and comprehensive information about government laws, regulations, policies and services, and would go about their leisure or business in a more informed and compliant manner.*

The State Services Commission (SSC) has been tasked with the co-ordination and delivery of e-Government. within the next five or so years, New Zealanders should be able to do the following:

- Electronically register information with the Government – for example, births, deaths and marriages – at a time and place that suits them;
- Conduct their financial dealings with government organizations electronically;
- Complete and send all government forms from one place on the Government's Internet site;
- Have their say on a wide range of government proposals and policies through the Internet;
- Benefit from high quality health care from a public health service that provides integrated and personalized services from GP to specialist to hospital to pharmacist based on individual patient record management made possible through comprehensive and highly secure information sharing and analysis;
- Have confidence that effective controls backed up by good legislation will safeguard privacy;
- Benefit from the reduced costs and time involved in property transactions because land survey and title information is available electronically and transactions can be registered the same way;
- Notify changes of address, so that one entry on the Internet can ensure multiple Government agencies are notified automatically.

The e-Government vision is seen as supporting two important goals. They are:

- *Restoring trust in government and providing strong social services.*

The e-Government vision will play an important role in achieving this goal. It will

- increase collaboration between government organizations;
- strengthen the relationship between people and the state through greater opportunities for participation; and
- provide the state sector with an opportunity to improve the effectiveness and efficiency of their services to the public while, at the same time, reducing the cost of delivery.

Those three factors will help restore trust in government and provide strong social services.

- *Helping grow an inclusive, innovative economy for the benefit of all.*

New Zealand's e-Government vision emphasis inclusion – the ability of all people to take part in the economy. It is also seen to complement well similar developments in business and commerce. Together, e-Government, e-business and e-commerce will play an important role in the development of an economy based on the combined impact of the knowledge and skills of all New Zealanders.

Programme delivery

The e-Government programme and the e-Government Unit within the State Services Commission were formally established for four years on the 1st July, 2000. The role of the e-Government Unit, as agreed by Cabinet, embraces:

- **Strategy:** Develop and manage the delivery of an overarching e-Government strategy, as well as supporting policies, standards and guidelines;
- **Leadership:** Facilitate uptake by government agencies of the e-Government vision;
- **Coordination/collaboration:** Identify opportunities for collaboration across government agencies; leverage existing information management and technology investment, and provide coordination
- **Policy:** Provide e-Government policy advice to the Minister of State Services; and
- **Monitoring:** Monitor progress toward achieving the e-Government vision.

The E-Government Unit has a central role in defining and achieving the Government's objectives for e-Government. The delivery of e-Government is the responsibility of all government agencies in partnership with the Unit.

Public Service departments and some other government organizations have nominated e-Government agency leaders who meet monthly. The role of the agency leader is to drive the implementation of e-Government in their organization.

Responsibilities include acting as a conduit for two way communication between their organization and the E-Government Unit, ensuring mandatory requirements from the programme are included into their organization's work plan and working within their organization to ensure that the approach to online service delivery is consistent with the policies and standards developed in the e-Government programme.

Two CIO (Chief Information Officer) networks support the managers who are accountable for the design and delivery of the technical and information management

dimensions of e-Government. The CIO networks (one for policy departments and one for operational departments) typically focus on the implementation of the interoperability framework, technical standards and guidelines, and leveraging of government IT infrastructure. An e-procurement network concentrates on establishing a common approach for government to procurement, including syndicated procurement and e-procurement.

The E-Government programme consists of a number of projects. These range from policy development and implementation, development of standards and guidelines to delivery of solutions and applications. These are outlined below:

Authentication

The authentication project is looking at ways of ensuring that government services delivered over the Internet are going to the right person. This will be achieved by electronically verifying that people are who they say they are, and that privacy is protected at all times.

Awareness of e-Government Activity

This project is aimed at keeping central and local government people up to date with what is happening on electronic government projects. It is one of several activities to ensure government agencies are ready for e-Government.

Electronic Billing and payments

A strategy for a whole of government approach to electronic billing and payment systems is under development. This would enable government agencies to carry out financial transactions securely over the Internet, either between each other or with people and business.

Geospatial information

Addresses, road and place names make up what is called geospatial information. This information can be shared over the Internet. Geospatial information is vital for a wide range of government functions. For example, it is necessary for running an election - registering people against the correct electoral district and Territorial Authority, or helping to achieve emergency services' responses, the management of civil defense emergencies, or underpinning land use decisions. The government is now looking to make sure that address, road and place name information used nationally is fit for these purposes, consistent, up to date, and readily accessible. When the New Zealand government portal website is launched in July 2002, geospatial information will be present behind the scenes allowing you to search for information relating to a specific geographical area, for example school zones or police stations.

Government Information Discovery (GUIDE)

The government portal will be useful only if the information and services made accessible are described consistently. The GUIDE project is taking care of the way in

which government information and services - online and offline - are described now and how those descriptions should be managed over time. These descriptions are called metadata. The reason government is not just describing online government information and services, is that it is useful for people to know where they need to go or who they need to call to carry out other government related tasks.

Government Portal

This portal is a single website giving structured access to other websites, in this case, the websites of New Zealand government agencies. It is a convenient way of finding out about government information and services from one place, without having to understand how government is structured and therefore which sites you need to use. Portals are usually grouped by industry or sector type, for example, health, education, building industry. They are sometimes organized by types of services, for example registration and licensing, or purchasing. The New Zealand government portal will be a website providing search capability for, and links into the online and offline information and services of most government agencies

Government Services Online

The vision for e-Government in New Zealand is that citizens will be able to find public information and services within government departments quickly and easily over the Internet.

Between August and November 2001 the Government Services Online project will identify the most useful services. These services will be made available through the portal website from June 2002.

Government web guidelines

The primary goal of this e-Government project is to ensure government websites are accessible to the people using them.

People cannot be excluded from government services and information provided over the Internet because of disability or lack of reliable access to high-speed technology. The guidelines will detail how government websites should be built so that everyone can use them.

Internet Skills of Public Servants

This project will encourage the adoption by government of training schemes to ensure public servants use the Internet in an efficient and productive way. It is one several activities to ensure that government agencies are ready for e-Government.

Interoperability Framework

The business systems and processes supported by information technology (IT) that exist within each government agency will need to agree some common practices of making information available. Each government agency runs its own business and

technology systems. The Interoperability Framework project will introduce an agreed, standardized system of decision-making processes about investment, development and management of IT resources. These standard processes will be used where agencies work together to provide information and services to the public.

Leveraging Infrastructure

"Leveraging infrastructure", means using more effectively the government's existing technical capabilities throughout its central, regional and local agencies. Infrastructure includes staff, business processes, computer hardware and software.

The project has now analyzed the current infrastructure and has proposed a first draft of a technical architecture.

The work will be taken forward by the Interoperability Framework project.

National Information Infrastructure Protection (NIIP)

NIIP seeks to improve the protection of New Zealand's critical infrastructure from cyber attacks. New Zealand people and business depend on the continuing supply of various services such as power, telecommunications and health care.

Critical infrastructure includes the wires, machines, and software needed to make this happen, such as power lines and telephone exchanges. NIIP seeks to bolster the protection of this critical infrastructure from cyber-threats such as computer misuse and hacking.

Procurement

The government is looking at ways to smarten up how it buys goods and some services. It is doing this various ways, including syndicated procurement is where government agencies can collectively purchase goods and services such as electricity, fuel, motor vehicles and travel. This will result in savings from lower prices, improved terms and conditions and reduced costs of tendering. Syndicated procurement builds on the strategic sourcing approach being taken by leading government agencies. Strategic sourcing enables an agency to define and consolidate their requirements for all goods and services, understand the supply market, and negotiate with suppliers.

Secure Electronic Environment

The Secure Electronic Environment project is developing solutions so public servants can securely work together over the Internet.

Shared Policy Workspace

Often more than one government agency contributes to the development of a single policy. By implementing a shared policy workspace people from different

government agencies in different locations will be able to use the Internet to work on policy documents to develop policy that cuts across several areas.

13. Republic of Korea

Korea's Action Plan for Electronic Government

The Korean government has a long history of IT-based administration. It set up the 1st Office Automation Project which computerized several statistics (1978-1982), and the 2nd Office Automation Project which computerized civil service personnel, payments, pensions, etc (1983-1986).

Subsequently, the 1st Public Business Networking Project developed six networks such as the People's Identification Data Network, the Land Registry Data Network, the Vehicle Registry Data Network, the Employment Network, the Customs - Clearance Management Network (1987-1991). This was followed by the 2nd Public Business Networking Project which developed many networks (1992-1996) - the Post Office Network, the Welfare Network, the Fishing Boat Management Network, the Customs -Clearance Electronic Document Exchange Network, the Industry Property Right Management Network, the Meteorological Information Network, the Office Supplies Catalogue Management Network, the Economy and Trade Network, the Agriculture Technique Management Network, the Environmental Protection Network, the Inland Revenue Network. Networks were established separately without regarding interoperability.

In 1998, the Ministry of Government Administration and Home Affairs published its Vision and Strategy for e-Government: Toward 21st century electronic government. The report aimed to promote a knowledge-based government which delivers high quality service and does best work through IT-based innovation. The strategy aims to:

- Deliver one-stop service to every citizen any time, anywhere.
- At least match the private sector performance.
- Be transparent and customer-friendly.
- For these purposes, the government set up six initiatives:
 - To deliver information and service electronically.
 - To reengineer business process and exchange electronic documents.
 - To share information resources and protect privacy.
 - To establish information technology standards and connect all PCs to the network.
 - To promote civil servants' IT literacy.
 - To modify laws and rules for electronic business.

The Vision and Strategy for e-Government consists of three development stages.

The first stage (1998-1999) was a preparatory period for an electronic government:

- Connecting government departments and administrations with the administrative intranet
- Undertaking pilot projects
- Sharing key public data
- The second stage (2000-2001) is the construction period for integrated information:

- Connecting central and local governments with a network
- Exchanging electronic documents among the central and local governments
- Giving public servants e-mail addresses and Internet access

The third stage (2002) is the operationalization period for electronic government:

- Exchanging electronic documents between the public sector and the private sector
- Constructing open and transparent government
- Supporting policy, etc

In 1999, the Action Plan for e-Government, incorporating the following actions, was published:

For one-stop and non-stop service the government will develop:

- a Comprehensive Information System that connects 21 data networks
- the Electronic Ombudsman System
- the Family Record On-line System
- a Web-based Service Delivery Systems

For diversifying electronic service delivery routes:

- an Integrated Call Centre
- an Integrated Kiosk System

For open government:

- the Government Information Locator Service
- the Open Government Service
- the Local Administration Information Bank
- Web Bulletin Board Service of Local Governments

For promoting government productivity

:

- business process reengineering
- electronic document exchange between public entities
- electronic document management
- government knowledge management
- personal resource information management
- electronic organization management
- personnel and payment integration
- For interoperability:
 - data storing and sharing
 - Defense against hackers and viruses
 - backup systems
- For infrastructure the government will develop:
 - the government intranet
 - data code standardization
 - information technology and resource standardization
 - public key infrastructure
 - key management infrastructure

For civil servants' information literacy:

- electronic mail addresses for all office workers
- training opportunities for all officials
- testing opportunities
- the Cyber Training Centre

For institutional solutions the government aims to:

- to amend laws and rules
- enhance the Chief Information Officer functions
- enhance cross-departmental information resource management

Implementation of electronic government

Networking public entities

The Government Superhighway Network (GSN) connects three government complexes within a 160Km radius and almost all departments and administrations are fully connected with the GSN. All of the 16 provincial government networks are also connected and all of the 232 municipal government networks have been recently connected. However, some small and remote governmental branches require a satellite solution.

Empowering public servants

Korean public servants number approximately 800,000 (including provincial and municipal personnel but excluding military personnel). Office workers comprise 73,000.

Personal computers are used by about 86% of the office workers. All of the PCs are connected with LAN. E- mail addresses are used by about 91% of the office workers. However, Korean public documents are not exchanged via e- mail, but via groupware called electronic document systems. The electronic document systems are distributed to all departments and administrations, all provinces and most of the 232 municipalities. Government is also planning to train all public servants to deal with IT.

Electronic document exchange

Korean departments and administrations have exchanged electronic documents for several years. However, exchanges are limited within a department or an administration because electronic document systems are different from one another. There are 20 different electronic document systems in Korea's administration.

Therefore standards for electronic document systems were announced last year and a number of suppliers upgraded their systems. Cross-departmental document exchange had been undertaken among seven ministries. Now electronic documents are exchanged among the General Service Divisions of departments and administrations. Within 2001 all divisions of the government will participate in the pan-governmental document exchange.

Data sharing for street-level service

The Korean government made a start on integrated street-level services. There are 21 types of data such as personal ID, vehicle registration, water and sewage, disaster management, regional development, fishing management, forest management, road planning, etc. The databases are managed both by central government and by local governments, and ten of the 21 databases are linked to the Comprehensive Information System (CI) in four municipalities. (The municipalities usually deliver street-level services.) The CI system is established in all of the 232 local governments in Korea. The remaining databases will be linked to the CI system by late 2001.

One of the beneficial results of data linking is exemplified by the Productive Welfare Data Sharing, which will support means-testing welfare subsidies. When the CI system is fully established, it will reduce the documents for applying for a welfare service from 60 to 13, and the workdays for dealing with it from 21 to 3.

Information service

Central departments and administrations have their Internet home pages. So do all the provincial governments and practically all the 232 municipal governments. Prominent cases are the Open Procedure Service, the Home Minwon Service, the Local Administration Information Bank Service (LAIB), the Open Plaza Service and so on.

The Open Procedure Service was started in the Seoul Metropolitan Government, which shows the detailed process of office: who files the application, when the application arrives, when the application is signed, where the application stops, why the application is rejected, etc. The service makes the office process so transparent that people are able to forget their doubts and just see public servants at work. The system has been distributed to about 200 provincial and municipal governments so far, as well as to all government entities and local authorities by this year.

The Home Minwon Service delivers 3,300 application forms and provides information on 4,400 kinds of application through a single website. LAIB is an information bank of provincial and municipal governments. The governments present their information in the given formats. The information consists of about 400 items such as the organization, the boundary, the information resources, etc and the number of items will be enlarged by this year.

The Open Plaza Service is providing very high input to the democratic process. All citizens can post their opinions on the Open Plaza and all citizens can read them. People criticize the government and public servants through the Open Plaza, which is

accessible by the President, governors and supervisors. These activities influence government policymaking. Some candidates for the Members of the National Assembly lost their membership of the Assembly after the April 2000 general election, as a result of this process. However, the service has some problems.

There are other information services which are delivered by departments or administrations. For example:

- The Ministry of Legislation and the Korean Supreme Court have jointly developed the Comprehensive Legal Information Service System (CLIS), and provide relevant laws. CLIS helps people to seek relevant laws, statutes and regulations scientifically and systematically.
- The Supply Administration of the Republic of Korea (SORAK) gives much procurement information. Anyone can see the lists of purchase requests or the lists of awards of contract during the period he/she chooses. The contents of bids and contractual information are also open to public scrutiny.

Moreover, information such as cultural treasures, museums and art galleries via the Internet is being established, and an integrated tourist information system will operate by connecting local authorities and travel agencies.

Electronic service delivery

Electronic service is delivered through PC communications, the Internet, telephones and kiosks. The kiosks are located in about 100 municipalities and serve people with a number of certificates. PC communication service is used for 20 certifications, but these services will not be fully developed because of the Internet service. The number of Internet users in Korea stands at over 14 million increasing at the rate of 900,000 per month, mainly among young people in their teens and twenties. 72% of regular Internet users go online two or three times a week. About 70% of the total Internet population are using e-mail. Of those who did conduct online commerce, 50.8% used credit cards, 45.6% bank online payment and only 2.3% made use of some form of cyber money.

Public-key cryptography is fast becoming the foundation for e-commerce and other applications that require security and authentication in an open network such as the Internet and intranet. The new method makes it possible to use PKI technology for a faster broader, flexible range of network-based businesses as well as processing both encryption and decryption.

Notable public services already delivered online include:

- The National Tax Administration has developed an electronic filing system for tax returns. The NTA is establishing the E-filing Centre, and receiving applications for e-filing from tax agents. On the other hand, many municipal governments have developed and use an electronic local tax system through which residents pay their local taxes.

- An EDI system for processing applications for medical insurance and their appraisal is being expanded all over the country. Hospitals and public healthcare centres will be connected so that they can share medical information concerning blood, organ transplants and contagious diseases. An integrated service centre for the four major social insurance services has been established to streamline the process of billing and charging and to enhance the quality of service.
- The Korean Industrial Property Office (KIPO) has developed and started an Immediate Notification System as of July 3, 2000. With the help of the system, applicants can be notified of any physical errors or obvious reasons for refusal of their patent application as soon as they file their electronic application or registration documents with KIPO.

The private sector also participates in the public service. A job information site called Humanpia (*www.humanpia.com*) is a leading local job information system which has merged with local recruitment information.

These electronic service deliveries are fragmented and imperfect. Therefore the Korean government has set up a new project – "IT-based Reform for Government Systems". The system aims to deliver to people electronic services through a single window. People will be able to make all the requests online concerning their life events by 2002.

Bridging the digital divide

The South Korean government has launched an initiative to bridge the digital divide. Computer education is now mandatory at all primary schools and the government will expand IT training opportunities to all levels of society, including young children and soldiers. The Ministry of Education (MOE) presented a programme aimed at boosting English language proficiency by reinforcing English as the medium of instruction at primary and middle schools. English proficiency is seen as a basic requirement towards achieving IT literacy. The education of soldiers was also addressed. The Ministry of Defense (MOD) requires, all of the approximately 270,000 soldiers to sit for web search specialist certification exams annually before being discharged from the service.

The major goal of the Ministry of Information and Communication is to expand opportunities to those who are apt to be left out of the information age. The high speed Internet network has been expanded to about 200 towns this year. Free public access to personal computers (PCs) will be more readily available. Public libraries and social welfare centres should be equipped with PCs connected to the net in addition to those available at most post offices. A programme that gives free PCs and five years of free Internet access service to about 50,000 children in the lower income group is also being studied. About 10 million workers need to be formally trained in IT by 2002.

Overhauling the relevant laws and regulations

The information society brings with it a fundamental change to the framework and the way of living that have been accepted in an industrial society. Thus, the current rules and regulations need to be revised to meet the needs of the new society. An annual survey has been conducted since 1995 to assess which rules and regulations should be revised to create a better environment for the information society. The enactment and revision of 63 legal statutes was completed on the basis of the annual reports from 1995 to 1997. The Electronic Commerce Act (1999) and the Digital Signature Act (1999) were enacted in order to facilitate the widespread use of IT by the private sector and we will present measures to enhance the protection of privacy. Overhauling the relevant legal statutes will be continued on electronic procurement, the management of information resources, telemedicine and geographical information systems, amongst others.

14. South Africa

Background

The Government of South Africa has embarked on a number of measures to ensure that information and communication technologies (ICTs) play a vital role in society. On the 9th February 2001, President Thabo Mbeki outlined, in his address to Parliament, the principal programme areas for the year 2001. The President reflected on a wide range of socio-economic and political issues that need to be addressed in order to accelerate and consolidate national growth, development and democracy. The President indicated that the government has started the process of introducing managed liberalization of the telecommunications industry. The policy process will ensure greater regulatory certainty in the telecommunications industry by creating an enabling environment for local and foreign direct investments. It is envisaged that this process will improve the competitiveness and efficiency of the sector, thereby enabling it to contribute to national growth, employment and redistribution of national wealth.

The President announced the establishment of the Presidential International Task Force on Information Society and Development to assist government in narrowing the digital divide with the rest of the world. This is to be followed by the appointment of members of the Presidential National Commission on Information Society and Development, which will deal with skills development issues in the ICT sector.

The role of broadcasting has also been accorded a high priority with the appointment of the CEO and other senior managers at the South Africa Broadcasting Corporation. Consistent with government's commitment to promoting access to information as enshrined in the Constitution, the roll-out of community radio stations is to continue with a specific focus on under-served areas. The development and funding of community programming is to be carried out in collaboration with civil society and international development organizations. Other steps were announced as part of government's integrated rural development strategy including the restructuring of the Postbank to enhance its developmental role and an accelerated roll-out of Public Information Terminals (PIT) to provide easy and cost effective access to government information.

Priority has also been given to E-commerce policy with discussions taking place between government and stake holders as well as amongst stakeholders. Government has fast-tracked the legislative process and plans to have E-commerce legislation by the end of 2001. The legislation is aimed at providing the required certainty in the industry with regard to, amongst others, security, intellectual property rights, domain names and privacy of e-commerce transactions.

As part of the government's broader commitment to the African Renaissance and growth in the SADC region, South Africa will be hosting ITU Africa Telecoms in November 2001. The event, with a specific focus on the continent, will be attended by

local and international private sector players and government institutions involved in the ICT industry.

Four government departments are intimately involved with IT and Communications Technologies: the Department of Communications (DoC) deals with the provision of infrastructure, access and connectivity. The Department of Public Service (DPSA), deals with provision of services efficiently, equitably and accessibly. The Department of Arts, Culture, Science and Technology (DACST) is concerned with language issues, making the Internet truly universal through access in the language of the populations concerned, and issues of research and development in the ICT sector. The Department of Trade and Industry (DTI) deals with matters of commerce, international trade and the IT industry.

The DoC has launched a series of initiatives under the collective label of the "Info.Com 2025" programme, which seeks to achieve broad-based growth and equitable development through communications and information technologies. Some of the key elements of the Info.Com programme include:

- A Commission for Information Communications Technology (CICT);
- The Universal Service Agency (USA) telecentre projects;
- Public Information Terminals (PITs), Internet-2000, and web Internet Lab. Projects designed for rapid expansion of access to the Internet and for experimentation with Internet applications;
- TradeNet: liaison with the Department of Trade and Industry to promote international trade opportunities via e-commerce; and
- Houwteq: a national training institute for study, research, and development in Technology and software.

These and other initiatives reflect the way in which government is responding to the challenge of using enabling technologies and new business paradigms to improve its service delivery and Plans for E-Commerce legislation are well advanced, as shown in the following timetable of events:

- Discussion paper launched in July 1999
- Stakeholder working group submissions collated November 1999
- Green Paper: issued November 2000
- E-Law Conference: Stakeholders invited to discuss proposed framework/outline of the Bill and make recommendations
- E-Bill (2nd quarter 2001) dealing with legislative issues
- E-Legislation: to be passed (3rd quarter 2001) and promulgated before the end of the year
- Policy Directions (Beyond e-legislation) including policy positions, regulations and guidelines and self-regulatory measures - contracts, industry norms and practices, codes

An important development was the creation of The State Information Technology Agency, SITA, in April, 1999. Its mandate is to serve as the information systems

facility of the State, chiefly responsible for the management and execution of IT-related work for, and on behalf of the Government of South Africa.

The guiding philosophy of the provision of government services is to bring IT Value through cost effectiveness, increased productivity and citizen convenience. The technical pillars of this philosophy rest on minimum information security, interoperability, economies of scale and no duplication. The transition to a Citizen Focused Service Delivery model is expected to offer

- A common service provider model for procurement of IT goods and services
- The removal of duplication through inventory of government systems (central database)
- Integrity of providers with an objective for black economic empowerment
- Partnerships around skills transfer, training and local employment

The first phase in the transition is to strengthen the internal workings of government through the roll-out of a public service technical network, the provision of applications, systems and information and the engagement of local manufacturers and skills.

The second phase of the transition is to create Universal Access involving the expansion of network access devices.

To this end, a number of e-Government initiatives are already underway, including:

- E-justice
- Integrated justice system
- Automated Fingerprint Identification system
- Smart card
- Government wide call centre
- G2G - government wide intranet
- G2C - single electronic window to government services
- Electronic document management systems

Creating the Enabling Policy Environment

An e-commerce policy and legislative framework needs to consider a complex set of issues touching all major aspects of economic life including technology, micro and macro economics, social and political angles and global and national concerns.

A national policy is perceived as important because the growth of e-commerce, as a vehicle into the new Information society/economy, requires transparent, predictable and flexible regulation and legislation in certain areas. The measures must address fundamental legal barriers, security and privacy concerns, lack of understanding and preparedness by those who stand to benefit, the need to ensure harmony and compatibility with the international trading regime, and universal access and service.

Both government and the private sector have a role in addressing challenges, threats, risks and legal barriers presented by e-commerce. The government sees its role as a facilitator fundamentally responsible for laying out a legal and regulatory foundation for e-commerce: a policy instrument to address uncertainties such as validity, legal effect and enforceability of transactions conducted through electronic means. The private sector remains a critical driving force in implementing e-commerce applications, providing technological solutions and using some self-regulatory mechanisms to address challenges.

15. United Republic of Tanzania

Background

Tanzania is situated in East Africa and has a total population of around 33 million. Tanzania is bordered on the south by Mozambique, Malawi, and Zambia; on the west by Zaire, Burundi, and Rwanda; on the north by Uganda and Kenya; and on the east by the Indian Ocean. Tanzania is the largest of the East African nations, and it possesses a geography as mythic as it is spectacular. The country has a surface area of 945 thousand square kilometres and a climate which varies quite a bit, considering that its environment includes both the highest and the lowest points on the continent. While the narrow lowland coastal region is consistently hot and humid, the central regions of Tanzania are sufficiently elevated so as to offer much cooler temperatures. The rainy seasons extend from November to early January and from March to May.

The history of human habitation in Tanzania goes back almost two million years, and the fossils found at Olduvai Gorge by Louis and Mary Leakey now stand among the most important artefacts of the origins of our species. Artefacts of later Paleolithic cultures have also been found in Tanzania. There is evidence that communities along the Tanzanian coast were engaging in overseas trade by the beginning of the first millennium AD. By 900 AD those communities had attracted immigrants from India as well as from southwest Asia, and direct trade extended as far as China. When the Portuguese arrived at the end of the 15th century, they found a major trade centre at Kilwa Kisiwani, which they promptly subjugated and then sacked. The Portuguese were expelled from the region in 1698, after Kilwa enlisted the help of Omani Arabs. The Omani dynasty of the Bu Said replaced the region's Yarubi leaders in 1741, and they proceeded to further develop trade. It was during this time that Zanzibar gained its legendary status as a centre for the ivory and slave trade, becoming in 1841 the capital city of the sultan of Oman.

In Tanzania's interior, at about the same time, the cattle-grazing Maasai migrated south from Kenya into central Tanzania. Soon afterward the great age of European exploration of the African continent began, and with it came colonial domination. Tanzania fell under German control in 1886, but was handed over to Britain after WWI. Present day Tanzania is the result of a merger between the mainland (previously Tanganyika) and Zanzibar in 1964, after both had gained independence. Tanzania has like many African nations experienced considerable strife since independence, and its economy is extremely weak. However, political stability does appear to have been established in recent years.

Today Tanzania has a GDP of around 8.5 billion US dollars with an annual growth of 5%. Figures show very low Internet and computer penetration with 2 personal computers for every 1000 people and 5 telephone mainlines for every 1000 population. Internet hosts in 1999 stood at 0 for every 10000 population.

E-Government

It is an accepted fact that information poverty has been a characteristic of most countries in the African continent and this is not because the planning mechanisms of these countries lack data on which to base various meaningful socio-economic planning exercises but rather the problem has been the inability of African countries to develop and maintain appropriate information infrastructures.

In his speech to the opening of the workshop on elaboration of information and communication policy for the United Republic of Tanzania, in 1997, the Principal Secretary and Secretary to the Planning Commission said that Tanzania had achieved a measure of information generation and processing capacity. Quoting from his speech *"Presently there are information systems which have been developed at micro level in various institutions to meet their information requirements. However these systems are being developed in an uncoordinated approach and utilized in isolation irrespective of their potentiality for meeting cross-sectoral information needs"*

The Principal Secretary noted that Tanzania is committed to the strengthening of the Information and Communications sector and welcomed any support from international communities in the strengthening of this sector. He stated that the information challenges facing Tanzania were immense and Tanzania needed to pursue its efforts to participate in the Global Economy, and the strengthening of the information and communications infrastructure was a prerequisite.

In an earlier survey of On-line Governance by COMNET-IT in association with UNESCO, to which the Tanzania Commission for Science & Technology responded under initiatives for the use of informatics and telematics in government and public service, two examples were given: the Parliament World Wide Web and the Bank of Tanzania World Wide Web.

In addition to the above there are other initiatives which should be mentioned and which are described by Richard Heeks in a background paper on e-Governance in Africa. Quoting from this paper the Government of Tanzania has implemented management control mechanisms through the use of information technology. It has recently launched its integrated human resources and payroll systems covering 280,000 public servants. While the capital invested was significant at around 6.5 million US dollars, the savings already accrued in improved management, reduced ghost workers, improved control and accuracy, mean that the project has already paid for itself. The Government of Tanzania has also implemented an Integrated Financial Management System (IFMS) at all ministries in Dar es Salaam and Dodoma via a wide area network. IFMS has improved control over expenditure management, resulting in more timely and detailed reporting. Internet-enabled versions of both systems will soon be rolled out nationwide.

Another example of the use of information technology for the good of the citizen or community in this case is the case of the Kibidula Farm Institute which provides research and local expertise in health, agriculture and construction techniques in rural

central Tanzania. But there is no running water, no electricity and no efficient means of communication with the outside world. However the Kibidula Farm Institute was then supplied with a solar-powered satellite ground station with email and Internet connectivity. This has provided to address serious local health and medical issues. Subsequently, the Farm used the link to manufacture a single-engine airplane from parts right in the bush and to keep it running through Internet email consultations with the American company that produced the kit. By the late 1990s there were two planes used to get supplies and medical relief to even more remote villages. Citizens therefore receive the benefits of the ICT revolution but indirectly via an intermediary. What accounts for the long-term success of this ICT-based project? First it is a good example of an NGO clearly understanding the needs of its target population. The Farm as an intermediary NGO was able to translate the action dimension of its clientele's needs into corresponding informational components and then to establish a mechanism permitting reliable acquisition of that information on a timely basis. This example shows how NGOs can act as intermediaries between Citizens and ICTs. Once again this example is adopted from Heeks.

Another ICT initiative is Tanzania Online which is a gateway to information on development issues in Tanzania. It is a UNDP/UN, Government of Tanzania and Economic and Social Research Foundation (ESRF) initiative to address problems faced by Government officials, policy makers, private sector, civil society, donor community, researchers and academicians accessing information on development issues in Tanzania. The objective is to provide an interactive facility for easy access to a comprehensive set of documents about development in Tanzania, analytic work about priorities in development and progress towards poverty reduction and other development targets. The expected output of the initiative is an up-to-date online Internet-based database consisting of a comprehensive set of documents in full text on development issues in Tanzania.

Tanzania Online expects to improve access and exchange of information among and between key government institutions, the public, donor community, private sector, civil society, researchers and academicians.

Tanzania Online database includes analytic documents concerning development in Tanzania, work about priorities in development, progress towards poverty reduction and other sector reform developments. The subjects covered are: Education, Agriculture, Mining, Tourism, Trade, Industries, Health, Poverty reduction, Water Environment, Women development, Private sector development, Science and Technology, and others on development issues. The website disseminates its information content in various ways in order to reach various targeted stakeholders:

- Free via the Internet at **<http://www.tzonline.org>**

Anyone from anywhere in the world with an Internet connection can access and download information. A Current Awareness list is e-mailed to users with no Internet access. The output is in text or Portable Document Format (PDF).

Initial funding has been provided by the UN System (through a Swedish Grant) and the Tanzanian Government. Tanzania Online is implemented by ESRF.

Annex: Questionnaire for the Survey

INFORMATION SOUGHT FOR THE DEVELOPMENT OF COUNTRY PROFILES RELATING TO E-GOVERNANCE

1. Non-Government Initiatives:

Can you cite instances exemplifying the use of ICTs by Private Enterprise, Professional Associations or NGOs to influence the conduct of their own business and/or to influence national/local government policy and decisions.

A brief description and any web-site addresses would be appreciated.

For each of these, you might indicate the following:

- Name of initiative and key stakeholders:
- Objective:
- Does the site:
 - provide information only?
 - also provide services?
 - also enable feedback?

- What are the general experiences so far, particularly with regard to the uptake and usefulness of feedback mechanisms?

2. Government Initiatives

- Does Government have any initiatives for the promotion of E-Governance (particularly interacting with citizens electronically)

If yes:

- Can you mention some of the key initiatives?
- Is there any on-line information about these projects? Please provide URL
- Who are the stakeholders?
- What lessons have been learned?
- What issues did your country have to face in the application and implementation of e-Government
- What benefits did your country obtain from the application and implementation of e-Government?
- Could you provide us with any success stories or case studies about the implementation of e-Government in your country?

If no:

- Are there any published or announced plans for the implementation of e-Government?
- Could you provide us with any documentation (preferable online) that outlines of these plans?

3. Telecommunications

- Are there any plans to liberalize telecommunications?
- At what stage are these plans?
- How do you think that these plans will affect the development of e-Governance?
- What are the perceived effects of liberalisation so far?

Has a Telecommunication Regulatory Authority been constituted? If so, can you please provide contact details?