Information and Communication Technology (ICT) 2006-2010

A STRATEGY AND ACTION PLAN FOR GRENADA

**Office of the Prime Minister
St George's
Grenada**

Contents

INTRODUCTION

Information and Communication Technologies (ICT) offer a novel and effective tool to help advance sustainable human development in Grenada. ICT is a new significant factor that can propel performance and growth of the Grenada economy. This Strategy and Action Plan represents Grenada's approach to capturing the potentials of these technologies and to utilizing them for sustainable development and the fight against poverty.

ICT's allow faster delivery of change in a variety of sectors including distance education, telemedicine, environmental management, trade, and in strengthening the participation of social groups and the creation of new livelihoods. ICT facilitates the reaching and embracing of more people being involved and interacting with greater numbers of the citizens.

ICT opens up access to information sources worldwide, promotes networking that transcends the limitations of being a small island. ICT can foster the empowerment of communities, women, youths and socially disadvantaged groups, and helps spread knowledge about "best practices" and experiences. ICT is indispensable in realizing the new information society and the national knowledge-based economy.

KNOWLEDGE-BASED ECONOMY

In the Prime Ministers' Millennium Vision delivered on the 31st December 1999, the Honorable Dr Keith Mitchell proposed the acquisition and

utilization of knowledge as one of the most effective ways of reducing the level of poverty in the domestic economy.

The Prime Minister is convinced that Information and Communication Technology must be embraced as a vital tool in the next phase of Grenada's development.

"My government is totally committed to creating an attractive policy and regulatory environment to facilitate the development ...of Grenada as a Knowledge Society"

The Government also designated the new decade as the Knowledge Enhancement Decade for Grenada, and set out a series of specific objectives to be achieved within the ten-year period.

"At least fifty percent of our human resources [must be] engaged in high-value knowledge-based activities, including information and communication technology, financial services, education, agriculture, tourism, sport and entertainment"

The Grenada government recognizes that the development of a Knowledge-economy requires the intensification and deepening of the domestic capability for acquisition and utilization of knowledge in all sectors of the economy. Grenada will embrace information and communication technologies and use them as development tools.

This Strategy and Action Plan is one more step in the development of Grenada as a knowledge-based economy.

Executive Summary:

Grenada is an independent state comprising three island: Grenada (120 sq miles), Carriacou (13 sq miles) and Petit Martinique. The capital is the city of St.George, situated on the south western part of the mainland. Grenada experiences a warm tropical climate, with two main seasons. The temperature ranges from 20 to 30 degree centigrade with mean temperature of 25 degree centigrade and annual rain fall of 1380 mm with humidity ranging from 65 to 75 %.

The National Strategic Plan will translate the Vision of the Government of Grenada into a set of policies and actions to enable the exploitation of information and communication technologies as a tool of national development. The Plan will seek to put information and communication technologies (ICT) at the centre of Grenada's economic development as a dynamic industry sector in itself, and in support of the development of other sectors of the economy.

The Plan should pursue the following objectives

- Raise and develop awareness, build vision and generate enthusiasm about the advantageous use of ICT in everyday social and economic life
- Design and implement policies to capture information and knowledge for development
- Promote and build connectivity and the necessary infrastructure for access to information and development
- Build required human and social capacities and institutions, and provide training and education to impart requisite skills
- Create new livelihood and employment opportunities;

- Empower communities and disadvantaged groups, reinforce participatory approaches and good governance and foster networking;
- Build a public service that allows and encourages electronic access to public information, and facilitates low-cost electronic transactions with the civil society.

The Plan will take a five-year time horizon, and establish the framework for a knowledge-based society as the platform on which to foster, accelerate and sustain long-term economic development. The development of a knowledge-based society will be through training and re-training, and otherwise strengthening of our human resource through the availability of information and through local information technology service industries and technology applications.

- Integral to the implementation process will be -
- Government's leadership and the commitment of resources
- Smart Partnership with key sectors.
- The involvement of all stakeholders in the execution and the continuing development of the action plan.
- Rigorous pursuit of results within the planned timeframes.

The strategy will also seek to attract local and foreign investors through various investment packages and incentives, sufficient workspace with supporting technology infrastructure, as well as a pool of trained workers and professional staff. Potential investors will be aggressively targeted through a focused promotional strategy.

Collaborative Approach

A collaborative approach will be encouraged for the implementation of the Plan. Private and public sector partnerships will be pursued while benchmarking of international standards.

The role of the international community and the Grenadian private sector will also be actively promoted, particularly in terms of the transfer of information, benchmarking and keeping abreast of developments in the sector. The private sector will be urged and encouraged to take over and drive the continuing growth of the sector.

Government will encourage the private sector to be a partner in building out infrastructure, in developing our human resource, in providing jobs and in taking on development activities.

Government will promote a regional and hemispheric approach to those elements that lend themselves to such cooperation.

Human Resource Development

The human resource strategy will seek to produce trained Grenadian suitable for employment across the full range of ICT activities.

- Formal and non-formal training
- Private sector training initiatives
- E-training over a range of training methods
- The Physically Challenged.
- Scholarship support for talented students.
- Development of an appropriate IT Curriculum to inculcate the IT culture at the Primary, Secondary levels, and in private training institutions.
- Training of trainers to deliver high end programming curricula.

Particular attention will be placed on speeding up the generation of higher end jobs by strengthening our capacity to produce persons trained to international standards as programmers, web managers, and other IT technologists.

Access of Communities to Technology

It is vital that every parish and community in Grenada have effective access to Information and Communication Technology. Identification of the existing and potential community access nodes will be part of the Plan process. The delivery of distance learning modules for Adult Literacy Education through the Community network would be a major thrust. The Plan will incorporate the promotion of IT awareness, accelerate ease of access, facilitate acquisition of hardware promote is utilization.

Specific programs will be implemented to narrow and eliminate the Digital Divide in Grenada society. The introduction of IT in Primary schools will widen the catchments of youth with IT skills and deepen the program already in place in the Secondary schools. Government will bring IT literary training to local communities. During the academic year 2001-02, all Secondary schools Computer labs will be made available for training to citizens after normal schools hours. Adult literacy programs will be intensified

The potentials of the Postal System in supporting community development will be harnessed. The Government will encourage and support an action plan for the building of an electronic infrastructure for the Post Offices. The Social Services departments of Government and the NGO's will be mobilized for hands-on development at the village and community levels. The delivery of distance learning modules for Adult Literacy Education through the Community network has already begun and will be

expanded and accelerated the plan will also address the promotion of e-Commerce and e-Government strategies.

Project Management

A central administrative and technical Unit will be established to manage the implementation of the ICT Plan. This requirement is dictated by the critical nature of the Plan, the need to manage the collaboration between Ministries and Agencies with respect to the national IT policy, and the need to maintain efficiencies and the timeframes.

BUILDING AN INFORMATION SOCIETY IN GRENADA

Prime Minister Dr. Keith Mitchell

VISION

"My government is totally committed to the development of Grenada as a Knowledge Society by 2010."

MISSION

To put Information and Communication Technologies (ICT) at the center of Grenada's social and economic development as a dynamic industry sector in itself, and in support of the development of other sectors of the economy

To establish a knowledge-based society as the platform on which to foster, accelerate and sustain long-term social, cultural and economic development.

The Government is committed to raising the quality of life in Grenada to the highest attainable levels. In striving for this goal it will actively promote and utilize Information and Communication Technology to the widest possible extent, as a means of strengthening the economy, creating jobs, ensuring social equity and enhancing education and culture. The Government will ensure that all citizens participate in the creation of, and benefit from, the additional social, cultural and economic wealth that will be created.

STRATEGY

The Government will create an enabling environment to attract local and foreign investors through appropriate policies, legislation and improved public sector efficiency.

- The strategic intent of the government is to enable affordable access to global information to all its citizens including disadvantaged persons.
- The strategy will seek to pursue a sustainable process of action and review which is based on the synergistic development of:
- Education and training to develop human resources in the necessary ICT and business skills;
- Use of ICT to expand the horizons and capacity of existing businesses and recruit new business to Grenada;
- Deepening the use of ICT in governance to increase its efficiency and transparency in particular in support of 1 and 2 above;
- The implementation of a focused promotional strategy, directed at the business and government sectors and civil society

Underlying Principles

The following Principles underpin the strategy that the Government will pursue in the achievement of this Mission:
- All Grenadians 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.
- The Government will actively promote the creation of the Information Society and the Information Economy via the provision of transactional on-line e-Government Services.
- The 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.

Vision of Grenada in the Information Age

Over the next five years a deep transformation will take place in the Grenada society and economy. This transformation will take place as the Government, in close partnership with the private sector, strives energetically towards the attainment of an Information Society and an Information Economy.

The vision is that in a few years the following will be achieved:

Service will improve

Citizens will benefit from one-stop, timely, high-quality and easily accessible electronic services provided by both the Public and the Private Sectors. The Government will provide its services over the Internet and citizens will be served at whatever time of day from home or work place, while still opting to utilize traditional service channels if they so desire. Businesses will also offer their services to consumers over the Internet on a 24x7 basis.

Accessibility be universal

Information and Communication Technology will become fully accessible nationwide; at least 50% of the population will have connection to electronic services, and there will be widespread accessibility to services

and digital participation in economic, cultural and social life via multiple solutions that Technology now provides.

Education will be Universal

The Education and Training system will

- Address the formation of a knowledge society trained to take full advantage of the benefits of Information and Communication Technology.
- Produce a crop of IT professionals of the highest calibre, and in the numbers required to achieve the transition to an e-Society and a K-Economy.
- Promote lifelong education initiatives by the Government in partnership with the private sector, voluntary organizations and other bodies.
- All citizens from all walks of life will have the opportunity to participate in the Information Society and Knowledge Economy

The Economy will thrive

Grenada businesses will thrive as opportunities are opened to them by way of access to a Global Market and a reduction in internal process costs that result from the adoption of e-Commerce solutions. The widespread demand for comprehensive e-Commerce solutions and Web development will boost the local IT industry.

The leap in demand by businesses for e-Commerce solutions and the implementation of e-Government Services will, in turn, generate a sizeable demand for highly skilled IT professionals. This situation will produce a significant amount of high value-added jobs for our youths.

The Government will effect all its business-to-business (B2B) transactions electronically, not only in order to optimize its resource utilization, but also to encourage corresponding businesses to take up e-Commerce. B2B

electronic interaction will become a matter of course throughout the economy.

Communications will be of the highest standard and will be affordable:

The Communications infrastructure will be of the highest standards, giving users high-bandwidth, low cost, reliable and secure access to the Internet, via a host of access channels. The access channels will be used interchangeably and users will be able to interact across diverse electronic channels. Users will have the opportunity to choose among a number of Communications service-providers.

The liberalization process in the telecommunications sector will bring about an overall increase in efficiency and quality of service as well as a general lowering of costs and prices to the benefit of the consumer. These improvements will enhance social inclusion as well as increase the competitiveness of the economy.

STRATEGIC THRUSTS

Achieving this Vision will entail the collective effort of the forces that make up Grenadian Society and Economy. It will be achieved via a series of strategic thrusts, which will require the Government, in collaboration with the Private sector, to set the scene.

The main strategic thrusts will be the following:

- The undertaking of a national capacity-building exercise in collaboration with the Private Sector, aimed at the attainment of an Information Society and an Information Economy in Grenada – primarily the:

- Development of a legal framework that will regulate and, more significantly, facilitate all forms of electronic interaction.

- Promotion of the widespread use of the Internet in Grenada.

- Promotion of widespread utilization of e-Commerce in Grenadian businesses, and developing the Information industry in Grenada

- Provision of IT and Internet education and training to all sectors of the Grenadian society.

- <u>Provision of mail and free access to e-Government Services to everyone as the means to accelerate Internet uptake</u>.

- Establishment of kiosks in selected sites to allow citizens access to e-government services

- Development of a high quality and affordable telecommunications infrastructure.

- The establishment of a permanent National Commission that will act as a catalyst for the ongoing development of an Information Society and an Information economy in Grenada.

- The implementation of e-Government that will enable the provision of all Public Services on-line.

BUILDING THE NATIONAL CAPACITY

INFRASTRUCTURE DEVELOPMENT

The implementation of the Strategic objectives to bring about the Information Society and Economy in Grenada will require the collective efforts of the Public and Private Sectors. This public-private partnership is necessary to implement e-Government, e-Commerce, and to build the national capacities in information, knowledge, skills and the utilization of digital technologies.

The Government will stimulate the development of the Information Society and the Information Economy by providing the regulatory, financial and institutional infrastructure necessary for the creation of the ideal environment, which will in turn bring about the proliferation of electronic interaction. It will encourage the private sector to develop the technical infrastructure at a national and at a micro levels and to develop and adopt e-Commerce solutions. The Private Sector will also have the opportunity to participate actively in several national capacity-building exercises.

THE PHYSICAL INFRASTRUCTURE:

Government's strategy will be to enable a physical infrastructure architecture encompassing all attributes, and criteria that will allow ICT to be the medium through which Grenada will become a knowledge-based society in the Knowledge enhancement decade. In that regard, it will promote a high quality and affordable Telecommunication Infrastructure.

In addressing the need for appropriate and reliable Physical infrastructure, the Government commits to the following principles:

- We will conform with all internationally accepted standards

- Review all options of interconnectivity for all national and international access

- We will develop an appropriate infrastructure framework and access to meet the stated objectives consistent with the socio-economic environment

- Securing fast and reliable connectivity and value for money by driving through the deregulation process..

- Our framework will ensure that Grenada is not locked into a single supplier mode

- We will provide ease of access through the provision of convenient access points nationally

- We will strive to deliver affordable access consistent with our socio economic environment

- We will facilitate the development of national infrastructure with the capacity to support the delivery of integrated voice, data, and video

- We will continuously track and adapt developments in ICT in line with changing requirements

- We will seek strategic partners to facilitate the creation of the various components of the information society

- We will build capacity to ensure the delivery of integrated voice, data and video

- The infrastructure will have capacity to support distance and on-line teaching and learning

- We will deploy scaleable technology which will accommodate new requirements as and when needed

- The infrastructure will be deployed in such a manner as to possess full e-commerce capabilities, reflecting the need to provide for:
  - ICT Infrastructure
  - ICT Industry Development
  - Modernizing Government
  - Education and training
  - Regulation and Legal Infrastructure

Mindful of the weaknesses in the current infrastructure, government will undertake action aimed at the following:

(a) Filling gaps in Infrastructure

- Reconciling speed with due diligence and transparency of process in licensing new carriers.
- Ensuring the availability of wholesale pricing from the incumbent carrier for the new carriers.
- Developing local online payment facilities for E-Commerce.
- Reclassification where necessary of the import duties on hardware and software to facilitate the development of ICT related business.
- Provision of a joint bonded warehousing facility to improve the local distribution network especially for smaller businesses.
- Working together with other Caribbean countries through OECS, CARICOM or other joint forums to define common requirements, provide integrated services and establish stronger negotiating positions.

(b) Improving interconnectivity of ICT infrastructure

- Negotiating bi-lateral agreements to ensure that voice and data traffic are exchanged within the region and not routed over expensive international bandwidth. Eliminating restrictions to the provision of common regional services such as Roaming, online learning, and e-business developments.

(c) Relating infrastructure provision to developing ICT services

- Developing a mechanism to provide accurate forecasts of future local market requirements for connectivity so as to give potential suppliers of connectivity an indication of aggregate demand and thus pull through new provision;
- Ensuring that the proposed business park/incubator facility has state of the art connectivity as well as 24/7 engineering support.
- Ensure that the network servicing the Government of Grenada is scalable and adequately sized to meet current and future needs, especially for e-government and education

(d) Developing a High Quality and affordable Telecommunications Infrastructure

The maximization of existing telecommunications infrastructures and the opening up of competition in the field are important steps in the context of the attainment of the Information Society and Knowledge Economy

Allowing the local Cable TV services provider to expand into data services to the public is a logical step both insofar as it concerns the maximization of the national telecommunications infrastructure as well as the opening up of competition in the field.

Open competition in the telecommunications field, which is a stated policy direction of Government, will bring prices down and improve the service, thereby making the Internet an affordable and attractive proposition to the wider population.

The liberalization of the telecommunications industry in Grenada is therefore critical for the expansion of e-Commerce. This area will now be addressed by the Private Sector, with the Government providing the regulatory environment that is necessary for the effective functioning of the sector.

DEVELOPING HUMAN RESOURCES EDUCATION AND TRAINING

The objective is to put Knowledge at the centre of the nation's social and economic development, and secure the development of Grenada as a Knowledge Society.

Education is key to this strategy as the backbone of the knowledge society whose social and economic value is already widely accepted. The aim is to use the ICT strategy to accelerate general improvements of basic skills in literacy, numeracy, and in the conduct of business and, as necessary, to deliver particular targeted education packages for current and potential employees.

The target will be to reflect world standards and resources configured for local needs.

DEVELOPING THE HUMAN RESOURCE CAPACITY

The Government of Grenada has long recognized the strategic importance of Education and training as the principal instrument of economic and social development. Its ICT strategy began by the placing of IT Labs in all the Secondary schools of the nation. This has already

enabled the significant growth of basic computer literacy and skills among those of school-age population.

Government recognizes the need to both widen and deepen this process, and therefore undertakes to pursue the following:

- **We will provide an enabling environment to facilitate ICT literacy for all citizens**

- As a priority we will develop programmes to ensure that all Ministers, Permanent Secretaries and other Senior Officers are ICT competent

- We will develop and implement an ICT public awareness program to promote the value of the use of ICT in our daily lives.

- We will train the government's workforce in the basic competencies of ICTs

- We will train large numbers of persons in the labor force with relevant information technology skills that will contribute to new revenue streams that are ICT enabled

- We will provide incentives for businesses to train their workforce with relevant information technology skills that will contribute to new revenue streams that are ICT enabled

- We will train all teachers in the use of ICT, and in its integration in the curriculum for teaching and learning

- We will ensure that all teachers are provided with a personal computer and access to the internet

- We will train large numbers of persons in the labour force with the relevant information technology skills that will contribute to new revenue streams that are ICT enabled

- We will encourage the emergence and development of private sector training institutions

- We will provide suitable programs to upgrade the functional literacy of all our citizens so that they are able to participate fully in the new economy

- We will provide an enabling environment to ensure lifelong learning for all citizens

- We will provide all our citizens with the basic competencies in the use of ICT

- We will train all Teachers in the use of ICT, and ensure its integration into the Curriculum for teaching and learning

- We will ensure that all teachers are provided with a personal computer and access to the Internet. The objective is to facilitate teachers having a PC in their homes to develop competencies which will enhance teaching and learning of students in the classroom.

- We will establish an *Technology Education Task Force* to complete the development of an holistic ICT Plan for education and commence its implementation without delay.

Teacher Education And Engagement

Teachers are the front line troops in the development of the e-economy in Grenada. They will be accorded the status, facilities and role of key change agents not only in delivering the skills of the next generation, but for their influence over the community. The highest priority must be given to their engagement and support.

In this role, efforts would be made to create teachers' forums and other mechanisms that help generate teacher ownership of the education element of the strategy and set detailed priorities with it. In line with Smart Partnership principles, teachers' Union leaders will be enlisted firmly behind the strategy, recognizing the key role the K-economy approach gives to education, and the future possibilities for the expansion of the education industry.

Engaging Civil Society: Open Door Strategy

Schools and libraries will be developed as local resources centers, opening their doors to the community after normal hours for the use of the new technology. They should promote ICT and skills as an enabling tool: empowering individuals and the institutions of civil society to better achieve their current ambitions and broaden their horizons. The open-door institutions should be distinctly branded, with recognizable logos and signage, perhaps as 'Grenada ICT Strategy Smart Partner'. The open door itself might be adopted as a symbol for the new strategy.

This effort will give particular emphasis on:
   a.   Remedial literacy teaching
   b.   Specific Skills development
   c.   Use of School and Community based facilities
   d.   Involvement of NGO's

This bottom-up approach should lead to attempts to develop, value and make more visible the cultural and environmental knowledge resident in Grenada itself, and market this as appropriate;

The strategy should make special efforts to address the needs of the relatively disadvantaged and socially excluded members of society. This is another strategy element that not only embodies social justice but can help ensure wider recognition and social legitimacy for the initiative as a whole.

Delivering Curricular Change

There are enormous opportunities for sharing experiences at a regional level at all stages of this strategy, but particularly in the development of educational provision. Properly structured dialogues involving regional participants may be one of the most cost-effective routes to opening

doors for individuals and institutions involved in education and training at all levels;

However, use of ICT in education is not a panacea. Educational software can be technically smart, but socially impoverished. The changes in teaching method which the new technology typically requires at primary and secondary levels, such as allowing people to progress at their own pace, need to be also socially enhancing. Grenada and the Region need to have a reflective and evaluative rather than purely technocratic approach to managing change in curricula and teaching methods. We should aim at a teaching and learning framework and a network that add local and regional socio-cultural values to support and strengthen curriculum restructuring.

At tertiary level the main curricula needs are to ensure that training in ICT reflects changing national standards so as to attract local and international entrepreneurship and capital; and to ensure that it is buttressed by the development of general business skills. Developing a consciousness of world business standards and approaches to maximize markets revenues is a key process in reinvigorating the traditional market sectors. T A Marryshow College, already developing strategic partnerships with UWI and with St George's University, is well placed to help consolidate local needs, and select, adapt and deliver from international online education and training options in line with national requirements. Smart Partnerships in delivery should seek to also develop partnerships between public and private sector to define and share the cost of effecting specific training requirements geared to investment in jobs and infrastructure. This would include product certification and the kind of

systems and software engineering support required to underpin any policy initiative on this scale

A Regional Educational And Training Role For Grenada

It is disappointing that significant amount of the ICT training for the Region takes place outside the region. This seems to be mainly a function of the lack of regional definition of goals and targets, and the absence of central focus and priority to assign resources to create a regional center of IT competence. Grenada could become the centre for regional IT Training. A strategy for establishing Grenada as a major Hub for education and training in ICT needs to be developed. It would benefit the Region, yield significant local spillovers, and expose the island and its virtual incubator/business park to new business opportunities.

Education and Training objectives

The Government, in collaboration with the Private Sector, will accelerate and upgrade those initiatives aimed at providing widespread digital literacy and producing a cohort of IT specialists to satisfy the labour shortage that will inevitably occur. These initiatives will extend beyond the formal education ; and their implementation will involve the Private Sector, the Ministry of Education, other public organizations, community organizations, NGO's, and as many other interested organizations as possible.

The envisaged initiatives will develop along the following lines:

(i)   IT literacy in Schools

The Education initiatives in Secondary school has been a success. Those initiatives need to be deepened, and extended to the Primary schools. The original program will be evaluated and refashioned to achieve the specific ends of supplying marketable skills and competence beyond mere literacy. The implementation of widespread Internet access and the increased training of primary and Secondary school Teachers in Internet competences will also characterize the next phase of IT education.

(ii)   Life-long learning

There are major segments of the adult population which had had little or no exposure to digital literacy. If they are to be enticed to utilize the new services, relevant initiatives to educate them must be undertaken. Community level training will be intensified and made easily available on a large scale. The use of the schools Lab facilities after normal school hours will be embraced to widen and speed up the process. Basic literacy skills, e-literacy skills, Internet skills, the use of standard software packages will characterize the community level training.

(iii)   Vocational Training and Certification

The IT literacy and competency training would be stepped up in a focused manner with a view to increasing the chances of employability of the unemployed segment of the population as well as providing digital literacy for those already in employment, thereby ensuring that the workforce will be prepared for the inevitable transformation that it will face in the coming years.

Consideration would be given to providing incentives packages to firms that organize IT literacy courses for their own staff. Workers initiatives to

upgrade their computer skills will also be recognized and supported. The Private Sector institutions that offer Computer training will be encouraged to become more active. Tailored courses could be drawn up and delivered by private sector training firms, following the necessary accreditation. These firms will play a major role in the generation of IT technicians and professionals.

Online training will be encouraged and promoted as an effective cost-effective rout to this end.

Consideration will be given to adopting European Computer Driving License (ECDL), or its equivalent, as the official minimal requirement for IT literacy. This form of recognition is important as an ever-increasing number of employers, including the Public Service, will be looking for an official certification of IT literacy of their prospective employees. The widespread adoption of the ECDL certification will mean that the local workforce will have certification that is internationally recognized.

(iv) Tertiary Education

The Government will target the TA Marryshow Community College as the focal point to spearhead development at this level. The College will be encouraged to look to joint venture approaches with universities aboard as well as the use of on-line teaching as a low cost approach to achieving our target of professional training to the level of internationally accepted competence.

(v) Skill Targets

The government will encourage and support of the production of certain priority skills that will be in demand by the New Economy. The various education and training programs in the public and the private sector s will

target the development of skilled Information Technology workers, including the following:

    i.   Keyboard skills
    ii.   Speech and Marketing skills
   iii.   Transcriptions
   iv.   Programming
    v.   Hardware assembly and maintenance
   vi.   Scanning and digitizing
  vii.   CAD
 viii.   GIS
   ix.   Animation
    x.   Imaging
   xi.   Desktop publishing
  xii.   Database design, development and management
 xiii.   Internet professional skills
 xiv.   Network professionals (design, build, maintain).

(vi) Teaching and Training in the Work-place

Government will encourage and support the private sector efforts to develop ICT competence in the labour force. This could include

   a.   Encouraging private businesses to undertake in-house training
   b.   Encouraging the development of private sector training institutes
   c.   Promoting the capacities in Consultancy
   d.   Links to overseas training and on-line academies

(vii) We Will Modernizing The Education Process

In making the classroom relevant to the New Economy, steps will be taken to:

o   Re-define the content and the role of Education in the New Economy
o   Update and modernize the Curriculum content
o   Provide Computer Labs in all schools, and in some classrooms
o   Network ALL schools and provide system support

- o   Develop Electronic Libraries (Website & Links)
- o   Promote and facilitate self-learning and life-long learning
- o   Develop the habit and techniques of research
- o   Teach proper regard for Copyrights and Intellectual Property
- o   Establish a body responsible for Education Technology
- o   Facilitate and support Distance Teaching and Learning

REGULATORY AND LEGAL INFRASTRUCTURE

Objects

The objects of building a legal and regulatory infrastructure are:

- To enhance the reputation of Grenada as an international e-business centre;

- To facilitate electronic transactions on a technology neutral basis by means of reliable electronic records;

- To remove uncertainties in conducting transactions electronically with respect to the requirements for documents and for signatures to be in writing;

- To promote public confidence in the validity, integrity and reliability of conducting transactions electronically; and

- To promote the development of the legal and business infrastructure necessary to implement electronic transactions securely.

Regulatory policy

Transactions carried out by electronic means shall be regulated in a manner that:

- Permits and encourages the growth of business by electronic means through the operation of free market forces;

- Promotes the greatest possible use of industry self-regulation;

- Is flexible; and

- Is technologically neutral.

Legislation will be enacted to establish the legal principles for the conduct of e-commerce and the processing of electronic transactions. It would seek to provide a secure legal foundation for the conduct of various forms of electronic transactions, including the use and recognition of digital documentation, and Emails transfers on a technology neutral basis.

The proposed legislation would be sufficiently flexible to accommodate new technological developments and leave room for the market to determine the future of e-commerce

The legislation would provide significant flexibility, enabling parties to an electronic transaction to tailor a transaction (or series of transactions) to suit their telecommunication, legal or system requirements.

An initial omnibus Electronic Transactions Bill will therefore be prepared to provide for:

o   Electronic Commerce: establishing a secure legal basis for electronic communications, contracts, signatures and transactions, and the establishment of a framework for Certification Authorities and their regulation.

o   Data Protection: to ensure the protection of data, in order to protect the rights of individuals vis-à-vis personal information.

o   Computer Misuse: to criminalizes offences relating to the misuse of computers and related paraphernalia.

Legal provisions have already been made in the setting up of the offices of the telecommunications regulator with the establishment of ECTEL and the National Telecommunication Regulatory Commission.

Some Guidelines for Legislation

New Legislation would cover major issues such as:

1. Recognition of electronic records - evidentiary weight:

Legislation should provide that information would not be denied legal effect, validity, admissibility or enforceability solely on the ground that it is in the form of an electronic record, or that, if such evidence is the best evidence, it will not be denied admissibility on the grounds that it is not in original form. For evidentiary purposes applied criteria should focus on the reliability of the manner in which the electronic record was generated, stored or communicated, the reliability of the manner in which the integrity of the information was maintained, or the manner in which the originator was identified.

2. Writing:

Some documents are required or described as a matter of law to be "in writing". The legislation must provide that a legal requirement for "writing", or a description of something as being "in writing", is satisfied by an electronic record if the record is accessible and can be retained for subsequent reference.

3. Original form:

Many jurisdictions require individuals or companies to maintain written records. Legislation should establish the minimum requirements for an electronic record to be regarded as the functional equivalent of an original. Where the law requires information to be presented or retained in its original form, an electronic record could be defined to meet that requirement if the integrity of the information can be reliably assured.

4. Signatures:

It is already acceptable in law that a contract could still be binding even if it is not physically signed. A signature is often only required for evidentiary purposes. The Act provides that an electronic record meets that requirement if the method of identifying the signatory meets certain requirements (i.e. an electronic signature or electronic certificate).

5. Certification Service Providers:

The legislation should make provision for authorizing certification service providers to issue accredited certificates that confirm the veracity of an electronic signature. It should recognize certificates and certification service providers for any other jurisdiction. [Insurance companies have a new potential market in the insurance of the liability of such certification service providers if one of their certificates turns out to be wrongly issued, causing loss to those who relied on it.

6. Formation and validity of contracts and acknowledgement:

The legal principle of offer and acceptance, developed over many centuries, is one of the basic requirements for the formation of a contract. Legislation would need to provide that an offer and the acceptance of an offer may be expressed by means of an electronic record. It should establish rules of acknowledgment of receipt of an electronic record.

7. Virtual companies

Legislation would need to determine whether an offshore company, which merely offers goods and services electronically from a web site hosted in Grenada or transacts business through a server in Grenada, will be regarded as carrying on business in Grenada, and whether that company will be required to apply to the Government for a permit or incorporate a Grenada company; whether an overseas company with

merely "virtual" presence status can claim to do business in Grenada by using, for example, a Grenada address or Grenadian domain name.

8. Encryption:

The legislation must make provision for regulations respecting the lawful acquisition, use, import and export of encryption programs or other encryption methods. The Police must be empowered to seize encryption software. Magistrates/Judges must be empowered to direct persons to provide assistance necessary to decode encrypted information.

9. Liability of intermediaries:

The legislation should make provision for clear definition of the liabilities of Internet Service Providers, and others, for information transmitted over the Internet. The legislation may determine that an ISP or other intermediary who acts only as a conduit is not liable for the content of electronic records provided that the intermediary has no actual knowledge or is not aware of facts that would objectively indicate a likelihood of civil or criminal liability in respect of material on the intermediary's network.

10. Personal data (Data protection):

Legislation should make provision for the protection of personal data. Provision should be made for the development of standards relating to personal data.

11. Standards and Code of Conduct
     Key Principles

Standards must be established to guide the quality of transactional behaviour of intermediaries and e-commerce service providers, to protect the name and reputation of Grenada as an international business centre.

The Standards should apply to intermediaries and e-commerce
service providers who are carrying on a trade or business or conducting
commercial transactions or services in or from within Grenada, or which
are
identified with Grenada, and whose transactions or services either
themselves take place electronically or which assist others to do so, or
which relate to business carried out electronically.

Intermediaries and e-commerce service providers shall be required to
observe Business Procedures and make every reasonable effort to
introduce and maintain systems, procedures and practices which
achieve material realization of the Standards

Minimum standards for intermediaries and e-commerce service providers
would include:

(i) **Observation of Business Integrity;** avoid prohibited and undesirable activities

(ii) **Knowing the Customer**, and not knowingly aid or abet any undesirable activities.

(iii) **Knowing their Own Business well**; informing themselves and exercising good judgments so as not knowingly to render any service in respect of any electronic record or information which contravenes or which ought reasonably to be considered as likely to contravene or already to have contravened the established laws.

(iv) **Protecting Personal Data**, and accordingly respect the privacy, accuracy and security of personal information.

(v) **Avoiding Abusive Usage**; (e.g. not sending bulk unsolicited emails, or seeking unauthorized access to other peoples' systems or seeking to interrupt other people's use of electronic communications, or enabling others to do so.

(vi) **Advertising Truthfully**; and accordingly not misleading customers as to the nature, quality or purposes of goods or services sold through the business.

(vii) **Dealing Fairly and Openly with Customers**, and accordingly trading and settling with customers in an honest transparent manner which has regard to the reputation of Grenada as an international business centre.

(viii) *Settling Complaints and Disputes Quickly and Fairly,* and accordingly establishing convenient methods of receiving and dealing with complaints and for the swift, convenient and fair settlement of disputes.

FINANCIAL INFRASTRUCTURE

The financial system is critical to the growth of the New Economy, to the development of e-Commerce and to the introduction and expansion of electronic methods of payments in Grenada. If the Commercial Banks, Insurance companies and other financial institutions are reluctant to participate in the cutting edge of e-Commerce development in Grenada then it becomes impossible for Country to exploit these new developments, and Grenada will be left behind in the backwaters of under development.

Mindful of this the Government will seek to encourage the financial institutions to play a positive, innovative and aggressive role in the emergence of the e-economy in Grenada.

The Government therefore proposes to embark on a positive and supportive course of action, including the following:

We will encourage and support the establishment of an Association of Bankers in Grenada

We will encourage and support the introduction of electronic payment technologies for domestic and foreign purchases

We will encourage the development of electronic banking including Internet banking

We will encourage and support the development of electronic inter-bank transactions and settlements including "switching" and common ATM's

We will encourage banks and other financial agencies to provide special and concessionary loan packages to facilitate the purchases of computers by householders of all income groups; and to facilitate Grenada's Small Business sector.

We will utilize electronic technologies to facilitate and simplify the payments of public servants through the commercial banks

We will introduce appropriate legal reforms to encourage and support electronic financial transitions, electronic legal communications and electronic documentation

We will commit at least 5% of the National Budget to ICT promotion and development

We will approach and negotiate with external agencies for funding and technical assistance for the ICT sector

We will encourage foreign private direct investment into the local ICT sector

DEVELOPMENT OF ICT INDUSTRY

(a)   Key Principles
- The vision of ICT is to be used as a tool to enable economic growth and not the exclusive source of that growth.
- ICT would be the basis for new business as well as a means to increase the efficiency and marketability of established sectors. Concentrating on the latter in the early stages of the exercise may yield early benefits and will be a route to wider social identification with the policy;
- The capital requirements for implementation of ICT for economic growth in Grenada will necessitate creative (Smart) partnerships between government the private sector and other funding sources including civil society. However where tax revenues are expended for that purpose, there should be prior input/output analysis to ensure net positive returns on the investment.
- The potential for synergy should be a guiding principle in the identification of entrants and a strong element in promoting Grenada.

(b)   Fostering Entrepreneurship
- For ICT business to flourish it requires a suitable enabling environment as will facilitate business development in general.

- One specific thrust should be developing business as well as ICT competencies to world-class standards.
- Creation of a network to provide continually updated information about the ICT sector in order to enable National and Regional companies to update standards and reach new markets.
- Enable the growth of local business through affirmative action measures consistent with WTO agreements. Removal of barriers to entrance should be considered in co-ordination with the development of incentives.
- The Smart Partnership concept of "prosper thy neighbour" should underpin the relationships between participants in this new economy.
- Use ICT to create a virtual business incubator which would handshake to venture capital, provide business advice, help protect Intellectual Property Rights, audit technology and access markets.

(c)   **Access to Capital**
- Public/Private (Smart) partnerships may provide funding to jumpstart certain ICT industries, with private sector funding as the preferred source for capital.
- In addition to the traditional sources, innovative funding mechanisms such as the existing ICT training loans and the use of Mutual Fund (Unit Trust) arrangements to wider social participation in the new economy, should be explored.

(d)   **Encouraging IT investment by the Private Sector**
The Government will promote IT investment in the private sector. It will assist and facilitate those businesses that are willing to invest in hardware, software and technical assistance targeted at e-Commerce solutions and web-presence. The existing aids to investment schemes will be fine-tuned to cater for this particular type of investment.
In addition, the Government will nurture existing and new IT businesses, whether locally or foreign owned. A special package of incentives will be drawn up with the specific intent of building up this sector.

Government recognizes that market forces themselves that will push the growth of the local IT industry as well as the widespread uptake of eCommerce solutions by Grenada businesses. The role of the Government will be to ensure that any barriers and unnecessary regulation that might inhibit such growth are

removed, and that the necessary aids to investment in this field are readily available.

(e)   Work Space Infrastructure

The establishment of workspace for the provision of jobs has become one of the elements of incentive to attract investors operating in a knife-edge competitive environment.

Government will seek to promote the availability of workspace, including factory shells and office buildings. Private sector partners will also be encouraged to invest in developing these facilities. Government will consider positively a joint approach to such ventures.

The object will be to encourage the location of such facilities in areas of relevant an advantageous infrastructure, and where there is a catchment of trained and trainable human resource. Advantage will be taken of the existence of available unused structures that lend themselves to easy conversion.

Government will consider the provision of such workspace that would allow for economies in the use of shared facilities, infrastructure, and transmission equipment

The Grenada Industrial Development Corporation already has active plans for the provision of 20-30,000 square metres of workspace in a location near to the Point Salines international Airport

Modernizing Government

Key principles

The Government of Grenada has clearly recognized that developing a K-economy in the context of globalization requires an adaptive government, fast on its feet to identify and exploit new opportunities. It also requires increased efficiencies in the provision of public services, to yield new revenue streams within government, and thereby create space for investment in changing priorities.   Within the current structure of government, a number of initiatives might be considered that embody the best of the 'new public sector management' techniques noticeable

in Europe and North American in the last decade or so. The principle of separating policy setting and evaluation, on the one hand, from service delivery, on the other, opens the possibility of excising some public services on a case-by-case basis and contracting out their delivery by quasi-independent agencies or public-private partnerships. These models will be actively explored.

Like other elements of this strategy, employing ICT to modernize government must express clear utility values which would set criteria for determining the priority for implementation;

If the aim of gearing up Grenada's economy is to be achieved through this strategy, virtually every investment in ICT to achieve efficiency and transparency in public service delivery must be justified by its support to the other objectives set out in this Strategic Plan. Most notable amongst these are the development of e-commerce and the provision of an enabling environment for world-class ICT industry;

The implementation of e-Government as a major strategic thrust in the engendering of an Information Society and an Information Economy is vital to the overall national effort of creating the knowledge-based economy in Grenada.
Accordingly, the implementation of a modernized e-Government programme will be configured around the following:

- As part of the Public Sector Reform programme,
- As a means of providing improved quality service to the Public,
- In providing cost-effective solutions to several management problems in Government
- Lowering costs
- Maximizing revenues
- Modernizing the level of efficiency in the public sector.

Government is both a user and a provider of services. In both cases, it is a large and dominant player in the economy. Its roles and impact will be major determinants of the pace of ICT development in Grenada. Government will take the lead to initiate advances in IT by increasing its e-Government services to the population.

In doing so the Government will follow the following strategy:
- Building e-government presence (Portal and websites)
- Thinking big (Plan the full range of service and coverage)
- Starting small (start with what can be readily deliverable)
- Scaling up fast (expand the service quickly in response to citizens' demand)

The overall goal of the Grenada's e-government strategy will be citizen-centric, focusing on the delivery of improved levels of customer service and enhanced citizen satisfaction. It will begin with information, and quickly graduate to various electronic transactions to meet citizens' demand and readiness. In addition to citizen satisfaction, e-government will focus on efficiency factors, cost reduction and revenue generation.

INSTITUTIONAL & MANAGERIAL INFRASTRUCTURE

The Plan seeks to:

1. Propose leadership/Director for the entire process.

2. Establish a **national coordinating advisory council** headed by a private sector professional and comprising of private sector, public sector and NGO representatives. This body will report to the Minister of ICT.

3. Create the government entity (Central Information Management Agency, CIMA) with the responsibility for the completion of the development of the Plan and to take ownership for its implementation. Amongst others, this body will serve as a secretariat to the national coordinating body and mobilize the national effort in the delivery of the ICT Plan

4. Appoint an executive level director/leader within the new entity with responsibility to deliver the plan. The person should be of high technological and managerial capability and experience.

5. Develop a Budget for the entity for the management, completion and implementation of the strategic ICT Plan

6. Develop a strategy for mobilizing the finance required to implement the national IT programme. The establishment of a technology development/loan fund offers one approach.

7. Identify those aspect of the Plan that requires immediate implementation

8. Conduct national surveys to determine the capital and intellectual stock as it relates to ICT

9. As a matter of urgency establish an *Educational Technology Task Force* to complete the development of an holistic ICT plan for education and commence its implementation.

10. Establish *Technology Evaluation And Procurement Council* to interface between government and the vendors of technology systems in the ICT sector.

PROMOTING UNIVERSAL UPTAKE OF THE INTERNET

A major challenge to the Government in the implementation of the Information Society and K-economy will be the stimulation of the demand for e-Commerce and Public e-Services. The Government will, together with entities in the business sector and in collaboration with the telecommunications carriers and ISP's, and other service providers undertake a concerted Communications Strategy targeted at the take-up of e-Business solutions by businesses; and Internet and e-Commerce usage by individual and corporate citizens.

Three potential initiatives will be aimed at promoting the popularization and use of the Internet in Grenada in order to justify e-commerce and e-Government, and to build capacity utilization at a national level.
These are:

> - **The dissemination of e-mail on a national scale**
> - **The creation of a Grenada Internet Exchange**
> - **National Free Grenada Internet**

The Dissemination of e-mail on a national scale
E-mail is considered to be one of the first and fundamental e-services to implement.

It is therefore proposed that a national e-mail system be established allowing all citizens to be addressable and reachable in electronic format and to be able to access and utilize an e-mail account.

In the context of e-government, the automatic addressability of all potential users of the service would be a major benefit.

The availability of a single address which could be used for life would, apart from promoting a strong e-government presence, and encouraging

e-commerce, would facilitate the adoption of a Certification Authority related to the issuance of qualified certificates vis-à-vis advanced electronic signatures required for access to e-Government services, since each certificate issued to a citizen for the purposes of effecting secure transactions with the e-government service must be associated with a specific e-address.

A Common National Database would be required and each person could be automatically allocated an e-address. The e-addresses would be initially marked inactive, and would only become fully active upon completion of a free voluntary registration procedure. The registration procedure should include an opt-in option to additionally list all registered users in a publicly available web-based e-mail directory.

The national e-mail system should be available either free of charge or at an low basic cost. The access path should be Internet based, preferably through the use of a web interface, (although it is envisaged that other alternatives based on a simple dial-up or other mechanisms could be available).

It is recommended that the e-address allocated to each person would be a permanent one. Users should be able to easily configure their address to redirect e-mail to any other email address of their choosing. This would allow every person to be contactable at a single address, even if the user were to opt for an alternative commercial Service Provider in the future.

The creation of a Grenada National Internet Exchange

The lack of a local Grenadian Internet backbone will result in routes to Grenadian sites having to pass over international connections. Expensive, over-subscribed and over-utilised bandwidth will result in poor performance of Grenadian Sites. Good performance is key to the rapid

uptake of a web-site. It is estimated that if a site does not appear on screen within 8 seconds most users will "click away"

It is therefore recommended that a local Internet backbone be established.
An Exchange entity could operate as a Hub for all the connections or alternatively a funded consortium could be created. Either solution would enable local traffic to remain within the local network and utilize cheap high bandwidth connections. This would prove beneficial to the uptake of e-Government services and for local e-Business in general.

National Free Grenadian Internet
A classic chicken-and-egg scenario hinders the uptake of an Internet economy. A strong local presence from Grenada businesses on the Internet will not develop until a critical mass of Internet users is established in order to make the Internet a viable alternative distribution and marketing channel. On the other hand, a critical mass of users will not develop until there is a strong enough local presence and content on the Internet. This would make the use of the Internet an attractive proposition to the public, in that they would be able to access a rich array of relevant and useful local content.

The success of e-Government and the e-Economy therefore depend on resolving this issue: on the one hand a critical mass of users must be established, while at the other end suitable and useful content must be provided and published. The development of the Government Site and the eGovernment Services site will provide useful content. However, uptake may still be slow due to the current exceedingly high cost of an Internet connection.

It is therefore recommended that a National Free Grenadian Internet system be created to supplement the National E-mail System, and give unrestricted Internet access to sites located in Grenada. It is to be clarified that any eventual implementation of a Grenada Internet Service can only come about after the Grenada Internet Exchange would be up and running. Otherwise any access to Grenadian sites would only be possible via international lines. Apart from the slowness of the service, another constraint would be the prohibitive cost entailed in the utilization of international lines. The adoption of the Grenada Internet Exchange would surmount these hurdles, and make the implementation of a National Free Grenada Internet System a realistic proposition.

This service could be implemented in two phases:

o   Phase 1 would establish the service and provide free access to the e-Government site.

o   Phase 2 would entail introducing various Grenadian sites to the Free Internet Service. The service would be voluntary and subject to prior agreement with the local ISP's. Navigation by users in local sites would be limited to local content and links to international sites would be de-activated.

Actual placement of individual sites on the Free Internet Service would be carried out on an individual ISP / site basis so as to filter out any questionable material. It is recommended that a Code of Conduct be drawn up to serve as a policy for the filtered sites.

An effective Call Centre service has to be established to help new users in the use of the system. The call centre would operate as a help desk and first line of support. Easy to read leaflets and handbooks would provide an added benefit.

The Free National Internet Service, would be a Government-led initiative set at promoting widespread use of the Internet. It is, however, underlined that the Free National Internet Service, should it be taken up, would be an

initiative that is completely independent of the official e-Government activity, and should be clearly seen to be so.

The following funding alternatives will need to be investigated to ensure that the service is maintainable:

> Government Subsidy
> Sponsorship:
> Advertising:
> Strategic partners:
> Financial contributions by ISP's:

The following access methods seem viable:

o **Central dialup**: A central dialup facility is the most fundamental access service and is mandatory for easy access to all areas of users.

o **Cable Modems / Set-top boxes**: It is estimated that over 10,000 households have access to cable and would be capable of receiving fast cable modem access. Such a service would be distributed with various endpoints.

o **ASDL / Frame-relay / ISDN for businesses**: Businesses may want to benefit from the email and local Internet access facilities. This aspect is important for two reasons:
   - Businesses are willing to invest in the technology, thus giving employees a
      window to the portal.
   - As more businesses go online, the critical mass of users requiring access to
      businesses will grow exponentially.

DEVELOPING ELECTRONIC COMMERCE

Constant technological innovation with respect to Internet access has aided in the expansion of on-line trade, thus enabling larger segments of the population to have the possibility to share in the benefits of on-line commercial transactions and enabling companies – including small and medium sized enterprises – to become part of the process, with an attendant increase in competitiveness and scale.

The available indicators show that the greatest impetus to the growth and development of electronic commerce is taking place in the business-to-business sector (B2B). As part of this process, and in relation to the international marketing of goods and services, advances are being made in at least two respects:

a) Through the adoption of electronic commerce as a tool for enterprises to market goods and services on the international market, by putting into service web sites/ electronic sites designed for that purpose such as "vertical markets" or "business community" type structures.
b) Through the development of technology platforms such as the Internet, which make it possible to address operational aspects of the international marketing of goods and services by digitizing the procedures and documentation involved.

It is useful to review some of the advantages and potential benefits of the promotion and introduction of e-commerce in the economic environment.

THE IMPACT OF ECOMMERCE ON THE ECONOMY

e-Commerce is the driver of what is termed the New economy. Its exponential growth is spurring Governments to promote its utilization within the respective national economies. The e-Europe Draft Action Plan lists

the acceleration of e-Commerce within the European Union as a major objective in the immediate future.

It is envisaged that the onset of e-Commerce will have significant effects on individual businesses and will result in an aggregate impact on the national economy and, as a result, on society.

e-Commerce is not limited the national economy. The key feature of e-Commerce is its ability to transcend national and geographical boundaries. The challenge is for local businesses to retain their domestic markets in the face of external e-Commerce competition, while at the same time gaining a foothold internationally by marketing and selling via e-Commerce. The risks and opportunities to local business emanating from new e-Commerce scenario will vary by business sector and target market, and entrepreneurial drive.

Overall, it is reasonable to assume that unless e-Commerce solutions are taken up by local business, the local economy will be at a disadvantage in the face of external e-Commerce competition. This disadvantage will increase over time as external e-Commerce continues to increase. The need for Grenada businesses to maintain the pace with overseas competition is therefore paramount.

Another important feature that characterizes e-Commerce is the gains to be had from the streamlining of business processes for higher efficiency and cost effectiveness.

In general, business should gain from the transition to e-Commerce via the following positive effects:

o   A general increase in productivity.
o   A more streamlined interface between production and sales.
o   Better stock management, potentially leading to 'just in time' stock management.

o   A significant reduction in distribution costs especially for those products that can be digitized.

o   A reduction in the costs of after-sales service.

o   Enhanced advertising and selling in the global market at a lower cost.

o   An expansion of the IT sector as demand for e-Commerce solutions increase.

o   Increased turnover for the telecommunications sector as a direct result of the proliferation of e-Commerce.

On a sectoral level the impact of e-Commerce will not be uniform. Overall, however it is still envisaged that it is unlikely that such an impact will be negative. The Business Sector should therefore look to e-Commerce as providing an opportunity to thrive rather than a threat to its livelihood.

The following are some observations relative to the major sectors of the Economy:

(i)   Information Technology and Communication

The IT industry is a major input and a key enabler to the proliferation of e-Commerce. As such it is reasonable to expect this sector to expand in line with the growth of e-Commerce. It is acknowledged that the sale of IT products is increasingly being carried out by electronic means that bypass traditional intermediaries.   It is recognized that there will be the need for a substantial amount of related services that need to be carried out on the field.

Strategic alliances with major suppliers of e-Commerce, off-the-shelf solutions, adding value via marketing, customization, installation, support and maintenance of hardware and software will open opportunities for Grenadian enterprises.

Web development and Internet Service Provision should generate increases in activity as more businesses go on-line.

The expansion of e-Commerce is likely to be sustained as more powerful hardware and software are continuously developed.

e-Commerce solutions will in turn generate constant demand for improved solutions by businesses that are already utilizing e-Commerce.

Communications is another major input sector to e-Commerce. The high increase in demand for e-Commerce solutions are in turn becoming more complex, and therefore require increasingly higher bandwidth. Grenada will need to ensure that the requirements of the economy are satisfied.

New technologies and emerging technologies will open new opportunities with far-reaching implications, as e-Commerce becomes accessible via mobile telephony. The same can be said of the developments taking place in digital Television. These technological developments in the communications field will, in turn, fuel the demand for e-Commerce, as it becomes increasingly accessible to the consumer.

(ii)   Banking, finance and Business Services

The financial services sector is an information-intensive industry with an established IT infrastructure. The adoption of e-Commerce in this sector will continue to bring about reductions in operating costs. The local banking system will benefit in that it will not need to expand its existing front-office outlets in order to expand business. The Banks are already somewhat proactive on this front, and the provision of ATM services and telebanking have already eased the pressure on the traditional Branch front-offices. Increased utilization of e-Banking services by clients and bill payments over the Internet, will result in further cost savings to the Banks. Competition will be required to drive the banks to pass on a portion of these savings to consumers in the form of reduced charges.

It is also likely that Banks will be able to develop the provision of new services for their customer base.

The business services sector includes professional services such as architectural services, consulting engineering services, computer services, legal and accounting services and marketing and business management services. These services are characterized by high information content that can be digitized with relative ease, and therefore lend themselves well to the e-Commerce environment. Internal cost savings via streamlining of work processes, as well as savings in cost and time in delivering products to clients, are the main features that render e-Commerce a viable proposition in this sector.

From an external perspective, the use of e-Commerce in business services is an increasingly global phenomenon. The adoption of e-Commerce in this sector is therefore necessary both in order to maintain a competitive edge, as well as to be able to gain or increase access to overseas markets.

Other professional services such as Real Estate and Employment Services also stand to gain from cost savings by bringing buyers and sellers to interact electronically in the pre-negotiation stages. The audio-visual features that the Internet now offers, make such interaction an additionally feasible and attractive proposition. These can facilitate business by offering such features as virtual tours of real estate for sale, or brief video clips of job-types that are on offer.

(iii)   Manufacturing

In general the e-Commerce offers an excellent opportunity for manufacturing concerns to market and sell their products on the international markets. Manufacturers could possibly reap advantages via the reduction of processing costs, mainly by way of reduction of inventory levels and the speeding up of ordering, delivery and payment processes.

Further cost savings may be obtained in certain instances from the shortening of the distribution chain, that is by dealing with consumers directly, thereby removing one or more layers of intermediaries. The potential advantages, however, would have to be weighed against potential increases in distribution costs and after-sales servicing, which may in certain cases render direct selling unprofitable.

(iv)   Tourism and related Services

The benefits to the tourism sector will stem from the global exposure that on-line marketing and on-line-booking facilitates. This applies to the hospitality industry as well as ancillary services such as car-hire and excursions.

It is nevertheless acknowledged that the success of the local tourist sector to market and sell on-line will depend on a concerted drive to sell Grenada as a tourist destination.

(v)   Retail

In general e Commerce may be seen as a direct competitor with the traditional retail sector. This is more so, however, in areas where products may be digitized and delivered on-line, such as in the case of software or CD's. Direct on-line shopping is likely to reinforce catalogue buying to the detriment of local retailers. It is nevertheless probable that there will still be a preference on the part of the consumer for direct contact with the retailer. However, local retailers can and should avail themselves of the facility of on-line marketing and selling to local consumers.

The retail sector should look to e-Commerce as a challenge rather than a threat.

THE IMPACT OF ECOMMERCE ON SOCIETY

The following are some observations relative to the impact of e-Commerce on Society:

(i)   Employment

It is reasonable to assume that there will be significant shifts in the skills required in this new environment. It is evident that the need for IT and Information management skills will increase in line with the trend currently prevailing in the leading World economies. The recent e-Europe Draft Action plan quotes a current shortfall of 700,000 IT specialists, which is expected to rise to 1.3million by 2003.

Grenada's shortage has not been as overt, partly because the intensity of ICT is being stifled by a number of structural factors. The initiatives of the Government in liberalizing the sector will release market forces that will create pressures for greater supply of skills.

Labour requirements in other sectors such as the intermediary sector may decline, but may in turn be offset by increased demand for labour in other sectors, which experience increased demand for their goods and services generated by e-Commerce. It is not possible to predict the net effect beyond stating that the demand for IT skills will experience a substantial increase which may, for a time, be beyond the capability of the educational system to meet in adequate numbers. It is worthwhile to

add that the onset of e-Commerce is generally considered as an opportunity rather than a threat to job creation.

"Tele-working" is another area for potential job-creation in of the knowledge-based economy, bringing back into the market the less advantaged groups such as women, older workers and persons with special needs. The proliferation of e-Commerce will render Tele-working a more viable and attractive prospect than it has been to date.

(ii)   The advantages to the Consumer

The consumer is seen to benefit in the new scenario. E-Commerce will bring about greater choice and price reductions due to increased competition and improved production and distribution processes. It should also result in a better quality of life by freeing up quality time that would otherwise be spent traveling and queuing up to obtain a service across the counter. Procurement of public and private sector goods can be made from the comfort of the home potentially on a 24-hour, seven-days-a-week (24x7) basis.

The opening up of access to a host of goods is not to be viewed from the narrower viewpoint of tangible goods. The cultural and educational content that will be available on the Internet is another precious resource that will raise the level of knowledge of users. Distance learning has been a feature of education provision for some time but can now be supplied at a much higher quality. Interactivity will also be a very important feature of distance learning in an Internet environment.

DEVELOPING THE ELECTRONIC COMMERCE SECTOR

The Internet and electronic commerce represent significant social and economic potential for countries of CARICOM and Western Hemisphere. Dynamic national strategies to develop infrastructure, to enhance access, to increase participation in the Internet economy especially for SMEs, and to create the legal foundations for online payments, electronic signatures and certification are critical for the development of e-commerce. At the same time, since e-commerce is inherently borderless and global in scope, measures to enable and promote domestic growth must also be contemplated to allow the effective conduct of e-commerce between countries

Government of Grenada has important roles to play with respect to these issues, within the country, within CARICOM, the Americas and globally, which entails cooperation, information dissemination and promotion activities.

Government will focus on those critical requirements that will facilitate the development of e-Commerce in Grenada, including access and Infrastructure, Small and Medium Sized enterprises as major beneficiaries of the technologies, Online Payment Systems, Certification and Authentication, Consumer Protection, Intellectual Property Protection, and Online Distribution of content.

A.   ACCESS AND INFRASTRUCTURE

While the number of Internet users in the Grenada is growing rapidly, there are still significant segments of the population that do not have ready access to the Internet. The challenge for the government is to encourage the development of a vibrant, high-quality, low-cost telecommunications infrastructure which all citizens have the opportunity to access.

Grenada already recognizes the importance of expanding access to the Internet for purposes of economic growth and development. Steps have already been taken to progressively liberalize the telecommunications market; particularly the local telephone service. Government has encouraged and facilitated investment in the development of telecommunications infrastructure, higher penetration and lower prices for consumers and businesses.

There is still need to

- Accelerate the granting of new licenses for additional telecommunication and Internet service providers

- Stimulate Internet usage; encourage local content development, and e-commerce - which in turn should stimulate further investment in the e-commerce infrastructure;

- Reduce the cost of leased lines used to connect to the Internet backbone by

allowing competition, and/or by regulating prices set by the dominant operator.

-

Mak e it cheaper to get and stay on-line, especially through lower per-minute cost or flat rate prices for local service. This would significantly increase both the number of individuals on-line and the time each user spends on-line;

In addition to physical networks, the widespread growth of electronic commerce as a means of doing business depends a wide array of factors (i.e. the e-Commerce value- chain) including the existence and accessibility of a range of goods, services and procedures, such as telecommunications services, electronic payment systems, transportation and distribution systems, as well as legal or regulatory factors such as the enforceability of electronic contracts and efficient customs clearance procedures.

Access also relies on the existence of adequate levels of digital literacy since the knowledge, skills and familiarity of citizens with computer technologies will determine their ability to take advantage of electronic commerce. Measures to expand digital literacy throughout the population will not only increase the overall growth of e-commerce but also tend to assure a more even distribution of its benefits within society. The government of Grenada therefore places high priority on computer awareness, education and training as a means of promoting access to the networks and technologies related to e-commerce.

Government will therefore pursue the following to facilitate the development of e-Commerce:

1. Promote vibrant and fair competition:
   1.1. Among different levels of telecommunications services (that could be suppliers of telecommunications and computing hardware, telecommunications carriers, telecommunications resellers, and associated services suppliers such as e-commerce services suppliers).
   1.2. Among telecommunications services provided through all types of technological means (including wireline, wireless, cable, and satellite technologies).
   1.3. In the allocation of fundamental resources such as spectrum and rights-of-way.
   1.4. Through oversight by National Telecommunications Regulatory Commission to ensure that no anti-competitive conditions arise.

2. Maintain an independent, effective, fair and transparent oversight body.

The National Telecommunication Regulatory Commission (NTRC) and Eastern Caribbean Telecommunication Authority (ECTEL) are critical in setting the tone for the telecommunications market, and will be key in providing regulatory certainty, ensuring non-discriminatory treatment of market participants (both domestic and foreign), and in preventing anti-competitive behavior. This healthy environment will provide the certainty requisite in attracting large investments required for infrastructure development and service provision.

3. Allow the marketplace to decide how to expand the availability of data-capable infrastructure (wire line, wireless, cable, satellite, etc.) able to support electronic commerce applications. As technological platforms converge to a similar set of capabilities, the Government of Grenada would promote competition across communications platforms through technology-neutral regulations.

4. The Government of Grenada will allow the free development of Internet services to continue by avoiding the imposition of regulations that might impede its development.

5. Government will support regulatory regimes that permit a broad range of pricing strategies (including un-metered rates, for services used to access the Internet and adopt cost-based approaches to interconnection pricing).

6. Ensure that all information service providers have access to facilities, networks, and network services, (including access to local loop) on a nondiscriminatory and cost-based basis.

7. Take steps to facilitate efficient testing and certification procedures for IT products.

8. Seek to provide access and affordable service to all members of society:

8.1. Administer Universal Service programs for basic telephone service in a transparent, nondiscriminatory, and competitively neutral manner, so as to be no more burdensome than necessary.

8.2. Place governmental information and services online, in order to provide them more efficiently and effectively, and to increase the uptake of information technologies by business and citizens.

8.3. Maximize efforts to bring voice and data services to under-served populations, by coordinating efforts from all social sectors involved.

9. Take steps to improve e-commerce fulfillment, including implementation of the business facilitation measures for express shipments (agreed to at the Toronto Ministerial).

10. Develop a clear, predictable, nondiscriminatory, stable yet flexible legal and regulatory framework, which is conducive to the expansion of access to information and telecommunication technologies.

11. With the support and collaboration of the public and private sector, place a high priority on computer awareness, education, and training as a means of promoting access to the networks and technologies related to e-commerce

B.   SMALL AND MEDIUM SIZED ENTERPRISES

Small and medium sized enterprises are an important and dominant part

of the national economy, and Grenada can greatly benefit from the

creativity and entrepreneurship that can come from small businesses. Attractive potential opportunities exist for SMEs in the exploitation of electronic commerce. Both research studies and business experience in other countries indicate that the adoption of electronic commerce will enable SMEs to continue to lead in the development of jobs and growth, and to create new forms of commerce and to improve the standard of living in individual jurisdictions. In many ways, SMEs are in a strong position to take advantage of the opportunities offered by the Internet and e-commerce. They tend to be more flexible, adaptable and quick to respond to new technologies and market opportunities as they lack the management layers and bureaucracies that encumber decision-making. Many SMEs recognize the Internet as a valuable means to promote their product, establish a corporate presence on the Web and provide customer service.

But, although the Internet can vastly expand the potential market available to SMEs in Grenada, the challenges of electronic commerce are more acute for SMEs than for larger business enterprises. SMEs' limited resources make them more vulnerable to fraud and failure, and often more reluctant to take on the risks associated with new ventures such as e-commerce. Another challenge facing SMEs' participation in e-commerce is the shortage of trained technical workers who can effectively manage the changing technology and fully tap opportunities to increase efficiency, lower supply costs, and reach new markets. SMEs may be less able to devote resources to attracting and retaining technically qualified workers.

Both the private sector and the government, jointly and separately, can assist with policies and programs to help solve the problems of SMEs.

The Government of Grenada will therefore:

1. Encourage SMEs to familiarize themselves with available electronic commerce tools, by undertaking activities to disseminate information on options, opportunities and challenges and to promote the use of electronic commerce and telecommunication technologies, in order to improve participation in international markets.

2. Continue to cooperate with and encourage the private sector to offer educational opportunities (including via the Internet) and to disseminate information on the advantages and benefits of using new technologies to conduct commercial transactions and to improve overall efficiency and productivity by integrating electronic commerce into business operations.

3. Support cooperation and promote efforts by local business organizations and small and medium sized enterprises to develop Websites where SMEs can network, post information, and exchange ideas about best practices and lessons learned, in order to facilitate investment, job creation, increased competitiveness, and the use of more advanced technologies.

4. Support the search for solutions to the obstacles faced by SMEs in fully utilizing electronic commerce, encouraging companies that provide electronic commerce business services to develop products tailored to the needs of SMEs and to cooperate with these companies to develop and promote SME export portals, affordable and secure payment systems, SME training programs, and regional technical centers.

5. Continue national efforts to make government products and services available via the Internet, helping SMEs to build their Internet skills.

C.   ONLINE PAYMENT SYSTEMS

The availability of effective electronic payment systems is a significant element of electronic commerce, enabling wholesale and retail businesses to move their business-to-business (B2B) and business-to-

consumer (B2C) marketing and sales onto the web with minimal concerns about completing the financial portion of the transaction. However, the on-line environment presents challenges related to fraud, security risks, consumer protection and privacy protection that should be adequately addressed. In addition, the cross-border supply of payment services raises issues about the standards and roles applicable to domestic payment systems and their interoperability with foreign systems, and about the level of consumer protection available for consumers who make use of foreign payment systems.

Grenada (and the CARICOM Region) could benefit from participation in the burgeoning electronic payments markets associated with e-commerce. Today, payment systems based on credit cards are widely perceived to be inadequate, as credit cards are unavailable for many potential e-commerce consumers in Grenada and relatively expensive for small and medium-sized enterprises (SMEs), including retailers. Many have identified these issues as contributing to the relatively slow entrance by existing bricks-and-mortar retailers into e-commerce and to the relatively low levels of consumer purchases on the Internet.

New technologies for payment are underway in the region that should help address these problems for both business and consumers. For B2C e-commerce, and some SME applications, banks and other e-commerce companies should explore new approaches to supplement traditional methods. These options could include e-commerce charges and payments incorporated into existing utility bills; taking advantage of existing credit relationships, use of debit cards, new payment technologies such as bar code scanning, smart cards, electronic wallets and cellular telephones; prepaid cards with small amounts of purchasing power for

65

citizens who lack access to traditional credit. But there is more work to be done.

The continued growth in electronic commerce depends significantly upon the development of an efficient and secure cross-border financial services infrastructure. CARICOM Governments, the financial sector and retailers need to look at payment systems that can be used to support e-commerce in the Region if they are to accelerate the growth of e-commerce and broaden its benefits for the Region's citizens.

The relationships between financial institutions and their online business customers will become increasingly complex and interdependent. The ability of financial institutions to meet their customers' transactional needs (investment, cash management and foreign exchange needs) as part of online payment support services will be critical to the customer's ability to compete in global e-commerce. Local financial institutions must therefore act with cautious haste if they are not to impede the country's prospects for taking commercial advantage of these new opportunities.

The international private sector is responding quickly to develop electronic payment solutions to enable e-commerce. Our local private sector must move with innovative speed to secure a share of the benefits of e-commerce before it is too late. The Government will encourage and support the introduction of effective and secure payment systems. The Government of Grenada also recognizes the advantages of a Regional approach to this matter of payments and will also encourage its development.

Further, Grenada adopts and incorporates the Regional position accepted in the context of the FTAA. Accordingly, Grenada undertakes and will agree with Regional Governments to:

1. Work cooperatively with Regional Governments, and with the private sector, as electronic payment systems develop, in order to keep apprised of policy implications and to ensure that governmental activities flexibly accommodate the needs of the emerging marketplace.

2. Build on the existing work of governments, the private sector, and international organizations to improve information sharing and cooperation in combating security threats to payments systems, cross-border fraud, illicit financial transactions, and threats to the integrity of the Internet.

3. Examine, with the private sector, online payment systems, with a view to removing possible obstacles to the deployment of alternative online payment methods, thereby accelerating participation in B2B e-commerce, especially by SMEs, and fostering efforts to provide greater access to innovative technologies for Internet purchases by consumers and SMEs without traditional access to credit.

4. Develop policies in conjunction with the private sector that foster flexible, innovative approaches in the development of alternative payment mechanisms. Efforts should be directed at improving the efficiency and lowering the costs while ensuring the security of cross-border payments systems.

5. Cooperate with the private sector, including the Chambers of Industry and Commerce, banking and retail sectors, and NGO's to educate SMEs and retailers about effective e-commerce models in the region and payment technology systems.

6. Stimulate efforts by the financial and retail sectors to develop and to identify websites utilizing secure payment technologies and practices and respecting consumer privacy, and cooperate with the private sector to educate consumers and business and provide them with the information they need to decide whether and how to participate confidently in e-commerce.

7. Encourage banks, payment card companies and retailers to work to achieve an appropriate sharing of risk and costs among themselves to promote broader participation in e-commerce by retailers, SMEs, and financial institutions, while protecting consumers from unreasonable liability for fraudulent and unauthorized electronic payment transactions.

8. Support policies and procedures designed to promote transparency in the regulation of payments systems, including standard-setting, the application process, and judicial, arbitral, and/or administrative review.

D.   CERTIFICATION AND AUTHENTICATION

Authentication technologies help identify parties to electronic business transactions, and provide means by which they can reliably sign documents, assent to transactions, and verify documents' integrity. As such, they play an important role in building user confidence in e-commerce.

But technology is not sufficient in and of itself. The development of electronic commerce requires legal recognition, functional equivalence and non-discrimination as regards electronic signatures, as well as technological neutrality in order to avoid locking consumers and businesses into one technology that may not suit their needs and erecting artificial barriers to the development of new technologies.

Internationally, companies are increasingly employing authentication methods in electronic markets through closed systems. A closed system is established by a voluntary agreement under private law in which participants specify in advance how they will conduct business, including what method of logging on to the system and signing they will use.

Through closed systems, participants may access information, utilize services, and engage in transactions. Many closed systems employ electronic agents, computer programs that initiate or respond to messages on behalf of an entity or individual without contemporaneous human participation.

In closed systems, mutual trust has already been established between the parties through their agreement. Thus, these agreements can be relied upon to govern the system, provided that the legal rules for e-commerce recognize and enforce private law agreements with respect to authentication methods and other operational aspects of closed systems, including the use of electronic agents. Closed systems constitute the backbone of B2B e-commerce.

The Government of Grenada accepts that competition and non-discrimination are important principles in the provision of certification services.   Various national approaches to the establishment and governance of certification authorities and their activities can co-exist. These approaches may include varying elements of industry self-regulation and/or governmental regulation.

As part of its policy to encourage e-commerce, the government of Grenada will:

1. Take steps to identify and remove legal barriers that hinder the recognition of electronic transactions, including recognizing the legal validity of electronic signatures and documents, (taking into consideration the enabling provisions of the 1996 UNCITRAL Model Law on Electronic Commerce).

2. Make efforts to ensure that its electronic signature legislation is technology-neutral .

3. Ensure the legal validity of electronic records and evidence for use in court and other official proceedings, independently of the authentication and certification technology used.

4. Afford parties to a B2B transaction the freedom to determine by private law agreement the appropriate technological and business methods of authentication and give the parties' agreement legal effect, including possible means for resolving disputes, without prejudice to applicable public policies.

5. Recognize the importance that the private sector must play in the development and deployment of authentication and certification technologies, and promote the participation of all relevant social sectors in the process of formulation of policies and laws in this area.

6. Make efforts to ensure that laws and regulations do not discriminate against electronic authentication methods, or against national or foreign providers of authentication services, and do not erect barriers to the provision of authentication services by any of them.

7. Work with the private sector to encourage the development and deployment of authentication systems that provide adequate protection against fraud and identity theft, are consistent with respecting individuals' personal privacy, and do not impede use by creating barriers.

E.   CONSUMER PROTECTION

Increasing competition in the global electronic marketplace offers consumers new and substantial benefits, including convenience, access

to a wider range of goods and services and the ability to gather and compare information online, resulting in the possibility of obtaining reduced transaction costs, and better prices, quality and service. These benefits cannot be fully realized, however, without consumer confidence in domestic and international e-commerce. The key elements for building consumer confidence in electronic commerce include: protection from fraud and from misleading and unfair conduct and commercial practices; respect for consumer privacy; private sector initiatives; global cooperation; consumer and business education, and effective means of dispute resolution.

Consumer protection agencies around the world have begun to address the increased need to cooperate in efforts to combat fraudulent, deceptive, and unfair practices on-line. This cooperation has included the sharing of information and experiences, joint action, and coordination. Furthermore, efforts are underway in international fora, such as OECD, APEC, the International Chamber of Commerce, the Hague Conference on Private International Law and the Global Business Dialogue on Electronic Commerce (GBDe) to develop cooperative arrangements and means to protect consumers in the context of cross-border e-commerce.   These efforts include private sector recommendations, international guidelines, and public workshops.

F.   INTELLECTUAL PROPERTY PROTECTION

The ability to perfectly copy electronic data, to distribute it instantly on a global basis, and the growth of e-commerce raise a number of key issues for holders of intellectual property and governments related to the adequate and effective protection of copyrighted works online. Authors, producers of copyrighted works, and performing artists must be able to

have confidence that their copyrighted works will be protected online. Legal protection of intellectual property in the online environment preserves incentives for the creation of local content and encourages its world-wide dissemination. Consumers also must have confidence that they can rely on trademarks as trusted indicators of the origin and quality of their on-line purchases.

G.   ONLINE DISTRIBUTION OF CONTENT

The countries of the Hemisphere are among the most active in the world in terms of generating "content" suitable for online distribution. Every day sees a growth in the global reserve of music, film and audiovisual fixations, computer software, training programs, literature, journalism, etc., through contributions resulting from the creative ingenuity and entrepreneurial capacity of the Americas. Ensuring the online distribution of content is an important factor in increasing economic output from electronic commerce, and should be a priority for the governments of CARICOM and the FTAA countries.

Currently, the distribution of content through placement on Web sites and subsequent downloading, or through forms of distribution from a single source to multiple users, such as simulcasting, is one of the most active forms of electronic commerce. However, producers of content who work in the countries of the Hemisphere are suffering important economic losses due to the unauthorized distribution and/or use of content by third parties. Grenada is mindful of this and will work at the regional level for a cooperative solution to this problem.

DEVELOPING e-GOVERNMENT IN GRENADA

PRINCIPLES OF THE PROPOSED EGOVERNMENT STRATEGY

The key principles governing the provision of e-Government from the perspective of both a user and a service provider include the following commitments:

o   e-Government Services should be easy to access in terms of speed, entry points, and multi-channel access.

o   There has to be full social inclusion and universality of access to e-Government Services, which necessitates ensuring that those persons with special needs or who have affordability or literacy problems are able to access such services with relative ease.

o   Universality of access shall be ensured by the delivery of e-Government services across multiple channels, which shall not be at the exclusion of conventional channels.

o   e-Government services shall be easy to use.

o   The service has to be inexpensive in relation to average disposable incomes and therefore be widely affordable.

o   Security in terms of authentication, fraud prevention and prevention of unauthorized hacking shall be guaranteed.

- The government will ensure the legal framework and government policy protect the individual privacy of users and provides security of information and infrastructure.

- Any profiling data submitted by users voluntarily, in order to obtain better services from the Government, shall not be used without their prior consent.

- e-Government services shall provide a one-stop-shop to the user.

- Services shall be focused towards customer needs and not Government requirements.

- Users will be able to access the services at all times and on all days (24x7 access).

- Assistance to users of the services will be available at all times.

- e-Government services provided will be faster, more efficient and effective and of a higher quality than conventional services. Parameters relative to service quality in respect of each service shall be established and made public.

- e-Government services shall be more economic and cost-effective than conventional services, thereby ensuring more efficient use of taxpayers' money.

- e-Government services shall be consistent in terms of content and quality, across different delivery channels.

- e-Government services shall be regulated and facilitated by the appropriate legislative framework.

- Mechanisms for feedback and redress shall be available to all users in respect of all services.

- Feedback mechanisms shall be used for the engendering of electronic democracy.

- The architecture and technology that will be adopted for the implementation of e-services will be scalable and common across delivery channels wherever possible. It will also entail minimal disruption to back-office processes.

- Back-office information systems shall be designed with a view to the provision of electronic services to the public.

- e-Services shall pass through one central point or Portal. This shall be the Grenada Government Portal.

- All services and information residing on the Government Portal shall have an owner that shall be responsible for maintaining the

currency as well as quality and other standards of the area for which it is responsible.

o	All services shall be available at all times without fail. Electronic communication shall be speedy and efficient.

- There shall be one distinct corporate image of Government as the provider of e-services.

INFRASTRUCTURE FOR ElectRonic GOVERNMENT

The roll-out of information technology within Government requires an information technology framework which is forward looking, consistent and inter-operable. This framework must be based primarily on two major principles:

o	Information is a shared resource and will, with exceptions necessary to protect individual privacy or legislatively entrenched confidentiality, be made available to all systems with consistency throughout the Public Service - available when necessary, where necessary and in the form necessary.

o	Information systems will be designed or acquired on the basis of a shared infrastructure which will continue to be designed to be stable, requiring only changes which are necessary for the extension of the network's capability.

The above-mentioned principles are critical for the attainment of e-Government. They promote widespread, albeit controlled, access to and sharing of information, which may be stored within respective ministries and departments.   They also advocate the sharing of the same infrastructure with all that this implies in terms of economies of scale, the flexibility of the infrastructure and the inter-operability of systems that reside on it. The infrastructure should grow and be scalable enough to accommodate new technologies as appropriate, without the need to be replaced as a complete entity.

The opportunities that a Grenada Government Network can provide should be exploited to their optimal possibility in order to ensure the maximum return on the investment made. The attainment of e-Government is one notable way of achieving such a return on investment. Government entities outside of the Public Service, private organizations, third parties and the public in general should have all the facilities to be able to plug into and use the e-Government Services that will reside on the Grenada Government Network.

Controlled development of the Grenada Government Network via the creation of secure, sectoral networks for the enablement of e-Government must therefore be actively pursued. Furthermore, opportunities that the Internet provides should also be exploited in order to provide the client with a personalized e-service.

To this end, appropriate gateways, interfaces and new services should be designed, developed and installed on the Grenada Government Network in order to facilitate information sharing principles among all parties involved.
Thus, the Internet Architecture must have 100% resiliency and fast, dependable performance and sufficient bandwidth and speed.

In order to facilitate the capability of the Grenada Government Network, the adoption of advanced telecommunications networking technologies, such as ADSL, and cable modem, data services should be actively pursued by respective service providers. These measures will make for service provision that is more efficient and effective than is currently the case.

OTHER PUBLIC SERVICE-WIDE INITIATIVES

Other Service-wide initiatives for the proliferation of e-Government will centre mainly on:

- the dissemination and upgrading of e-mail; and
- the training of all staff in digital literacy.

Dissemination of e-mail

The widespread dissemination of e-mail facilities in the Public Service is an important goal to be reached as soon as possible for effective communications both internally as well as with the external environment.

Implementation of an e-mail system within the Public Service offers a very positive prospect for efficiency improvement. This should be initiated early.

The ultimate target should be that of having e-mail on the desks of all knowledge workers in the Public Service (by 2002).

Impediments in the way of widespread use of e-mail should be removed.

Widespread training in e-literacy and e-competence

The Government should in the first instance set itself the target of training its own staff in basic PC skills, in general competence and Internet usage.

Some training has been taking place in the Public service but this has been limited and restricted.   The e-literacy programme has to be deepened and widened to embrace all categories of workers.

With respect to new entrants, all candidates for the clerical and executive grades of the Public Service should be required to have an established level of Computer competence to be eligible for entry. The establishment of the required entry-standard should be speedily developed.

1. Developing Databases throughout the Public Service
2. Digitizing Public sector Information

3. *Training in Data management]*

4.Training in customer service delivery]
5.CHANGING THE NATURE OF THE PUBLIC SERVICE:]
6. New phase of Public Sector Reform]

SPILLOVER EFFECTS OF EGOVERNMENT ON THE INFORMATION ECONOMY

There are three particular aspects of e-Government that will have a multiplier effect on a national scale. These are:

1.   The widespread adoption of e-Commerce solutions in such activities as procurement is widely recognized as being a major lever in firing up the widespread adoption of eCommerce in business. Firms that do business with the Government will be encouraged to utilize the Internet in their transactions. It is reasonable to expect that once the process is set in motion, businesses will be alert to recognize the benefits of participating and the disadvantages of sticking to conventional methods of doing business. With the Government being a major player in the national economy, the overall multiplier effect should make a significant impact on the proliferation of eCommerce.

2.   The presence of Government Services on-line will provide precious local content that will fuel consumer demand for Internet usage. This will help create the necessary critical mass of users, which will make the utilization of e-Commerce solutions an attractive proposal to an ever-increasing number of businesses. On the supply side, this upward spiral will in turn generate activity and value added in the IT, ISP and the telecommunications sectors.
It is universally acknowledged that rich local content is a major driver of consumer demand. The presence of on-line Government transactional services and information will certainly make a significant contribution to enriching local content.

3.   The government will adopt the use of digital signatures and will put in place the supporting legal and regulatory framework to adequately authenticate the identity of the user and the integrity of the transaction. The issue of security is critical and a major stumbling block to the fast dissemination of e-Commerce world-wide. Winning over public trust in effecting transactions electronically will be another key ingredient in the proliferation of on-line service provision and usage and the utilization of the Internet in general.

THE SETTING UP OF A PORTAL

Portal Definition

All e-Government services will pass through one Portal. A portal is the interface that brings together the user with Government information and services.

It is proposed that the Portal Architecture be composed of three tiers, comprising:

> **The Front-end or Clients' interface**
> **Middle tier**
> **Back end or Back-Office**

The Front-end will be the Internet-based access channel to the Portal. The Front-end will provide the connectivity and access for customers to common Government information and services.

Other access channels, which will not necessarily be Internet based, will also be available and the Portal will be flexible enough as to interface with these channels. The architecture will provide the ability to add new

access channels without technological constraint or implications on the service delivery architecture.

The Grenada Government Web-site will host all Ministry web-sites as well as the e-Government Services site and will reside on the Front-end of the Portal Architecture.

The Middle tier contains the Transaction Management System which houses the middleware and provides the common infrastructure to support the transportation of messages and to obtain the appropriate level of authentication and access the services or information. Common information-based services are also housed within the Transaction Management System including, for example, common search facilities to provide information across the range of services contained within the Portal service set. Data protection auditing will also be provided in the Middle Tier to ensure that information relating to specific services is only sent to the appropriate Department to safeguard the rights of the individual.

The Back End will provide the connectivity from the departmental systems, including legacy systems, to the Transaction Management System through appropriate interface systems.

Portal Characteristics

There will be one Government Portal to which access can be gained via multiple channels. .

The e-Government service provisions through the Portal will be characterised by:

o   Access from a wide range of locations, including the home and workplace, using a range of different access methods.

- o   Provision of all interactions with the client, including client expectation management and client help interactions.

- o   24 hour 7 days a week service.

- o   Seamless one-stop shopping for a range of Government services from multiple Government Departments. The front end of the portal will be responsible for providing the client side experience.

- o   Service delivery on the basis of logical service clusters as perceived by the client. Back-end systems pertaining to different Departments will be virtually integrated by the Portal and will not be visible to the client.

- o   Fast electronic interchange of information.

- o   Increased efficiency through electronic delivery and authorization.

- o   A message passing regime capable of giving different grades of service for traffic with varying priorities. This will be implemented between the e-Government service portal and the back-end systems.

- o   High levels of privacy and security. Data protection principles will be rigorously applied and critical personal information will be hidden from back-end systems in agencies where there is no good reason to pass on this data.

- o   Time-boxed delivery guarantees.

- o   Positive notification of progress.

- o   Ease of use characteristics.

Portal Architecture

The Portal architecture must be:
- o   Able to cope with a variety of channels.

- o   Capable of providing access to all Government Back-end services from all delivery channels.

- o   Structured to accommodate different Back Office requirements.

- o   Based on proven, widely available and used technology.

- o   Scalable to accommodate growing and changing usage requirements with cheap incremental increases in size.

o   Structured to integrate new delivery channels.

o   Equipped to handle digital authorization.

o   Capable of handling unpredictable volumes of traffic.

The Architecture should be able to support the following types of interaction:

o   Citizen-to-Government, for which the main paradigm should be HTML and forms. These will be converted by the e-public service portal to XML and XSL - based interactions for e-filing, e-lookup, expectation management, etc.

o   Business-to-government, for which the main paradigm should be XML and XSL data packages and file transfer protocols.

o   Government-to-business, (e.g. the e-procurement activities of government agencies) for which the main paradigm should be XML and XSL data packages and file transfer protocols.

The Portal must also support Government's policies for social inclusion. A range of channels will be provided which will collectively appeal to all sectors of the user community. A common access technology must be provided within the Portal that will provide the flexibility to add channels freely as and when required without impedance from technological constraints. Therefore the portal technology must provide a low cost, easy to implement interface that supports multiple channels. Internet technology provides the solution here.

Potential portal delivery channels can be categorized as:

o   Direct electronic channels, for example Internet access through a customer's PC, interactive television and kiosk.

o   Voice telephony channels where the customer contacts a Call Centre agent/officer by telephone who is able to communicate with the Portal using a direct electronic channel.

o   Face-to-Face channels where the customer interacts directly with an agent/officer who is able to communicate with the Portal using a direct electronic channel.

o   Mobile telephony and other third generation technology.

Correctly managed, the Architecture should provide:

- The ability to integrate new delivery channels.

- The means to add new services through the existing delivery channels without major changes to the existing service set of the Back Office legacy systems.

- Scalability beyond the capabilities of traditional two tier architectures.

Portal Functions

The envisaged setting-up phase of the Portal architecture will entail the identification of specific roles and activities to be carried out by different organizations. A Central Information Management Agency (CIMA) will be responsible for the management of those activities that are farmed out.

Three major functions have to be carried out, in terms of designing the Architecture and setting up the related infrastructure:

o   Assuming overall responsibility for Architecture design and standards.

o   Drawing up of Architecture Design and standards .

o   Setting up of the infrastructure relative to the three-tier Architecture.

When the architecture becomes operational there will be allocation of distinct roles and responsibilities in respect of the various aspects of its ongoing operations. The nature of responsibilities and expected outcomes will be specified in service-level agreements or contracts. The CIMA will retain overall responsibility for the running of the infrastructure on behalf of the Government, and will generate formal agreements with those entities, whether Government or the private sector, in respect of the running of their particular part of the operations.

The following is a brief listing of the major functions to be carried out in terms operating the various components of the Portal:

o   Management and maintenance of the Portal

o   Hosting and management of the official Web site that will reside on the Portal front-end.

o   Management of middle-tier and rear-end connectivity components of architecture.

o   Hosting and maintenance of middleware.

Portal Security

The issue of secure on-line transactions is perhaps the most sensitive aspect of e-Government, and the major factor that can make or break the eventual widespread use by the public of on-line Government services.

One key aspect of the Portal architecture therefore is the design of the security infrastructure that is integral in maintaining trust and confidence in e-Government. It is therefore proposed that the security features to be adopted will be based on electronic signature technologies (Public Key Infrastructure (PKI)) residing in the middle tier of the architecture.

The following are key features that the security aspect of the Portal architecture should address:

o   Secure authentication and data encryption processes and prevention from unauthorized use.

o   A multi-step authorization process using private data stored in a PKI-secured personal vault on the e-Government Portal to achieve equivalent levels of information entropy to that provided by the private key used for e-signing.

o   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 organizations 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.

o   Data protection compliance and multi-step authorization processing, which will be carried out at the eGovernment Portal by using the episode knowledge base and data held in the personal vaults.

o   Electronic signing of HTML forms of XML or XSL files which are transferred to the e-Government Portal.

o   Electronic signature requirement for all interactions between the e-Government Portal and back-end systems.

o   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.

PUBLIC KEY INFRASTRUCTURE

Public Key Infrastructure (PKI) is the technology that is currently being adopted worldwide for the provision of on-line security and personal authentication. Public Key Infrastructure may be defined as the entire set of policies, processes, server platforms, software, and workstations used for the purpose of administering certificates and keys.   Public Key Infrastructure is recognized worldwide as the current most secure alternative for the provision of secure on-line services, and individual signature authentication and non-repudiation.

PKI is based on the use of electronic certificates which bind the identity of a person or an organization and the ownership of a public key, which can be accessed and used by others. Each public key has a corresponding private key, which only the owner has and can use. To keep information confidential the public key of the intended recipient is used to encrypt the message and the corresponding private key is used by the recipient to decrypt the message.

The confidence in the system that is shown by sender and receiver of information can only come about by the presence of a trusted third party which handles the issue and management of public keys to their respective owners. This third party entity is the Certification Authority (CA). Public Key infrastructure therefore permits the creation of secure and universally accepted digital signatures, on the condition that a trusted Certification Authority (CA) handles the process.

Different countries are adopting different strategies in the implementation of a comprehensive Government services and nation-wide PKI infrastructure. There are several variables which impinge on the adoption of the relative strategies, among which one finds factors such as geographical characteristics, public service structure, political culture (which determines whether systems are centralized or decentralized), existing legacy systems, which would have entailed the proliferation of isolated security systems.

The Grenada environment would militate in favour of a simple scaled down version of Government PKI. The Public Service should have a common platform across information systems. Problems of legacy systems and of on-line transactions do not arise. We have a National ID Card system and the Common Data Base. All these elements make for the creation of one overall Certification Authority (CA), which can issue certificates and keys to all users for utilization in respect of all Government Services.

The ideal solution in the implementation and running of a Government Public Key Infrastructure would be one PKI, serviced by one Certification Authority, that would attend to the certification of all individuals and

organizations related to e-Government services, and that would be accepted across the public sector.

The services of the Government Certification Authority (CA) could also be availed of by the Private Sector as, for example, in the case of Finland. The Population Register of Finland serves as the Certification Authority for the electronic exchange of official information. It provides both electronic identification for citizens, and certification services to government agencies. The Certification Authority (CA) service is based on the Finnish Electronic Identification (FINEID) card. This card, which is a smart card, has gained widespread recognition throughout Finland and may be used by the general public and the business community, not only for accessing government services, but also for conducting business electronically with a number of banking and insurance services. The envisaged benefits of such an arrangement would be relative simplicity in the design and management of the overall PKI environment, characterized by economies of scale. Ultimately, however, it will be the market that would determine whether such a scenario would eventually materialize.

The creation of a single Government Portal and related PKI infrastructure, catered for by one Certification Authority for e-Government services, will avoid complexity, ensure full interoperability and encourage cross-functional utility. One further critical advantage of this approach is that it is far more cost effective to have a central PKI infrastruture lodged within the eGovernment Portal as against individual applications across the entire Public Service. Furthermore, ease of use to the user is far higher given that the user is provided with one 'key' which will allow him or her to

access any application in a secure manner for any government service to which the user has legitimate access.

In the building of the Government PKI infrastructure a relatively uncomplicated and comprehensive solution is preferred. In this regard, the following is proposed:

The setting up of a Policy Management Authority that will set policies, provide approvals and take decisions on the nature and operations of the Government PKI.
Its main functions would be those of:
- o   Providing direction and management of the Government's Public Key Infrastructure.
- o   Establishing and approving applicable operational standards and guidelines to be followed by the Certification Authority.
- o   Establishing and approving Pubic Key Infrastructure Certificate Policies for the Government.
- o   Keeping the Government informed of developments in public key technology and infrastructures, including standards and industry practices.
- o   Promoting awareness of the role of the Government PKI in enabling secure service delivery, public administration and communications.

The creation of a single Certification Authority for e-Government services whose function will be
that of associating a public and private key pair with a particular individual or entity. It would:
- o   Identify the individual or entity which is to receive a key pair.
- o   Issue keys and related certificates guaranteeing the owner's identity.
- o   Revoke keys when a private key may have been lost, stolen or otherwise made public.
- o   Provide notice as to those key pairs, which have been revoked.

Until such time as the necessary organizational and technological structures are in place, no individual Government entity should take initiatives in this direction. This is to avoid the risks of total and costly revision and realignment later, or operating in a legal and regulatory vacuum

without adequate security guarantees and unnecessary exposure to potential liabilities.

SMART CARDS

The target of achieving secure transactions via authentication would point to the use of Smart Cards, possibly containing the individual's biometric data. Factors such as a lack of standardization in the smart-card environment and return-on investment considerations, are keeping countries back from making the jump to smart-cards on a national front, although individual systems using smart-cards may be found. (Visa has just introduced its smart Visa Card)

Smart Cards and the National ID Card System

From a business viewpoint the use of Smart Cards solely for authentication purposes would mean the underutilization of their potential. Any move towards the wholesale introduction of Smart Cards will have to factor in the various uses to which they may be put, and to tailor the possible additional applications identified for eventual uptake of Smart Card technology accordingly.

Another issue relates to whether the Government will issue Smart Cards itself on a universal basis, potentially via the ID card system, or whether it will 'piggy back' on widespread card systems in use or coming into use in the private sector. It is envisaged that issuance by the Government of Smart ID Cards is the logical way to go. The example of Finland with the FINEID Card is a useful experience to study.

Although the introduction of smart cards is not envisaged to take place in the immediate future, provision for this eventuality should be taken now in

order to avoid costly duplication of work when they are eventually introduced. Care should be taken to ensure that when the current ID cards are due for renewal the new cards that are distributed will contain the required space for eventual insertion of the chip. The new ID Cards would therefore be smart-card-ready plastic cards, which will still serve the purpose of physical identification.

This will obviate the need for a costly card-replacement process should the shift to smart cards eventually become feasible. All that would be required would be the insertion of the chip in the existing plastic cards. The cards would then serve a dual purpose, that of smart cards for authentication and the provision of e-services, as well as the 'traditional' physical identification of the owner.

Security considerations suggest that ownership of the physical cards, whether 'traditional' ID cards or (eventually) smart ID cards, need to be determined, and distinguished from the services they provide.

Smart Card Infrastructure
Grenada should begin exploratory discussions with various entities on the possibility of eventually adopting a common smart card infrastructure. For example, Commercial Banks need to change their current ATM infrastructure in order to introduce smart cards in lieu of the decision by MasterCard and VISA that have established mandatory migration of magnetic debit and credit cards to smart card technology by 2005. The Banks may be ready to assume a considerable portion of the costs of the technology, in return for an arrangement whereby it could benefit from a considerable increase in business, through the handling of e-Government financial transactions.

Government should initiate discussions with the players in the regional and national Banking sector who might be interested in such a joint venture.

The eventuality of adopting a common ID and Banking smart card is not easy to achieve. It is highly unlikely that issues such as branding and ownership of the card will be overcome. Dual card use, that is the Government ID card for e-Government services and the Banking card for Banking services, is not, however seen as being a stumbling block to the implementation of a common smart card infrastructure.

Be that as it may, the Government Portal architecture to be adopted must take into account the eventual introduction of smart-cards.

The type of card to be adopted and the related technology must be determined. The question of whether to do so within the context of a CARICOM or OECS smart card standards that are to be eventually agreed upon is an important issue for discussion. The establishment of common regional specifications for a generalized smart card infrastructure seems to be a logical step as part of the Single Market and Economy. Access to essential services with smart-card based authentication everywhere in CARICOM should be a target of the CSME.

In the short-term, Grenada's best way forward is likely to be that of data encryption and authentication without the use of smart cards, and to study developments of smart card for potential introduction a few years down the line. In the meantime, transaction services to be implemented will therefore be accessible via PKI and use of the private key will entail the input of a pin or personal identification code. Work on the security features will be among the first tasks to address.

The CARICOM region needs to be persuaded to commit itself to:

o   Defining common, workable, affordable and timely security certification procedures and infrastructures for the security certification of

products/devices and acceptance environments (by a given time period, say 12 months).

o   Agreeing on common or interoperable technical specifications for Identification, Authentication infrastructural, and services in the Region.

In the meantime preparatory work for eventual smart-card implementation should be taken in hand as a specific initiative. At this stage the main tasks envisaged would consist of:

o   Discussions and agreement with the Electoral Office, and the Police Department on the introduction, at the next round of ID card renewals, of smart-card-ready plastic ID cards.

o   Further discussions with the Banks with a view to reaching an agreement in principle as to further Government-Bank co-operation in the implementation of a common kiosk infrastructure, given that Banks are being intimated by the major credit card companies to switch to smart cards by 2005.

o   Identification of the Smart Card technology to be used taking into consideration the direction to be taken by the Banks in this regard.

DELIVERY CHANNELS

There are several routes via which on-line e-government services can be conveyed.

Direct access by PC to e-services over the Internet is the most obvious channel. Aspects related to social inclusion and public convenience would, however, point to the utilization of other channels such as call centres, kiosks and community-based over-the-counter services. Notwithstanding any future improvements in Internet penetration, there will inevitably be segments of the population that will not have the opportunity for Internet access.

In addition, illiteracy, "technophobia" preference for person to person interaction and service, the financial inability to own a computer can all

affect a citizen's preferred mode and channel of access to government services. The adoption of a variety of access channels would therefore address the needs of a significant percentage of citizens.

i.   Direct Access via Internet

Though the Internet is the best-known channel for the delivery of on-line services by Government to its clients, its current overall penetration even in the economically advanced countries is still far from saturation point. Grenada lags well behind with an estimated penetration rate of around 3% of the population. Direct Internet access to e-Government services via PC is therefore only one of several channels that have to be considered for the widespread dissemination of on-line services. Grenada's Internet penetration can be expected to increase substantially over the next three years, given the growth in ICT and Internet awareness, the movements in liberalization of the telecommunications sector, the growth of service providers and market competition with the concomitant price reduction, affordability and quality improvement in service provision.

The speed by which transactions can be made over the Internet is another factor that will have to be tackled. Internet Service Provision at the moment is far from being satisfactory. Bandwidth has to be increased both locally and in the international connection, with adequate excess capacity built in so as to cater for future increases in number of users and traffic.

Internet facilities need not be restricted to PC owners (and nowadays - mobile phone owners). The setting up of PC's in public places for universal consumption is a practice that is being followed universally, with typical venues being schools, post offices, libraries, local and community offices and government local offices, and perhaps commercial banks.

Interactive services also entail the requirement that the user have the facility to communicate with the service provider via e-mail. While PC owners who are hooked to the Internet are also provided with an e-mail address, this may not the case for those users who have to access the Internet via public access points (which may also be kiosks). The possibility of eventually providing all citizens with an individual e-mail address will therefore need to be pursued.

ii. Mobile Telephony

Mobile networking has become a major player in ICT over the past couple of years, due to the adoption of WAP (wireless access protocol) which is an open, global specification that enables mobile device users to easily access and interact with information and services instantly. This client-based software enables wireless access to Internet in combination with a suitable network server.

WAP has been designed for the current generation of wireless devices, so that fundamental design changes to present-day mass market products are not necessary. Moreover, prices are being driven towards affordability, thanks to WAP being well suited to current product capabilities, as well as by mass-market volumes and by vigorous competition. WAP uses existing Internet standards, and has been optimized to solve problems that had to date characterized the provision of Internet over mobile networks, which required large amounts of mainly text-based data to be sent.

Mobile telephony can be looked at for the provision of a host of e-services, such as e-mail, e-commerce transactions and e-banking services. The provision of information-based services also renders mobile telephony an attractive proposition within the ambit of e-Government.

Moreover, mobile telephony also lends itself to the use of smart cards, which is another feature in its favour.

The provision of e-Government services over mobile telephony will be limited by the nature of the receiving set. Nevertheless, mobile telephony is a very attractive channel for a host of e-services and can play an important part in the overall e-Government set-up. The number of mobile telephony users is rising very fast. Prices are falling and technical features increasing. When roaming becomes commonplace in the Eastern and southern Caribbean, the numbers can be expected to soar.

iii. Normal Telephony Value Added Services

On-line delivery channels to be used realistically hinges on the status and trends relative to the stock of communications equipment currently in use by householders. Automated telephone transactions via the Public Switched Telephone Network (PSTN), such as the ones in existence in tele-banking services, could be used in certain cases. Possible instances are the payment of fines and bills, and the renewal of licenses. Such modes of payment are currently in use in various countries. The possibility of certain basic services being provided via normal telephony should therefore be examined in the context of e-government service delivery.

iv. Interactive TV

There are three types of digital television (DTV) that can be utilized, namely, Digital Terrestrial TV (DTT), Digital Satellite TV (DST) and Digital Cable TV (DCT). DTT and DST would necessitate the use of access by modem via the telephone network for the use of interactive services.

The extremely high penetration rate of television in Grenada and the growing penetration of Cable TV offer good prospects for its use as a channel of access and transaction. Although not yet a seamless

alternative to the PC, the DTV is a familiar and friendly tool for the technologically uninitiated. The technical problems as an Internet user interface are likely to be resolved in the near future, and allow its use as a universal take-up of e-transactions.

v.   Kiosks

Not all citizens will ultimately have means of access to electronic transactions. It would therefore be necessary to have such means available at public sites, such as schools, local and community sites, post offices, and public libraries, commercial locations such as Banks, Malls and supermarkets. The means of access identified as being ideal for such sites are either PC's or interactive kiosks.

Capital cost and maintenance factors would come into play, and will militate whether we move down this route. One alternative would be to 'piggy-back' on private kiosk-services providers, thereby maximizing usage and splitting costs. In this respect, the possibility of a joint kiosk venture with the Banks, the local shop, grocery store, or gas station could be explored to meet the Grenada requirements.

vi.   Over the Counter Service

Face to face, over-the-counter service will continue to be the 'traditional' mode of interaction between Government and citizens. The new technology opens the prospects for such a service provision to be more efficient and more decentralized geographically, and be provided at community level. The Public Service may wish to set up its own over-the-counter delivery structures at locality level. The costs would be modest and may even represent savings over the current centralized paper-based filing and retrieval system involving use of multiple officers per transaction.

The locality-based service provider can also be an organization (NGO, service group, etc.), which is completely separate from the Back-office service providers. Another option is to contract the service out to the private sector. Any of these options entails a formal agreement between back-office supplier and the 'retailer' and the establishment of means of remuneration for services rendered

It is envisaged that organizations carrying out over the counter service will essentially act as intermediaries and will utilize the web-based on-line services on behalf of the client. Authentication should not be an issue in this case.

vii. Local Call Centres

Local Call-centres may be used as brokers in the provision of information-based and transactional e-services. The main stumbling block to the delivery of transactional e-services via Call Centres is the question of caller's authentication.   The complexity of the problem rises proportionately with the confidentiality of the transaction.

Another possible use of the call centres is in the provision of help-line services to clients who are accessing the service via the Internet, kiosks or interactive TV. This service is very important in that it ensures that users constantly have the facility of obtaining assistance when accessing a service. Call centre services of a help-line nature would ideally be provided round the clock on a 24x7 basis.

Any such service to be provided should be underpinned by the presence of two fundamental requirements. These are that:

i.   The on-line information available for onward transmission, at the 'helper' end should be quickly accessible, easily readable, comprehensive and up-to-date.

ii.   The service or aspects of it (such as user-helpdesk facility) should ideally be up on a 24 hours, seven-days-a-week (24x7) basis.

The first can only be provided by Government service-providers who supply the necessary information to the call centre. If the Government is not able to supply round-the-clock service kind of service via its own set-up, it should explore the possibility of farming out call-centre services to third parties.

COMMERCIAL CONSIDERATIONS

The front-end delivery channels can be considered as being 'retail channels' by means of which clients make use of Government services. Just as wholesalers and retail channels are distinct operations run by separate organizations in the commercial world, the delivery or 'retail' aspect of Government service delivery can be run by entities which are distinct from the Government 'wholesale' service provision part. These commercial channels can be Government-owned but there is no barrier to farming them out to the private sector or to local community bodies in a controlled environment. Controls would be in the form of a contract or service level agreement and the issue of an operating license under clearly defined conditions. Commercial channels would include the provision of services via a web front-end, kiosks in banks, shops, or shopping malls, call centres and over the counter services.

Wholesaler to retailer payment methods for channel services provided are various, and will depend on the nature of the channel as well as on the nature of the transaction. For example:

o   Some Government activities could add value to the service provided by a commercial organization, which could be prepared to pay for access to these services, eg vehicle license renewal by insurance companies on behalf of their clients.

o   The citizen could be prepared to pay for certain services provided by the commercial channel.

o   Where large sums of money are involved, return to the commercial channel might be via overnight investment.

o   Government might fund the transaction in its entirety.

o   Government pays the commercial channel a flat rate per transaction delivered to it.

It is as yet too early to enter into the specifics relative to the means of funding of commercial delivery channel services. However one has to bear in mind that the switch from conventional to e-services on the one hand, and the farming out of delivery channels on the other, will likely entail cost-savings to the Government in areas such as front-office operations, mail processing and data input.

The notion that the end client, if not the channel, might end up paying for the service is not likely to be productive, especially in a start-up situation where the intention is to make the service as attractive as possible. Instances where channels will pay for services provided are unlikely to be substantial. As a general rule the client should not pay for channel service usage.

THE SERVICE OF EGOVERNMENT

Customer-centric business model

The accelerating popularity of digital services worldwide, the emergence of the e-Economy, and the expanding Internet connectivity in Grenada are all serving to transform the expectations of increasing numbers of our citizens and businesses towards service delivery. "One-to-one marketing", "24x7", "permission based" ; terms that did not even exist a few years ago now permeate the daily vocabulary of customer service. These terms are now being transferred from the international commercial sector to the domestic economy and into the interactions expected between citizens and government.

Citizens in Grenada can now purchase a car online, but must stand in-line to register and license their new vehicle. Citizens and businesses can interact with their Bank and their bank account online. They can pay increasing numbers of bills online, but must stand in-line to pay in cash even small amounts to the Customs or to the Treasury; or send from England to a friend or relative in Grenada to apply and collect a Birth Certificate from the Ministerial Complex and mail it to England.

The divergence between dealing with government, in the real world, and operating as a citizen or a business in the online world will increasingly pressure the government to incorporate online management systems into its service delivery model. Government, as the largest supplier of services in the domestic economy must modernize itself.

The modernized government online must be governed by a number of factors:

• **Vision and Implementation**

The Vision articulated by the Government must be closely supported by the provision of the right administrative structure and mechanism that would support implementation, communicate deliverables, and establish accountability for delivery. There needs to be the right balance between political leadership and administrative simplicity for effective e-Government. There must be visible and committed leadership within both the political and administrative arms of government. The experience in several countries confirms that early political leadership builds momentum. But the creation of simple guidelines and deliverables and timetable for government agencies combine to deliver results quickly. The right infrastructure and implementation programme with clear accountability for results is crucial.

Structure, in the form of an accountable agency to deliver e-Government initiatives, is vital. Canada, Singapore, Ireland, united States all have a clear Plan and Structure within government to spearhead e-Government development programmes, and have achieved their leadership position as a result of these programmes having been in place for several years. The new positions and Agencies must be attached to the highest level of Office rather than have implementation delegated to individual agencies. This high level and centralized initiative is vital, as the success of e-Government depends largely on cross agency co-operation.

Grenada's e-Government strategy will adopt the following strategy:
- Building e-government presence,
- Thinking big,
- Starting small, and
- Scaling fast.

Implementing the migration of government services from in-line to online can lead to dramatic improvement in public services. But that exercise is

considerably more difficult than its private sector equivalent. Implementing e-government involves not only managerial and organizational challenges, but also complex social, regulatory and legal issues that will test even the most sophisticated of public services. Not only is it necessary to move the appropriate group of citizens and businesses towards the new service delivery channels, there will also be need to target resources towards the more needy groups within the society.

The national digital divide will complicate the process of implementation. Some government services with significant potential for improved efficiencies and lower costs, such as the social services, are those for which the majority of consumers are most adversely affected by the digital divide. Specific measures would have to be taken to narrow the digital divide in Grenada, and bring significant social groups within the reach of new technologies.

- **Citizen-Centric – An Intentions based Approach**

The mere provision of a Website does not constitute an e-Government strategy. A true e-Government Internet strategy must also re-examine all aspects of the model currently used to service its citizen-clients, evaluate its interactions with its customers and stakeholders, and identify those areas where more value can be created for all stakeholders by moving processes and interactions online.

The overall goal of Grenada's e-government strategy will be citizen-centric, focusing the delivery of improved levels of customer service and enhanced citizen satisfaction.

Experiences of the most successful e-Government countries indicate that merely publishing information online and organizing a Web presence around Ministries' and Agencies' traditional, attitudes, structure, operations and service delivery methods will lead to disappointment. Online presence must be predicated on what the citizen wants to do, rather than how the Ministry or Agency is organized or managed.

Singapore, using the intentions-based approach, designed its e-Citizen Website around the life cycle of the citizens and the typical interactions they would have with the government at various stages in their life.

Website information supply is therefore only a first step. To be meaningful and valuable, Government online must graduate to greater interactivity and transaction capabilities, enabling the citizens and businesses to complete entire transactions with government online. Paying taxes, fines or claiming benefits online are citizen-centric value-added services; but moving revenue processes online offers several gains to government: collections are accelerated, processing costs are considerably reduced, and compliance is increased.

- **Customer Relationship Management (CRM)**

This marketing technique would require the Ministries and Agencies know their customers and better select and manage the service provided. They would need to streamline their citizen interface, their communications and marketing processes by tailoring their offerings, minimizing duplication of information and profiling customer behavior to predict their likely future requirements; and offer the product or service that is individually required.

Government has the largest customer base in the country and stands to benefit enormously from adopting CRM disciplines in terms of increased efficiencies and lower service delivery costs. Integrating CRM with online

103

service delivery offers significant economies to Grenada's e-Government initiatives.

- **Volume and complexity**

The volume of services offered is vast; and the aim is to provide the range of services online. This requires the availability of Ministries' and Agencies' websites. But most important is creating innovative solutions for the citizens and businesses that they serve. The introduction of complex transactions would be a function of the citizens' requirements and must be designed to add value.

There is merit in separating e-government plans from generic government Information Technology programmes. This will help to focus on the service rather than on the technology; and would promote specific e-Government initiatives to improve the quality and value of traditionally paper-based services to citizens and businesses online. Balancing technological choices with customer needs is the vital judgment call of e-Government.

Provision of quality e-Government services offers the opportunity for several efficiencies as well as for increased customer services. Internet transaction costs, particularly for relatively uncomplicated transactions, are substantially lower than their clerical equivalent. Those savings will allow resources to be redirected, perhaps towards those citizens and businesses that are in need of specialized or resource-intensive support. However, these benefits are likely to be realized only if government deepens its online service offers, and persuades citizens and businesses to interact with government over the Internet. Offering a wide range of easy-to-use and value-added e-Government services will be an important factor in achieving this. The sheer magnitude of government online can be daunting, but Government must aim at maximizing value to the

citizens and businesses by ensuring that government online is easy to find and easy to transact with.

- **Portals - single interaction Point**

Citizens in Grenada complain all the time about the multiple agencies they sometime have to visit in order to transact a single matter. One Office to get information, another office to get the Form, still another Office to pay, and a further Office to collect the product or the service. Such an online arrangement would be a disaster. At best, it would not be citizen-friendly to require visits to several individual sites to transact an online service.

Portals offer the citizen single points of entry to multiple agencies, and they afford citizens or businesses the opportunity to interact easily and seamlessly with several Ministries or Agencies, without the need to even know the name of the Agency.

Research from the world of business has shown that customers behave differently in the online world than they do in a physical office. In the one-on-one environment of the Internet, customers seek providers who organize service around their needs. This observation points to the need for a single gateway for users of all government websites, and for organization around the information or service that the user is seeking.

TYPES OF SERVICE

There are essentially five main types of e-service that the Government can provide. These are briefly described in the sections below:

Information

There are two types of information to consider:

- General information such as the set-up of the Executive and of the Public Service, and other information such as updated laws, Government news bulletins, information of a cultural nature etc.

- Information which is more in line with the concept of e-Government. In this case the information that is supplied to the client is in the form of instructions that the client should follow. There are three sub-types of such information.

- Information that relates to the nature of services provided to the client, and how these are provided. Such information is essentially akin to an instruction leaflet describing what the client should do to get a particular service. It would also include the facility for the client to download forms relative to service required.

- Information that is required by the client in the normal course of life, and that is very often the reason why the service-provider has been set up. Such information is not linked to any transaction that is likely to take place. Good examples are health and safety tips or advice on preventive health care.

- Information that pertains to the individual user and that is likely to be of a private nature. The user might need to consult such information for personal purposes. A typical example is the individual's updated on-line medical history, or tax status.

Transactional e-Services

This is an area where e-Government becomes interactive and therefore particularly useful to the citizen. There is a whole array of services that can be provided by the Government via this medium. The spectrum may range from the application for social services, for employment, to the payment of traffic fines, to the submission of a tax form. This is one of the most challenging aspects of e-Government in that it really takes the service to the citizen.

While the provision of information is important as a service in itself, on-line delivery of services is the crux of the whole concept of e-Government. It means delivering a service to the citizen in a fashion that is 'user-friendly'. By implication the quality of service delivered on-line cannot be a replication of the bureaucracy that the citizen faces in the current environment.

Therefore, there has to be a rethink of the philosophy of Government entities which should not be restricted solely to e-Government, but should cascade to all aspects of organizational activity. In other words, if the Government adopts a business type attitude that is client-centred, service delivery, whether on-line or off-line, will improve.

The introduction of e-Government therefore provides the opportunity not only for the introduction of new technologies, but also for reform of the system and the modernization of the nature and culture of public services and the relationship between government and its clients.

Government service providers have to get out of the mode of demanding that the client behaves and responds according to their needs. They should switch to the mode whereby they should be seeking to render a service that, while respecting statutory and other requirements, is simple, timely, courteous and dedicated to the needs of the client, rather than those of the service provider.

One key factor is that client expectations, relative to promptness in service delivery, has increased somewhat in those countries where on-line services are already provided somewhat extensively.

The Canadian Public Service estimates that whereas the public deems two weeks as being an acceptable interval for a response to a request via normal mail, it expects a response to an E-mail request within four hours. Building an on-line 'façade' on the current local Government service-delivery culture can be tantamount to a boomerang in terms of public perception of, and confidence in, the efficiency and effectiveness of Government Services.

Electronic Commerce

The focus in this case is on Government to Business type of transactions. While less apparent to the general public, it is still an important aspect of e-Government. It is also likely to be the most difficult service to implement. There are two reasons for the difficulties involved.

The first relates to the fact that financial transactions on-line are likely the most complex in terms of implementation. The second reason is that there is currently no e-commerce culture either in the Public Service or in the Private Sector. So, there is no real push coming from any quarter, although the global electronic market will, sooner or later exert its pressure on the local market. Meanwhile other jurisdictions are viewing e-commerce as a priority area, and some governments have taken it upon themselves to actually play the role of leaders in the field so as to encourage the private sector to follow suit, thereby boosting the economy via increased trade.

Two areas in Government where electronic commerce is considered to be of particular importance are customs and general procurement of goods and services, but there are others. The Government should actively follow a policy aimed at creating an e-commerce culture in the national economy. The adoption of on-line procurement of goods and services by Government is one important measure which will directly promote e-commerce in the economy as a whole. It should be resorted to as a matter of priority.

The Government should immediately initiate work towards achieving full capability in on-line procurement, and other forms of Government to Business transactions at the earliest possible opportunity, in view of the

important spillover effects that this activity can have on the e-Commerce environment in the national economy.

Moreover, the Treasury should aim at effecting all payments, including internal ones such as transfers to Ministries and Departments, and the payment of salaries to Government employees, and the payment of dividends to beneficiaries, for full electronic payment to take place by direct electronic transfer. The Treasury should also target full electronic payment to contractors and suppliers by the end of 2001.

This should be achievable in a relatively short time, given that the local Banks already cater for such payment facilities over their own private networks (and not yet via the Internet), and the Treasury can now make limited use of such facilities.

e-Democracy

This is a very interesting concept that has taken root in several countries that are implementing e-Government. e-Democracy is not merely seen as the potential use of Information Technology for electronic voting. It is rather the way that public authorities at different levels interact with citizens on a daily basis through the use of Information and Communication Technology.

The promotion of e-Democracy is an implicit by-product of e-Government given the prospects for the provision of easily accessible on-line information to the Citizenry relative to the workings of Government. The widening of two-way communications channels is also an implicit way of fostering e-Democracy.

The open invitation of public reaction over the Internet to Government policies and envisaged legislation would represent a primary contribution to democracy in Grenada.

But Government should extend the use of the Internet to ensure consultation and feedback on major political and policy initiatives. The aim would be to go beyond simply publishing legislation and White Papers on the web and establish a discussion and feedback forum possibly with independent moderators.

One requisite that the literature on the subject emphasizes is the need for universal access to information and the communication channels that enable active participation.

Non-Governmental Services and Information

There may be services that are provided by the private sector that may be considered as being useful for the citizen to have access to on-line alongside e-Government services. Such services may range from the hiring of cars, provision of air transport information, and the facility for payment of utility bills, to electronic banking and other such services. These services are of particular benefit to the citizen in terms of on-line access, while adding value to the e-Government Services Site. The nature of these services can range from information to on-line transactions.

Where such private entities already have web-sites and on-line services of their own, it may be worthwhile to build access to such sites via the e-Government Services web-site. A policy relative to non-government services to be incorporated with e-Government Services would have to be drawn up. One instance, which would qualify private services for

inclusion with e-Government Services, is when a private service is a component of a particular service provided by the Government, for example, private motor insurance services as a part of the annual vehicle license renewal process.

THE GOVERNMENT SERVICES WEB-SITE

The e-Government Services web-site will reside on the Government Portal front-end. It will provide the information and transactional services to any user who requires them. The layout of the information and services provided should be based on client needs and should therefore be in such a way as to facilitate search and location by users.
 It should also cater for accessibility by persons with special needs via the incorporation of tailored features.

A practical model in terms of the organization of services, as visible to the client, is the clustering of e-Government services under 'life cycle events'. Different countries have adopted varying criteria for clustering under this broad term. Other terms are coming into play in order to cater for services that do not fall strictly under the broad definition of a life event. There are several models of product clusters in existence.
The Singapore Government e-Citizen site is likely the best known, but there are other models such as the ones taken up by Portugal, the Netherlands and Australia. The notion of clustering services according to perceived client needs, and presenting them in this fashion, is valid and several countries are adopting service clustering.

The model below builds on various models adopted in other jurisdictions. There are various permutations of product clusters that can be adopted, all of which are likely equally valid.

One model for a Citizen Services set of product clusters could be as follows:
01.   Employment and Income.
02.   Sport, leisure & Culture.
03.   Health.
04.   Environment and cleanliness.
05.   Education.
06.   Business.
07.   You as Consumer.
08.   Housing and Home.
09.   Travel and Transportation.
10.   Family Affairs.
11.   Strictly for Children.
12.   The Elderly.
13.   Special Needs.
14.   Visiting or settling in Grenada
15.   Law and Order.
The list is not exhaustive.

Basically, a rule of thumb measure that can be applied in listing potential on-line services is that, if there are any services to the public whereby the latter has to fill in a form, or make some formal request for a document or a service, then that service should go on-line. For the less frequently used services, this may involve simply putting forms on-line for download or electronic forwarding to the proper Ministry or Agency which can then process manually if costs of backroom automation exceed benefits.

Some of the services that have been identified are targeted at a small segment of the population. These have been included in the first instance but a decision can be taken at a later stage as to whether the less prominent services are required to go on-line.

It would be necessary to establish standards for presentation and format. The standards should be drawn up through the coordination of the CIMU and the final appearance of the e-Government Service Web-Pages will be based on these.

BRANDING: ONE EGOVERNMENT IDENTITY

The e-Government services should fall under one single corporate identity that is distinct from that of the organizations providing the individual back-office services. The ultimate aim is to provide the image of Government e-services as one homogeneous product. This will reinforce the image of the front-end 'retail' service that is distinct from the back office 'wholesale' providers. Individual Departments will not be prominent on the e-Government Services site, and will be only visible when an individual transaction is accessed.

On the other hand individual Departments also need to establish their own corporate identity to be easily distinguishable from each other as the end-service providers. The creation of an individual Departmental identity should not, however, detract from the creation of a common 'look and feel' for all services that are provided electronically. Neither should it impinge on the structure of individual Departmental web-sites, which should be similar insofar as visual and ease-of-use features such as search facilities and content indexes are concerned.

If any delivery channels are to be farmed out to third parties the necessary measures to ensure the integrity of the e-Government Services brand must be adopted. Channels that can potentially interfere with the e-Government Services corporate image, or impinge negatively on it, should not be considered.

One potential source of financing of the e-Government Services, that should be favorably considered, is on-line advertising. If such a measure is adopted care should be taken to ensure that the type of products or services being promoted and the nature of the adverts should be consonant with the image that e-Government wants to project.

A set of standards should be drawn up relative to branding and corporate image on the Web. The capacity would be needed to monitor the adherence of incumbents to the standards set.

Grenada Government Domain Name

One fundamental component of the e-Government 'brand name' is its Domain name. The current situation in this regard is one that has to be rectified.

The Grenada Government Site needs to be identified unequivocally by all users as the official Government Domain. Users have to know that they are accessing and dealing with the Government of Grenada. The issue becomes one of trust and peace of mind on the part of users. It is therefore recommended that the Government immediately assumes the '.gov.gd' domain name for the Official Site (GRENET) as well as for all official Government sites that will reside on it. There must be sole exclusivity to the Government of Grenada in the use of the ".gov.gd" title.

THE WEB-SITE

If we are to achieve a coherent image of e-Government, we have to start off immediately at the foundations. The Government Web-site should be

of highest quality, in terms of visual coherence, format, content and organization. Information should be complete, well presented and well distributed. Specific client services page must be created whereby the citizen can obtain information, forms and contact persons relative to a government service that is required. Search facilities should be user-friendly.

Another important component of the Government Site is the comprehensive presence, by way of their respective web-sites, of all Public Service organizations, that is, Ministries and Departments. All Ministries and Departments should be present. Existing web-sites and pages of some Ministries and agencies especially those that have not been updated for quite a while should be integrated into the main Government site. There is need also to create a uniform general appearance, and a facility to be able to search between sites.

Overall, the establishment of web-standards for all Government sites is an important prerequisite.

Setting up and managing web-sites

This activity is a major task in itself and involves not only the physical 'look and feel' aspect but also the organisational, procedural and regulatory aspects. The Central Information Management Unit should, jointly with others, commission a blueprint in respect of presentation standards, organisation and processes, relative to the setting up and maintenance of web-sites. The final product should determine the following requirements:

o   The
standards relative to visual presentation, navigation facilities and
accessibility features for persons with special needs.

o   The
nature and extent of information content that would ideally be placed in
the respective sites.

o   The
organizational set-up that would be required within individual
Government Ministries and Agencies to carry out the various tasks leading
to successful implementation of web-sites, and regular maintenance
thereafter.

o   The
nature of human resources that would be required to carry out identified
tasks.

o   The
identification of those aspects of web-site design and development that
could be farmed out vis-à-vis those that could or should be carried out in-
house.

There has to be a sizeable element of capacity building within Ministries
and Departments for the effective implementation of e-Government. It
seems logical that the human resources appointed for the development
of the technical aspects - but not the content - of the web-sites would
reside within the Ministries' Information Management Units (IMU's). It is
likely that the duties of the staff concerned would not be restricted to
web-related work, but that they would have to have multi-disciplinary
capabilities. This would enable them to cater for other functions which
the IMU's would be expected to carry out. Scale of operations would

dictate to what extent multi-skilling would be required. This requirement would vary across Ministries.

The capacity building of Information Management Units is therefore seen as being a necessary step towards the implementation of e-Government.

Government sites' Domain names

All sites that would be set up and reside on the Grenada Government Site should carry the ".gov.gd" suffix to their respective Domain names to distinguish them as official Government sites in accordance with world-wide practice. In the case of Ministries and Government Departments the respective domain names will all include this suffix. The site on which the Ministry sites shall in turn reside, shall also adopt the ".gov.gd." suffix. This is an important part of the the branding aspects of e-Government.

The matter becomes rather less clear when it comes to Public Sector State Enterprises and Utilities. The first issue to resolve is whether any of these entities would qualify for the label ".gov.gd" and, by implication reside on the Grenada Government Site and therefore on the Portal. A prima facie answer would be in the affirmative for at least a number of these entities. There are implications that this right will likely also entail.

The following issues relative to Public Sector Entities therefore need to be addressed:

1. Whether Public Sector entities should at all carry the ".gov.gd" domain name and reside on the Grenada Government Portal.
2. Under what criteria would Public Sector entities qualify for the ".gov.gd" domain name.
3. For those Public Sector entities that would qualify for the "gov.gd" domain name, it would have to be ascertained whether the standards required for Public Service Sites would also apply to them. This would entail that the CIMU take

overall responsibility for setting standards to be followed by these Public Sector entities.

4.   If these public sector entities are to supply services via the e-Government Portal, as would seem to be the case, then they would have to comply with all the security and authentication standards and protocols in place.

If a number of Agencies were to establish their own e-services on separate platforms, we risk losing all the advantages of a common platform; these agencies/Ministries would fall out of the scope of the e-Government programme, and will be duplicating security and authentication requirements.

It seems sensible to make provision for a coordinated umbrella responsibility within the framework of the Central Information Management Agency with appropriately wide mandate in the regulation of Information Technology, Information Systems and Information Management within the Public Service. This widening of the CIMA's mandate could be effected by the expansion of the definition of Public Service to embrace a number of Government-owned or controlled entities, that lie beyond the boundaries of the traditional Ministry and Departmental structures, and easily reside within the Private Sector, or could be conveniently privatized

Ownership and Maintenance of the Grenada Government Site, AND E-Services

The Grenada Government Site, (GRENET) will host all the individual Ministry and Public Sector entity sites and the e-Government Services site. On its part, the e-Government Services site is the one that will host all the cross-Government e-services to be provided. By implication these sites, that is

the Grenada Government Site and the e-Government services site, are corporate entities in the ambit of the Public Sector. This raises the issue of ownership of these sites.

This matter still requires further consideration and determination. One consideration is that elements responsible for the ownership and resultant development, and subsequent maintenance of the web-sites within their respective Ministries, would also own their e-services and be responsible for their setting up and subsequent maintenance. They would not, however, be responsible for the overall management of the Site on which their individual web-sites would reside or, for that matter, the e-Government Services site on which their services would reside.

The management of both the Government Site (GRENET) and e-Services site could be farmed out in their totality to a third party contractor. In the case of both the Government Site (GRENET) and the e-Government Services site, the owner would be responsible for the following aspects of the operation during and subsequent to implementation:

Implementation:
o   Drawing up the visual and content requirements of the e-Services site in accordance with established standards.
o   Commissioning the design of the e-Services site.
o   Commissioning the development of the e-Services site.
o   Appointing a host and manager (Web Master) for the site.
o   Drawing up a service level agreement / contract with the site-manager on the basis of agreed parameters.

Post-implementation operations:

o Ensuring that the site-manager carries out the job according to agreed parameters set out in the service level agreement / contract.

o Maintaining the currency of the e-Government Services site in terms of content and requesting the site-manager to carry out any changes to design and format of the web-site as required from time to time.

The ownership of the Government Site (GRENET) – as against the infrastructure - is an issue that needs addressing. Several options are open for consideration. Ownership could fall to the Information Ministry, or the Ministry of Finance, or a new Government organization which can be created with this specific purpose.

The e-Government Services site will be a new development. There is no Government entity that would be an automatic choice for ownership. A new Government entity catering for this function may well be a more feasible option.

In terms of the e-Services site, the owner of the site would be responsible for the site itself but not for the individual services residing thereon. The individual services are owned by, and therefore the responsibility of, the respective service-delivery Ministries/Agencies.. These shall, as a result, be responsible for the development and subsequent maintenance of their respective services, including the management of any organizations contracted for the carrying out of such services.

PRIORITIZATION OF SERVICES TO GO ON-LINE

Information services can start to go on-line once the preliminaries issues relative to the Government Web-site re-structuring, organizational issues as to who does what and web design standards are settled. Transaction services are not so easy to implement given various issues that have to be addressed prior to roll-out.

The transaction services will go on line gradually according to a time-scale that needs to be set. It will therefore be necessary to prioritize their roll-out on a set of criteria, some of which work against one another. Suggested criteria include the following:

o   The volume of transactions being handled by the service and the number of clients. The higher the volume the more ideal it would be to roll out the service.

o   The potential backroom cost-savings in implementing on-line services. The higher the savings the more attractive the early roll-out. It is likely that the bigger the service the higher will be the savings on backroom activities.

o   The complexity of the service. The higher the complexity of the service the more difficult it is to achieve roll-out.

o   Whether the service-providing Department is computerized and, if the application is in a state of development, the likely target date when it will be completed. If the Department is not computerized, it will be difficult to achieve early roll-out unless the service is simple and does not require back-room computerization.

o   The level of robustness of the current IT application within the service providing Department.

o   The level of security that the service requires. The higher the level of security the more likely that the service will be delayed in roll-out or that the service will only be supplied in a more limited manner.

o   The level of business process re-engineering and/or changes in legislation that may be required in the service-providing Department prior to roll out. The bigger the requirement the more likely that rollout will be delayed.

o   The level of complexity in integrating the Internet front-end to the back-office system. The higher the complexity, the later the rollout.

An assessment of the services to go on line will be based on various exercises at different stages of the e-Government Programme.

01.   The first exercise will be relatively high level and will serve to identify those Government services that should ideally go on-line. This exercise will also serve to provide a broad outline as to what the service will entail by way of deliverables and back-office linkages. This initial exercise will also serve to establish the positioning of the individual e-Government services in the related service clusters.

02.   The second exercise will be more detailed in that it will entail a prioritization exercise resulting in a multi-year rollout plan for e-Government Services. The rollout plan will be established following analysis of each and every service on the basis of the above criteria.

03.   Detailed requirement specification of the individual e-Government Services and any possible (BPR) requirements of related back-office systems will be mapped out at the implementation stage of each service.

The Implementation of a Pilot

A service or a restricted series of services will be earmarked for the implementation of a pilot that will test all the features that will eventually characterize e-Government services. These features would include:

o   User friendliness.
o   Security.
o   Authentication.
o   Interaction with multiple back-office systems.
o   Visual presentation.
o   Features for persons with special needs.

The pilot service/s will run on a reduced-scale model of the three-tier architecture that will be needed to run them when they eventually go live.

COMMUNICATIONS STRATEGY

A Communications Strategy is necessary throughout the various stages of the e-Government Programme. Basically the Strategy would cover the pre-implementation and implementation stages of e-Government. In the pre-implementation stage it would be ideal to sound out public perceptions and expectations by means of surveys and focus groups. The surveys and focus groups would establish:

o   Public awareness as to the existence of e-services and electronic channels as the means to access such services, including Government services.

o   Public perceptions and expectations relative to e-Government service delivery.

o   Propensity by the public to use e-services once these would be on-line and related reasons.

o   Preferences relative to eventual delivery channels that could be provided.

o   Conditions under which usage of electronic delivery channels would be taken up by the public.

The surveys and focus groups would be targeted to address a comprehensive and statistically significant cross-section of the population. In the eventual analysis of results, however, attention would be given to replies submitted by specific categories of the population, e.g. youths, businesses, the elderly, persons with differing levels of education and so on. The results would influence not only the choice and frequency of eventual service delivery channels but also the subsequent 'marketing' of the services relative to specific target groups. The exercise would also serve to ascertain the extent and nature of any eventual capacity building requirements on a national scale.

123

During the implementation stage when e-Government services will start going on-line, it will become necessary for the public to be made aware of their existence and of the potential benefits that can be obtained from the utilization of such services. Work need to be done (market research) to ascertain the most appropriate communications strategies to be utilized relative to target audiences.

Potential clients have to be made aware of the advantages in the utilizing on-line as against traditional modes of service. The communication strategy should emphasize those aspects that are likely to influence the public and determine whether or not on-line services are utilized. Such aspects as the respect of privacy and the security level afforded by the system in effecting on-line transactions, especially those involving money transfers, need to be emphasized.

 A mix of direct marketing and poster, audio-visual, print media as well as on-line advertising will likely be used for promoting the new on-line services that are available. There should be different marketing approaches to different clients mainly on such parameters as age, IT literacy and level of education.

The communications strategy campaign should not raise expectations unduly and should maintain a constant tempo over an appreciable period of time. It should intensify when a critical mass of eGovernment services will have gone on-line. The campaign should also factor:

o   Promoting of the use of the Internet and other established service
        delivery channels.
o   Sensitisation of the public to the fact that these new service delivery
        options are available.

o   Promoting a customer-focused services by the Government, thereby enhancing its image.

o   Raising public awareness as to the training facilities that will be provided in terms of Internet usage.

The Information Department should be responsible for the Communications Strategy, but this should be coordinated and developed in conjunction with the other agencies. Third party services may have to be engaged as appropriate.

GOVERNMENT INTERNAL CAPACITY BUILDING

Significant organizational changes will be required in order to cater for new roles and functions which the implementation of e-Government will require.

Sizeable changes will be required too in individual roles, work attitudes, work culture, skills-base and work strategies during the period of up-take of theses technologies. Most of the mundane, tedious and repetitious functions are likely to be replaced by new web-technology, communications, and customer care skills. The resultant organizational changes and skill levels within the Public Service will be far-reaching and continuous.

Specific training programmes will therefore need to be planned and implemented throughout the Public sector in order to develop the human resource capabilities, not only in computer literacy and competence, but also in research techniques, information gathering, data filtering, data management, information sharing dissemination as well as in improved

service delivery skills and customer management techniques and sensibilities.

ORGANIZATION-SPECIFIC INITIATIVES

Recent experience in other countries such as the UK and Ireland relative to the implementation of e-Government is that the initiative must be centrally piloted by a Programme Coordinating Entity that will cut across departmental boundaries. Individual service-providing Departments will still be responsible for the implementation of on-line delivery of their particular services but this implementation will be within the wider ambit of the cross-Government initiatives.

The following organizational requirements in this start-up phase of the Programme can be envisaged as immediate requirements:

The Central Information Management Agency

The establishment of a Central Information Management Agency (CIMA) is vital to the coordination of the overall programme. In the ambit of e-Government, the Central Information Management Agency (CIMA) is necessary to take on a host of planning and coordination responsibilities, including:

- Planning and Owning the e-Government Programme.
  a. Design and build the e-Government Portal Architecture
  b. Determining and sizing the Backbone
  c. Design, construct, maintain the Grenada Government Network
  d. Provision of e-Commerce solutions
  e. Create a Secure environment, viz:
       i. Design Security features
      ii. Authentication features
     iii. Smart card solutions
  f. Mobilizing the establishment of Ministries' websites

g. Preparing of procedures and standards
h. Promoting, implementing, and managing Smart Partnership with the Private Sector

- Ownership of policies and standards relative to e-Government matters, such as:
  - Public Key Infrastructure.
  - Web presentation and accessibility.
  - e-Government Service delivery, quality and standards.
  - Channel Policy.
  - Branding and Corporate Identity standards.
  - Standards relative to third-party presence on the Government Portal.

Ministries' Information Management Units (IMU's)

The creation of Information Management Units in each Ministry or Agency is required to give each Ministry enough in-house capability to manage its Information functions.   Ministry IMU's have to look at the identification, development and maintenance of their respective Information System / Technology / Management requirements.

IMU's need to be established early to ensure available capability for the internals of the Ministry. Within the context of e-Government, IMU's will play an important part both in the development of their respective Ministry and Departmental web-sites, as well as in the implementation phase of on-line services.   Following implementation, IMU's will have to tend to the maintenance and further development of such on-line services.

Disciplines in web-design and development as well as knowledge of the technical aspects of on-line service provision, and the respective interfacing with back-office systems, will definitely be required in IMU's. In the initial phases of the Programme it will be possibly to supply much of

127

the know-how from the Central IMU. Ultimately, however, the capability must be developed in the IMU's.

It is unlikely that there will be swift and co-ordinated development of Ministry web-sites and on-line services without the efforts of IMU's out on the field. It is therefore recommended that three pilot Ministry sites be identified for the setting up of operational IMU's during 2001, following the establishment of the necessary organizational and operational framework. Other Ministries would subsequently follow on the basis of the established pilots.

Public Key Infrastructure Certification Authority

The Certification Authority will require suitable organization, structure, procedures, processes and related human resources. It has to handle a widespread service such as the generation, distribution and maintenance of pubic keys to all eligible users of Grenada's e-Government services.

The extent to which capacity building in this instance will be required by Government will depend on which of several options will eventually be taken up.

Ownership of the GRENET and the e-Government Sites

Capacity building needs to be undertaken by way of building the competence of the Government Ministries and Agencies that will be entrusted with the ownership of the Government Site and the e-Government Services site.

Even if this entity will eventually outsource these functions, it still needs a core of knowledge workers, well versed in the subject, who will be able to manage the contractors.

SMART PARTNERSHIP: PUBLIC/PRIVATE COLLABORATION

It is expected that such a wide-ranging initiative as the setting up and running of e-Government will entail substantial inputs from the private sector. This would provide significant impetus to the development of the local IT community. Although the private IT sector in Grenada is small and not well developed, and though it is not now possible to define the nature and extent of Public / Private relationships in the various activities that will come about as a result of the implementation of e-Government, it is reasonable to expect that Private Sector involvement would be forthcoming in the following areas:

- Design of the Portal and Network
- The setting up and provision of Certification Services.
- The implementation and maintenance of Delivery Channels.
- Web Development and maintenance on behalf of Government Entities
- The provision of E-Commerce Solutions.
- Hardware and Software Supplies, and modifications

In some cases, such as in the management of Delivery Channels and in Web Development, the Private Sector is already present on the scene. It is expected that this presence will increase substantially in parallel with the additional activity generated by the implementation of e-Government.

Setting up the e-Government Portal will necessitate the partnership with a major player in the e-Commerce field. There are not a lot of organizations that are capable of providing comprehensive solutions of the magnitude that will be required by the Government in the building of the design and building of the complete Portal Architecture.

Grenada will need to make itself attractive to prospective International partners who would be interested in investing in the development of the Portal Architecture, as a showcase to the World.

FUNDING THE E-GOVERNMENT INITIATIVE

Central Government Financing

Funding the e-Government programme is expected to be made via the annual Government Budget.

The e-Government programme in this context is taken to comprise:

o   The setting up of the necessary technical infrastructure and architecture.
o   The setting up of the necessary organizational structures that will be required for implementation and subsequent maintenance.
o   The development of the front end.
o   The middleware requirements relative to each on-line service.
o   The application development requirements relative to the back office services to go on-line.
o   The business process reengineering exercises, formal and virtual, that will have to take place.

It would not be prudent to advance an approximate estimate at this point in time. When initiatives of this magnitude are embarked upon, the best solution relative to financing would be to commit a sum that represents the start-up financing and thereafter work on specific estimates relative to each individual project or service that will be identified for implementation.

The Government has already undertaken expenditure over the past five years in respect of IT development and maintenance in the Public Service.

Any amount earmarked for the implementation of e-Government should reside with a central co-ordinating entity, which in turn will have the mandate of prioritizing initiatives and attending to their financing. Centralization of funding is a form of assurance that the e-Government

initiative is co-ordinated and that a holistic approach is guaranteed. It is essential that individual Departments and Government bodies do not go their own way in the on-line implementation of their own services.

External Financing

Government and non-government financing would need to be explored. Some initiatives have already been taken in this regard.

Return on Investment

Purely financial return on investments should not be based on direct income from transactions. It is unlikely that the system will feasibly allow for client payment for individual transactions effected, at least not in the short term.

The basis for assessing return on investment should embrace that of offsetting set-up costs against savings to be obtained from reductions in the processing costs, as well as qualitative improvements in service performance. Improvements in service delivery will result in added value, and are as important as purely financial considerations.

conclusion

The ICT document has been developed to enable Grenada to become a knowledge based society. In order to achieve the Vision of the Prime Minister, we need the tools of the ICT as well as a paradigm shift of the thinking of all citizens in the Nation. Towards this end, a major emphasis will be placed on the human resource development activities so as to secure optimal benefits of these technologies.

We have sought to capture a strategy for the development of ICT for the small island economy of Grenada.   The approach has been all

embracing. Small economies generally lack the skills and resources to pursue structural development without external assistance. The next stage is to go deeper into the definition of specific programmes and projects, and the development of appropriate budgets and financing strategies.

Given the nature of the technologies this initiative of Grenada will be designed to accommodate regional requirements of the Caribbean and the Wider Americas. Some of this will be sought through economies gained from cooperation within the Caribbean region and in the wider Americas. Grenada will need to look to various multinational agencies and bi-laterals to add resources to its own domestic efforts.

We recognize the need to periodically review and update the Strategy and Action Plan. Experience and better information will guide this process. We are convinced though that, as we improve on this Strategy and Plan, Grenada's commitment to the use of ICT as a strategy of development must be remain unwavering.