Government of St Kitts and Nevis

National Information and Communications Technology (ICT) Strategic Plan

November, 2006

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Acronyms and Abbreviations

ASP	Application Service Provider
BPO	Business Processing Outsourcing
C&W	Cable & Wireless
CARICOM	Caribbean Community and Common Market
CFB	Clarence Fitzroy Bryant College
CXC	Caribbean Examination Council
ECCB	Eastern Caribbean Central Bank
ECLAC	United Nation's Economic Commission for Latin America and the Caribbean
ECTEL	Eastern Caribbean Telecommunications Regulatory Authority (St. Lucia, Grenada, St. Kitts / Nevis, St. Lucia, St.Vincent / Grenadines, Dominica)
EU	European Union
FDI	Foreign Direct Investment
FATF	OECD Financial Action Task Force on Money Laundering
GSTK&N	Government of the Federation of St Kitts and Nevis
ICT	Information and Communications Technology
ICTU	Information and Communications Technology Unit
ISP	Internet Service Provider
IT	Information Technology
kbps	Kilobits per second
Km	Kilometers
LAN	Local Area Network
Mbps	Megabits per second
MHz	Mega (million) Hertz (cycles/second)
NGO	Non-Government Organization
NIP	National Indicative Plan
NTRC	National Telecommunications Regulatory Commission
OECD	Organization for Economic Cooperation & Development
OECS	Organization of Eastern Caribbean States
PC	Personal Computer
PPS	Payment Processing Systems (online)
PSTN	Public Switched Telephone Network
SEDP	Small Enterprise Development Project
SEDU	Small Enterprise Development Unit
SME	Small and Medium-Sized Enterprise

SKN	Saint Kitts and Nevis
STK&N	St Kitts and Nevis
TA	Technical Assistance
Tbps	Terabit per second
TCP/IP	Transmission Control Protocol/Internet Protocol
UNCITRAL	United Nations Commission on International Trade Law
UNCTAD	United Nations Commission on Trade and Development
UNDP	United Nations Development Program
UPS	Uninterruptible Power Supply
USAID	United States Agency for International Development
VOIP	Voice Over Internet Protocol
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

Foreword

By the Honourable Prime Minister, Dr Denzil Douglas

The forces of change that have been unleashed in the world through globalization along with the still reverberating effects of September 11th, combined with the discontinuation of the Sugar Industry have made it imperative for St Kitts and Nevis to plan strategically for its future. The Government of St Kitts and Nevis has consistently and diligently sought to diversify the economy so as to best absorb the external shocks that are being placed on the economy and in order to maintain economic growth. As part of this process of diversification, the Government of St Kitts and Nevis has long focused on using Information and Communications Technology (ICT) as the catalyst to achieve such growth. As early as 2002 the Government of St Kitts and Nevis showed its commitment to ICT by being one of the first signatories of the Cotonou agreement thereby dedicating its National Indicative Programme (NIP) to ICTs.

The National Information and Communications (ICT) Strategic Plan is the natural outgrowth of the commitment that the Government has made to ICT. This document provides the roadmap to achieve the stated goals and also defines the following objectives: greater efficiency and transparency in the public sector; enhanced access to public information by citizens; greater access to technology, training and communications for all members of the community with special emphasis being paid to the disadvantaged; and economic diversification. The document calls for the creation of an "Information and Communications Technology Unit" (ICTU) within the Government of St Kitts and Nevis. This ICTU would act as the driving force to bring into existence the fundamental changes that must be made in order to transform St Kitts and Nevis into the desired e-society thereby leading it into participation in the global knowledge-based society.

However, no stated plan can be successful unless the people fully embrace it and commit

themselves to its attainment. Accordingly, I call on all the people of St Kitts and Nevis to work together to transform St Kitts and Nevis into a fully ICT enabled country so that it can become a centre for high quality services whose standards of excellence would be acknowledged globally. As a nation, we are fully capable of realising our visions and achieving our strategic goals. Not only do we have a solid foundation on which to build but we also have the confidence to tackle tough challenges.

I present to you the National Information and Communications Technology Strategic Plan (NISP) with the full confidence that it will not only change our way of life but also impact positively on our generation and the ones that will follow after us.

Executive Summary

St. Kitts and Nevis

St. Kitts and Nevis is an independent Federation with a parliamentary democracy based on the British model with Queen Elizabeth II of the United Kingdom as the Head of State. It is the only Federation in the Caribbean. The Sugar Industry, which was once a major employer and contributor to the economy, has come to an end. Additionally, the September 11 terrorist attacks reverberated widely throughout the Caribbean, resulting in a major downturn during its high tourist season with St Kitts and Nevis being particularly hard hit. The country has met these challenges by rebuilding its tourism facilities and diversifying into other industries ranging from financial services, light manufacturing, specialized agriculture to electronics and informatics. As part of this economic diversification strategy, the Government of St Kitts and Nevis (GSTK&N) has also made a serious commitment to provide the framework whereby Information and Communication Technology (ICT) can become a lead sector of the economy of St Kitts and Nevis.

It is the goal of the GSTK&N that within St Kitts and Nevis, Information and Communication Technologies would be used to the widest possible extent by all segments of society with a view to fostering, accelerating and sustaining the long-term social, cultural and economic development of the country.

ICT in St Kitts and Nevis

The GSTK&N, private sector and other stakeholders in the nation's development share a common belief that ICT can provide the foundation whereby a society can be built with equitable distribution of opportunity and knowledge. They also believe that it is a key determinant of the competitive advantage of nations. The *National Strategic Plan* seeks to present the composite

ICT initiative and also to set out a national ICT roadmap which is comprehensive and overarching. The *National ICT Strategic Plan* if carefully followed and implemented will allow the GSTK&N to achieve its aforementioned goal of cementing ICT as one of the leading sectors of the economy. It is an outgrowth and consolidation of several preliminary assessments that were prepared by international organizations as well as a series of consultations with the major stakeholders and desk research into several prior reports. Feedback from attendees at the Project Launch has also contributed to this report.

After a careful review of all of the information that was gathered in this manner it was determined that the five major branches of the *National ICT Strategy* would be as shown below:

- **building the information infrastructure**
- **enabling the policy and legal environment**
- **developing ICT human resources and building capacity** *(information society)*
- **modernizing government and delivering citizen services electronically**
- **leveraging ICT for economic and social development through public-private partnerships.**

Building Information Infrastructure

Infrastructure is necessary to deliver ICT services such as e-government, e-learning, and e-health to the citizens of St Kitts and Nevis and to facilitate e-commerce among its people and businesses. A landmark 1996 study by the World Bank identified the high price of communications as a barrier to the development of services export in the Caribbean   Since then, nearly all countries have put new legal and regulatory structures in place and have established independent regulators. Yet, in spite of this the benefits of reform still elude most Caribbean islands, this being particularly true in St Kitts as Nevis where residents continue to pay high prices and where the unavailability of good affordable telecommunications services continues to be a barrier to the development and growth of the ICT sector

- St Kitts and Nevis enjoys a relatively high teledensity and growth in telephone lines. This stands at 51.76%[1].

- A mobile penetration rate of 70% currently exists.

- Internet Accounts are relatively low at 8%, which is probably due to the high cost.

- There are currently 21 fibre optic submarine cable systems in the Caribbean. Of these, two land in St Kitts Nevis, the ECFS and GCN cable system.

- Cable & Wireless [St. Kitts and Nevis] Ltd. has deployed a double fibre ring around St. Kitts and a fibre link to its international gateway switch. The islands of St. Kitts and Nevis are connected via microwave. The Cable, C&W's licensed fixed wire competitor, also has deployed a fibre ring plus fibre strands to high-density business sites.

The current infrastructure is definitely adequate. But almost without exception business people, public officials, and residential customers alike complain about high prices and network reliability. The lack of choice and high prices of leased circuit capacity are important barriers to investment and development of ICT in St Kitts and Nevis. The main ICT businesses that the Government wishes to attract are information-based industries including data entry, data manipulation, data conversion, information processing, and information management, and these require fairly inexpensive broadband connection in order to flourish.

The EU faced with a similar situation in 1992 banded together to apply harmonization measures to conditions for leasing circuit capacity, procedures and conditions of licensing, use of frequencies, etc. This effort by EU members led to a fall in prices that St Kitts and Nevis may similarly achieve through regional cooperation on the matter.

Policy and Legal Environment

St Kitts and Nevis needs to update laws to accommodate the emergence of online commerce and communications so as to provide the enabling environment. The four main areas that are being urgently addressed are: *Electronic Transactions, ICT Crimes, Data Protection,* and *Intellectual*

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[1] CARANA report (page 19)

Property Rights.

- **Electronic Transactions Legislation**
  - This project component would ensure the preparation of an Act of Parliament for the facilitation and recognition of electronic contracts, the creation and exchange of electronic communication, the establishment of a Certification Authority and the accreditation of Certification Service Providers and the facilitation of the recognition of electronic filing by Government departments.
  - This project component also envisages institutional and capacity building in Government for the accreditation of Service Providers under the proposed Act of Parliament and the development of legal standards with UNCITRAL Secretariat as well as assisting in the formulation of appropriate regulations.

- **ICT Crimes Unit (ICTCU)**
  - The ICTCU would function as the convenor in a review of the Computer Crimes Bill. This project component would
    - Examine the criminal implications of spamming and e-surveillance
    - Facilitate the establishment of a specialized Digital Forensic Lab in the Police Department for the enforcement of Computer Crimes
    - Create the framework for the analysis of forensic evidence.
    - Build capacity of enforcement officials
    - Establish linkages with foreign enforcement agencies.

- **Data Protection**
  - The aim here is to develop and implement legislative or other measures to ensure that St Kitts and Nevis meets the adequacy levels required by the EU Directive on Data Protection (and other important standards), and promote institutional development for data protection and privacy issues.
  - This would help to ensure that St Kitts and Nevis complies with required international legal standards for the development of the IT Enabled Services sector and the Business Process Outsourcing sector

- **Intellectual Property Rights (IPRs)**
  - This Project component would ensure the appropriate development of legal standards with UNCITRAL Secretariat as well as assist in the formulation of appropriate regulations to ensure that IPRs are protected as per international standards.
  - The OECS Legal Drafting Unit as well as ECTEL would play a significant role in assisting St Kitts Nevis to draft these laws.

The establishment of an appropriate legal framework for ICT development would facilitate the growth of ICT in St Kitts and Nevis, including e-business and e-government related activities, and create the environment for ICT related foreign direct investment.

Developing ICT Human Resources

Of absolute priority is the continuing struggle towards a smarter society. The widespread deployment and utilization of ICTs is directly dependent upon the ability of a population to become ICT proficient. To that end one should first seek the widest possible level of ICT literacy through inclusion of ICT in formal and informal education and the training of teachers and instructors.

- To that end Government should
  - Call for and support vocational training (e.g. with a professional education levy or incentive, subsidies, study loans, etc.) with a view to upgrading the ICT skills of the present workforce.
  - Call for and support learning and information-oriented lifelong education programmes to be initiated through community access points (CAPs).
  - Expand on-going computer literacy efforts in primary and secondary schools into information literacy and culture in the formal education system through appropriate curriculum and pedagogic changes.

E-Government

The credibility of any ICT policy is to a large extent dependent on the government sector's own efforts toward an effective deployment and use of these technologies. To accomplish E-Government, the Government should undertake the following steps

- Design and implement a stepwise programme for installing computer networks in public administration agencies and related training of all civil servants with a view to supporting the deployment of Government-to-Government and Government-to-Public systems, including E-procurement, and electronic transactions through Intranets, Extranets and Internet sites. Priority may be given to transactions between businesses and public administration.
- Set up web-based resources providing basic official information for the citizens of OECS countries, especially information related to main circumstances of life.
- Set up web-based services and other appropriate electronic resources (e.g. CD Rom versions of the web sites) providing practical information and advice on natural disaster preparedness and emergency situations in conjunction with alert and rescue programmes.
- Establish a country portal providing basic information about the country, its administrative organisation, investment and migration regulations and procedures, etc, targeted at economic partners and customers in other countries.
- Establish a phased programme with a view to allowing for electronic payment to the public administration.

Public-Private Partnerships

Ultimately, it is the private sector that must generate the business activity that establishes and maintains economic growth and improves the living standards of the citizens. In view of the extensive transformation that ICT use calls for, the market structure and enterprises' size may present obstacles until ICTs have become commonplace. Since the objective is to be among the early adopters rather than laggards, targeted support is required. To that end Government should

- Establish a scheme for encouraging firms to invest in ICT and train their staff, e.g. through low rate loans to be administered by commercial banks with a consolidation or guarantee from the government. Such schemes should apply to existing companies as well as new investors.

- Support the participation of enterprises of the tourism sector and tourism authorities in portals that can provide a variety of information and inquiry services as well as on-line reservations and auctions.

- Support the creation and/or development of agri-business portals that can provide to the farmers and enterprises of the sector, with their active participation, when appropriate, directly or through their organisations, a variety of technical, commercial and administrative information and inquiry services as well as support co-operative commercial services.

- Develop IT parks that can offer state of the art wired premises, call centres, industrial and warehousing space, training facilities, incubator facilities, business development support, accommodation, catering, and entertainment facilities that can attract and host external investors and host temporary events (such as staff training and leisure packages, professional meetings, etc.)

- Encourage and support the introduction of electronic banking, including Internet banking, and electronic payment technologies for domestic, international and inter-bank transactions.

Key Strategic Steps for Implementing the ICT Initiative

As mentioned before, to ensure that the *National ICT Strategic Plan* comes to fruition, a long-term commitment must be made. A thorough re-engineering of existing processes and a cultural change must also take place.

A number of key strategic steps are essential to the overall success of the plan and these are outlined below:

- The first step would be the official endorsement of the overall policy and strategy. The *National ICT Strategic Plan* must first be publicly accepted by the Prime Minister and Cabinet as the roadmap to take St Kitts and Nevis to the ICT empowered society that has long been envisioned.

- No less critical is the creation of an enabling environment for E-Business in particular through adaptation or adoption and continuing adjustment of appropriate legal and regulatory frameworks. It should become top priority to pass the laws that are necessary to create this environment within as short a timeframe as possible.

- Within the central government administration, a senior officer should be appointed as co-ordinator of ICT programmes. He/She should be attached directly to the Cabinet Minister in charge of ICT policy and programmes.

- A specific Information and Communications Technology Unit (ICTU) should be formed and staffed, within the ministry of the Cabinet Minister responsible for ICT policy and programmes. This unit would be headed by the senior officer that was placed in charge of these ICT programmes. This unit would be responsible for ensuring the implementation of the *National ICT Strategic Plan*.

- ICT officers should be appointed in each entity of the central government, that is within each Ministry. These officers would be responsible for interacting with the ICTU regarding all ICT related matters for each of these ministries. As a result, in the public administration a network of ICT officers in all entities would work under a national co-ordinator toward the implementation of the related activities.

- The ICTU would be responsible for initiating a long term effort toward ICT and information literacy and fostering an innovation and learning culture among all segments of the population. This would be both a requirement and an ultimate goal.

- A long-term view must be taken as to bring about the necessary change. A time-frame of five years is deemed to be appropriate.

Introduction and Overview:

St. Kitts and Nevis

St. Kitts and Nevis is an independent Federation with a parliamentary democracy based on the British model with Queen Elizabeth II of the United Kingdom as the head of state. It is the only Federation in the Caribbean. Nevis has its own island assembly which consists of five members, a Premier, and a Deputy Governor General. St Kitts and Nevis became independent from Britain in 1983. The population is estimated to total 45,000, of which 34,000 reside on St. Kitts and 11,000 on Nevis. St. Kitts and Nevis occupy areas of 168 square kilometers and 93 square kilometers respectively.

The Sugar Industry, which was once a major employer and contributor to the economy, has come to an end. Additionally, the September 11 terrorist attacks reverberated widely throughout the Caribbean, resulting in a major downturn during its high tourist season with St Kitts and Nevis being particularly hard hit. The country has met these challenges by rebuilding its tourism facilities and diversifying into other industries ranging from financial services, light manufacturing, specialized agriculture to electronics and informatics. This is a direct outcome of the Government of St Kitts and Nevis (GSTK&N) offering generous incentives to investors, such as corporate tax holidays, export allowances, and exemption from import duties on many items. Industry-specific incentives are also available for investments in tourism and financial services. As part of these economic diversification strategies, the GSTK&N has also made a serious commitment to provide the framework whereby Information and Communications Technology (ICT) can become a lead sector of the economy of St Kitts and Nevis.

It is the goal of the GSTK&N that within St Kitts and Nevis, Information and Communication Technologies would be used to the widest possible extent by all segments of society with a view to fostering, accelerating and sustaining the long-term social, cultural and economic development of the country.

The GSTK&N is fully aware that for ICT to become such a major player within St Kitts and

Nevis the following factors are essential:

- A long-term permanent commitment
- A thorough re-engineering of existing processes
- A cultural change

ICT in St Kitts and Nevis

The GSTK&N, private sector and other stakeholders in the nation's development share a common belief that ICT can provide the foundation whereby a society can be built with equitable distribution of opportunity and knowledge. They also believe that it is a key determinant of the competitive advantage of nations. This belief has resulted in a shared vision for St Kitts and Nevis and has produced an initiative that will use Information and Communications Technology to further develop the economy of Saint Kitts and Nevis.

This paper seeks to present the composite ICT initiative and also to set out a national ICT roadmap which is comprehensive and overarching. This *National ICT Strategic Plan* if carefully followed and implemented will allow the GSTK&N to achieve its aforementioned goal of cementing ICT as one of the leading sectors of the economy. It is an outgrowth of several preliminary assessments that were prepared by international organizations as well as a series of consultations with the major stakeholders. The process that was utilized is as follows:

a) Desk research into several prior reports that are listed below:

- *St Kitts and Nevis ICT Assessment* by the CARANA Corporation 17-22 March 2002

- *A Rainbow Technology for a Rainbow People: E-Business Capacity Development for the CARICOM,* Alwyn Didar Singh, for the Commonwealth Fund for Technical Cooperation, September 2001 (Includes all member states of the OECS)

- *GOPA Final Report ICT Policy and Strategic Plan* Member States of the Organisation of Eastern Caribbean States (OECS) Grenada, St Vincent & The Grenadines, St Lucia, Dominica, St Kitts & Nevis, Antigua & Barbuda, Montserrat, Anguilla and the British Virgin Islands Telecommunication Reform & Modernisation Project Consulting Services in Information & Communication Technology IBRD Loans No 4334-DOM, 4335-GRD, 4336-SC, 4337-SLU, 4338-SV IDA Credit No. 3086-DOM, 3087-GRD, 3088-SLU, 3089-SV, June 2002

- *Draft ICT Strategy for Government of St. Kitts & Nevis, Version 7*, Burchelle Crooke

- *Readiness for the Networked World A Guide for Developing Countries*, Information Technologies Group Center for International Development at Harvard University

- *Promoting Investment in Information and Communication Technologies in St Kitts and Nevis,* Peter A Stern, Inter-American Development Bank, May 2006

- *The National Strategic Plan of Barbados 2005-2025*

- *e-Sri-Lanka http://www.icta.lk/insidepages/e-srilanka/e-srilanka.asp*

- *Draft Policy on IT in Education (Jamaica)*

b) Feedback from attendees at Project Launch.

c) A series of consultative meetings with major stakeholders.

After a careful review of all of the information that was gathered in this manner it was determined that by following a five-pronged programme strategy the GSTK&N would certainly be able to fulfill its vision of using Information and Communications Technologies (ICT) as a means of developing the economy of St Kitts and Nevis, reducing poverty and improving the

quality of life of the people. The five major branches of this *National ICT Strategy* would be as shown below:

- building the information infrastructure
- enabling the policy and legal environment
- developing ICT human resources and building capacity *(information society)*
- modernizing government and delivering citizen services electronically
- leveraging ICT for economic and social development, through public-private partnerships.

The 2004-2005 *Global Information Technology Report* highlights the policy, institutional, and structural obstacles that prevent countries from fully capturing the benefits of ICT. It analyzes a country's networked readiness based on three so-called pillars.

(i)   the environment for ICT development, such as the regulatory regime and the legal framework for ICT, the available infrastructure, and other technological development factors;

(ii)   the actual levels of networked readiness of individuals, businesses, and governments; and

(iii)   the actual levels of usage of ICT by individuals, businesses, and governments.

(iv)

The five areas that have been identified as being of national imperative would cover these all-important pillars

Key Strategic Steps for Implementing the ICT Initiative

As mentioned before to ensure that the *National ICT Strategic Plan* comes to fruition, a long-term permanent commitment must be made. A thorough re-engineering of existing processes and a cultural change must also take place.

A number of key strategic steps are essential to the overall success of the plan and these are outlined below:

- The first step would be the official endorsement of the overall policy and strategy. The *National ICT Strategic Plan* must first be publicly accepted by the Prime Minister and Cabinet as the roadmap to take St Kitts and Nevis to the ICT empowered society that has long been envisioned.

- No less critical is the creation of an enabling environment for E-Business in particular through adaptation or adoption and continuing adjustment of appropriate legal and regulatory frameworks. It should become top priority to pass the laws that are necessary to create this environment within as short a timeframe as possible.

- Within the central government administration, a senior officer should be appointed as co-ordinator of ICT programmes. He/She should be attached directly to the Cabinet Minister in charge of ICT policy and programmes.

- A specific Information and Communications Technology Unit (ICTU) should be formed and staffed, within the ministry of the Cabinet Minister responsible for ICT policy and programmes. This unit would be headed by the senior officer that was placed in charge of these ICT programmes. This unit would be responsible for ensuring the implementation of the *National ICT Strategic Plan*.

- ICT officers should be appointed in each entity of the central government, that is within each Ministry. These officers would be responsible for interacting with the ICTU regarding all ICT-related matters for each of these ministries. As a result, in the public administration a network of ICT officers in all entities would work under a national co-ordinator toward the implementation of the related activities.

- The ICTU would be responsible for initiating a long term effort toward ICT and information literacy and for fostering an innovation and learning culture among all segments of the population. This would be both a requirement and an ultimate goal.

- The ICTU would also attempt to widen the effects of the telecommunications divestiture by enforcing interconnectivity, expanding universal service and catering for competition. This ground work would facilitate the implementation of further policies geared at encouraging business competitiveness and development through ICT investments in all sectors and the development of ICT industries.

- The financial services should themselves fully incorporate electronic transactions in their

operations as well as adjust their loans practices to the nature of digital economy.

- Furthermore, ICTs should be harnessed with a view to promoting national cultures and identities, expanding citizenship and democratic participation and supporting the enhancement of the quality of life, especially for disabled persons.

- For the governance and management of these endeavours at the local, national and regional levels, it is recommended that regular round table discussions be held, where all stakeholders could meet to co-operate in observing and analysing the situation and needs, making propositions, joining forces in their implementation and assessing the results.

- A long-term view must be taken as to bring about the necessary change. A time-frame of five years is deemed to be appropriate.

The National ICT Strategic Plan

This paper seeks to outline the *National ICT Strategic Plan* and how it can take St Kitts and Nevis on the path to an ICT empowered society. A long term view is essential as the re-engineering and cultural change that are essential aspects of this plan will not happen overnight or easily. Rather they will be the result of continuous/ongoing tasks that are diligently and painstakingly pursued.

The plan takes a look at each of the major areas that have been identified as being part and parcel of the initiative. In so doing it looks at where St Kitts and Nevis currently stands, where the country would like to be and what can and must be done to achieve the desired state.

Saint Kitts and Nevis

St Kitts and Nevis is a premier small island developing state as is evidenced by its successful record of economic performance and social development. An analysis of St Kitts and Nevis' situation from the geopolitical, social, economic and structural perspectives showcases the odds of the country achieving greater long-term sustainable economic growth and development over the strategic planning period 2007 to 2012.

St Kitts and Nevis is one of 12 Small Island Developing States (SIDS) in the Caribbean Basin. The islands have no known mineral resources. Despite its small size, St Kitts and Nevis has a relatively high per capita income of approximately US $8,800 making it a middle-income developing country. Since independence from Britain in 1983, successive governments have sought to diversify the production base of the economy. Given its soil, topography and rainfall

patterns, sugar - manufactured from sugar cane - has traditionally been the island's most significant export product. However, manufacturing and tourism emerged as major foreign exchange earners during the 1990s. St Kitts and Nevis' beautiful beaches and its social stability have been important factors in attracting an increasing number of tourists since the late 1980s. In addition, a relatively stable economic climate has provided an attractive environment for foreign investment and a growing offshore services industry.

St Kitts and Nevis is a member of the major international organisations such as the United Nations (UN), World Health Organisation (WHO), World Bank (IBRD), International Monetary Fund (IMF), Inter-American Development Bank (IDB), International Labour Organisation (ILO) and the World Trade Organization (WTO).

In 1968 several Caribbean countries formed the Caribbean Free Trade Association (CARIFTA), which was successful to the extent that it solidified trade among its members. In an effort to deepen regional integration and to expand cooperation in other areas of development, members of CARIFTA signed the Treaty of Chaguaramas in July 1973 to create the Caribbean Community (CARICOM). St Kitts and Nevis is a member of CARICOM. Currently, countries in the CARICOM region are taking steps to further deepen the integration movement through the creation of a CARICOM Single Market and Economy (CSME).

In the creation and pursuit of the vision for St Kitts and Nevis, it is important that we harness our strengths, exploit all opportunities, minimize our weaknesses and mitigate the impact of threats emanating from the internal and external environment.

Strengths

1. **Political stability**: This stability is reflected in the uninterrupted practice of representative government since 1983, upon which post-colonial Kittitians and Nevisians have built a remarkable and cohesive democratic system, which compares favourably with world-class standards.

2. **Justice and legal system**: St Kitts and Nevis has a well-developed, judicial and legal system in which fundamental human rights, civil liberties and respect for the rule of law are strongly upheld.

3. **Social cohesion**: A very high level of social cohesiveness characterises the two island's populations. There is in place a network of social organisations (sports clubs, community clubs, interest groups and churches) that fosters this cohesiveness.

4. **Social safety net:** St Kitts and Nevis has a relatively comprehensive social safety net which caters to its citizens from birth to death. There are several agencies that execute this important work.

5. **Education**: St Kitts and Nevis, with a literacy rate over 90 per cent, possesses one of the most comprehensive educational systems in the developing world. Education is compulsory to age sixteen and free at the primary and secondary levels. Educational opportunities range from pre-school to university education, and include vocational and technical training, as well as special schools for the mentally and physically challenged.

6. **Macroeconomic stability**: St Kitts and Nevis has an enviable record of macroeconomic stability as a result of prudent fiscal, and monetary policies. The EC Dollar dollar has maintained a fixed parity with the US dollar since 1975. There has also been a low and stable rate of inflation, relatively low unemployment and a reasonably equitable distribution of income.

7. **Infrastructure**: St Kitts and Nevis has a relatively well-developed infrastructure of public buildings, airport, seaport, road network, telecommunications, water, solid waste management, and electricity.

8. **Competitive investment incentive regime**: St Kitts and Nevis possesses a competitive regime for the attraction of foreign investment, especially in the area of international business services.

9. **Ambiance**: An excellent tropical climate, clean white, golden and black beaches, blue water, developed coral reefs and a friendly population make St Kitts and Nevis particularly attractive to tourists.

Opportunities

1. **New export opportunities through increased access to global markets**: Trade liberalisation provides St Kitts and Nevis with new market opportunities in a wide range of services and products for which we have a competitive advantage, particularly in the Americas and within CARICOM.

2. **Increased access to investment resources:** Globalisation and liberalisation of trade and finance provide new and increased access to both portfolio and foreign direct investment.

3. **Strengthening of intersectoral linkages:** Domestic sectors can strengthen their productive capacities through intersectoral linkages.

4. **Agricultural diversification**: Opportunities lie in the production of high-valued products, such as white potatoes, peppers and tomatoes.

5. **Benefits from market unification:** Market unification offers opportunities for economies of scale and scope, thereby facilitating greater efficiency, growth and profitability to Kittitian and Nevisian businesses, lower prices to its consumers and increased consumer welfare. The unification of regional capital markets provides the opportunity for increased market capitalisation thereby allowing the Eastern Caribbean Stock Exchange to realise significant expansion. This would enhance capital market efficiency by channeling investment to the areas of greatest return.

6. **Reduced transaction cost of business**: Globalisation, which has led to the enhancement of

information technology and e-commerce, offers greater opportunities to Kittitian and Nevisian businesses and consumers through reductions in transaction costs and prices.

7. **Business innovation:** The increasing diversity of market requirements presents new opportunities for business innovation and an expansion in production capacity.

8. **Access to employment overseas:** Globalisation, trade liberalization and the formation of the CARICOM Single Market and Economy will create greater opportunities for Kittitians and Nevisians nationals to access employment overseas.

9. **Enhanced capacity to accelerate St Kitts and Nevis' human resource development thrust**: A greater opportunity exists to use diplomatic and economic relations to develop St Kitts and Nevis' human resources. There is also the opportunity to develop the human resources through the enhanced capacity to use highly developed telecommunication networks and information technology to access and encourage distance or home-based learning/training.

Weaknesses

1. **Vulnerability:** The Kittitan and Nevisian economy possesses the defining characteristics of Small Island Developing States (SIDS), which make it especially vulnerable to external events. These special and peculiar structural and institutional characteristics impact on our macroeconomic fundamentals, economic sectors and individual units in the society. These characteristics also impact structurally on the process of economic growth, constrain our ability to compete and limit our capacity and speed to undertake adjustment and transformation in the structure of the economy. The most serious vulnerabilities for St Kitts and Nevis are:
   (a) Exposure to hurricanes.
   (b) Limited land and natural resource base.
   (c) A fragile marine ecosystem.
   (d) Limited economic diversification and a high degree of economic openness, with foreign trade accounting for more than two-thirds of GDP.

(e) High cost of infrastructural services relative to the population and the tax base.

(f) The rising cost of fuel

2. **Lack of economies of scale and scope:** Our small size has made it difficult to realise economies of scale and scope especially in industry and agriculture. Relatively high labour and operating costs also act as a constraint on doing business in St Kitts and Nevis.

3. **Market imperfection:** There is a high incidence of monopolistic and oligopolistic behaviour in our domestic markets. Financial markets, in particular, are narrow and shallow and, as such, limited in their capacity to absorb domestic and external shocks. These market imperfections suppress efficiency and competitiveness, leading to higher production costs and prices, sub-optimal quality of service delivery and reduced consumer welfare.

4. **Public Sector bureaucracy:** the Public Sector is characterised by over-centralisation and over-dependence on rigid regulations.

5. **Limited capacity in the Public Sector:** The St Kitts and Nevis Public Sector is operating within the same modalities as it has for over the last 30 years while the economy has grown significantly and society has become infinitely more complex. In addition, this has contributed to general tardiness in the implementation processes.

6. **Weak entrepreneurial culture:** There is a low level of entrepreneurship, with Kittitians and Nevisians generally disinclined to take business risks and to turn innovative ideas into enterprises. In addition, there is limited institutional capacity.

7. **Paucity of research, development and innovation:** There is a general lack of intensity and continuity in research and development in the areas of enterprise development, product development and ideas development.

8. **Weak management tradition**: Managerial practice and technology lag behind international standards in the private and public sector.

9. **Loss of competitiveness:** There is increasing evidence of loss of international competitiveness, especially in the manufacturing and agricultural sectors.

10. **Lack of food security:** As a physically small developing country with limited capacity for producing food to satisfy domestic demand, St Kitts and Nevis is categorised as a Net Food Importing Developing Country.

11. **Demographic trends:** St Kitts and Nevis has an ageing population with almost zero growth. This means that the work force will be required to support an increasing number of retired persons. Our ageing population therefore makes for a large dependency ratio.

Threats

1. **Trade liberalisation:** This poses a number of competitive challenges to St Kitts and Nevis, especially in the sectors of manufacturing and agriculture because of the availability of cheaper imports.

2. **Financial and capital market liberalisation:** This presents a challenge to St Kitts and Nevis' fixed exchange rate regime and the degree of monetary autonomy. In addition, it provides greater avenues for money laundering and other financial crimes.

3. **Global degradation of the environment:** Greenhouse gas emissions contribute to global warming which has a very negative effect on our climate. The rise in sea levels is a distinct possibility with frightening adverse impacts for small island states such as St Kitts and Nevis. St Kitts and Nevis' marine ecosystem is also threatened by the passage of radioactive materials through the Caribbean Sea.

4. **HIV/AIDS, chronic non-communicable diseases, crime and drug abuse:** These pose a serious challenge to the development of social capital, the linchpin of further economic growth. HIV/AIDS, although appearing in about 1% of the population is undoubtedly a critical health

issue facing St Kitts and Nevis. This pandemic poses a serious threat to our youth, to the most productive elements of our labour force, and to our established social capital formation. Non-communicable diseases such as cancer and diabetes pose serious threats to the health of the productive segment of the population and can place enormous strain on the health system.

The foregoing analysis has substantially informed the formulation of the strategies presented in this *National ICT Strategic Plan*.

Building the Information Infrastructure

Telecommunications in St Kitts and Nevis

St Kitts and Nevis was for many years dependent on the Sugar Industry. This industry has now come to an end and St Kitts and Nevis is actively seeking to diversify. One of the main areas that we have been looking to develop, are information-based industries including data entry, data manipulation, data conversion, information processing, and information management. St Kitts and Nevis has many advantages which would support the development of such activities including a strong affinity to North America, a common language and time zone, relatively easy and quick access from the USA and Canada, a basic core of highly skilled professionals, wages which may be high with respect to other centers of outsourcing but are nevertheless lower than those in the USA and Canada, and some experience already gained in information based industries. In addition, there is an important Kittitan and Nevisian Diaspora, living mainly in the USA, Canada, the United Kingdom and to a lesser extent in France and the Netherlands which has the skills and the wealth, which can be tapped to support the development of dynamic Information and Communication Technologies (ICT) in the country.

This section of the report focuses on the infrastructure necessary to deliver ICT services such as e-government, e-learning, and e-health to the citizens of St Kitts and Nevis and to facilitate e-commerce among its people and businesses. The high prices that users have to pay for international calling, Internet use, and leased lines have been the single most important obstacle to developing an information-based industry in St Kitts and Nevis. This impacts not only the traditional industries such as tourism and agriculture which depend on communications to market and sell their services and goods but also the new information-based sectors where high costs affect Caribbean firms' ability to compete effectively internationally. There is a large potential for developing a variety of information-based services in St Kitts and Nevis from the fairly basic (mainly outbound calling) through the more sophisticated (customer care and technical support) call centre services to the more highly specialized network services. For these, however, the costs of communication to and from and within St Kitts and Nevis including the cost of leased lines and the conditions attached to their use remain a significant barrier to further developing

such activities.

A landmark 1996 study by the World Bank identified the high price of communications as a barrier to the development of services exports in the Caribbean. At the time all but one country (Dominican Republic) had monopoly suppliers of telecommunications networks and services. The Organization of Eastern Caribbean States (OECS) and the Dominican Republic began the process of reform and sought financial support from the World Bank. Others such as Trinidad & Tobago, Haiti, Jamaica, and Guyana got support from other funding institutions including the Inter-American Development Bank (IADB), International Telecommunications Union (ITU), the World Bank, the Canadian International Development Agency (CIDA) and the United States Agency for International Development (USAID). Nine years after the conclusion of the WTO's negotiations on basic telecommunications in February 1997 the process of sector reform has advanced in the whole region. Nearly all countries have put new legal and regulatory structures in place and have established independent regulators. Some have yet to complete the process. In spite of this the full benefits of reform still elude most Caribbean islands, this being particularly true in St Kitts as Nevis where residents continue to pay high prices and the unavailability of highly affordable telecommunications services continues to be a barrier to the development and growth of the ICT sector.

Fixed and Mobile Lines
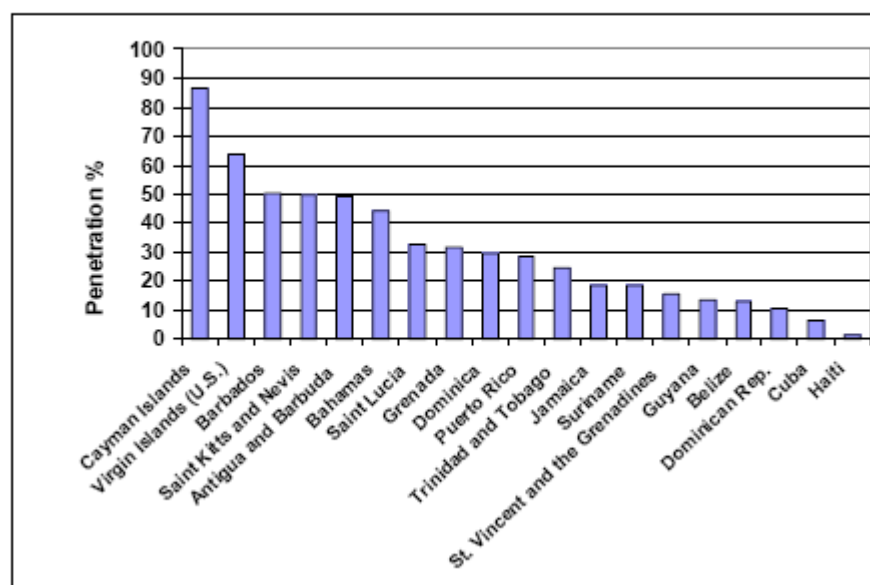
The figures below show fixed and mobile telephone penetration in CARICOM and how St Kitts and Nevis compares.

| CARICOM Member State	Population 2004	per capita GNP (2004)	Penetration rates % (2004)	
			Main Line	Mobile
Antigua and Barbuda	77,000	$11,000 *	49.4	70.1
Bahamas	317,000	$17,700	44.1	58.7
Barbados	271,000	$16,400	50.1	73.9
Belize	261,000	$6,500	12.9	37.5
Dominica	71,000	$5,500 **	29.5	58.9
Grenada	103,000	$5,000 *	31.8	42.1
Guyana	767,000	$3,800	13.4	18.8
Haiti	8,437,000	$1,500	1.7	4.7
Jamaica	2,676,000	$4,100	18.7	82.2
Montserrat	9,300	$3,400 *		
Saint Kitts and Nevis	50,000	$8,800 *	50.0	20.0
Saint Lucia	150,000	$5,400 *	32.2	62.0
St. Vincent and the Grenadines	121,000	$2,900 *	15.7	47.1
Suriname	439,000	$4,300	18.5	48.5
Trinidad and Tobago	1,307,000	$10,500	24.6	49.6
Total	15,056,300			
Average			10.8	29.0

Source: ITU WTI 2005   '* 2002   ** 2003
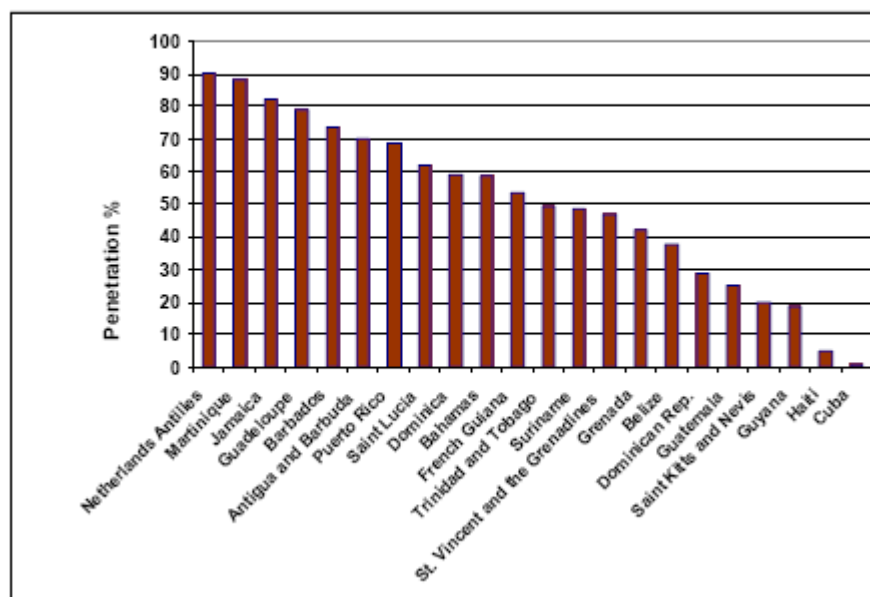
However, more recent work places the penetration of mobile phones in St Kitts and Nevis at 70%.

Main Line Telephone Penetration in the Caribbean

Source: ITU WTI 2005

Cellular Mobile Penetration in the Caribbean

Source: ITU WTI 2005

In St. Kitts and Nevis there is one fixed line provider (C&W), two ISP's (C&W and The Cable), and three mobile providers (UTS-CariGlobe, Digicel and C&W).

Cable & Wireless (St. Kitts and Nevis) Ltd. has deployed a double fibre ring around St. Kitts and a fibre link to its international gateway switch. The islands of St. Kitts and Nevis are connected via microwave. The Cable, C&W's licensed fixed wire competitor, also has deployed a fibre ring plus fibre strands to high-density business sites. Its traditional cable subscribers are served over a hybrid fibre coaxial (HFC) network.

Three service providers have been licensed to compete against C&W - The Cable in fixed services, including high-speed Internet access, and CariGlobe and Digicel in mobile wireless. With two fibre rings, St. Kitts is better provisioned with modern transmission facilities than Nevis. The principal reason for this disparity is that C&W faces vigorous competition from The Cable, whose operations are limited to St. Kitts, where its serves roughly 10,000 households,

more than 95% of the potential market. The Cable claims that it has deployed more fibre than C&W. It plans to connect customers who need high bandwidth connections directly to its fibre ring using fibre. Residential customers who order high speed Internet access will be served with a cable modem over the existing hybrid fibre coaxial (HFC) plant. Finally, it will compete head-to-head against C&W with its planned packetized voice service.

St Kitts and Nevis enjoys a relatively high teledensity and growth in telephone lines. Relative to the world average for Upper-Middle income countries, St Kitts and Nevis has a higher than average teledensity at 51.76%. as per the CARANA report (page 19)

Internet and PCs in St Kitts and Nevis

The number of Internet hosts in St Kitts and Nevis is considerably below the averages for similar income countries. The average for Upper-Middle income countries is 37 hosts per 10,000 population. SKN has 2.06 hosts per 10,000 inhabitants.

The number of Internet users in St Kitts and Nevis in 1999 was above the average for Upper-Middle income countries, that being 461 per 10,000 population. SKN had 516 users per 10,000 population.

There is a high percentage of PCs per 100 population compared to other countries of similar income levels (5.8 per 100 population for Upper-Middle income countries). SKN stands at 15.48 PCs per 100 population.

There are also some 3,000 Internet accounts in the country, which is relatively high for an emerging economy with high Internet-access prices.

The relatively high availability of PCs and the comparatively low use of the Internet is likely a direct result of limited access and costs.

Information Technology

| Country | Internet - 1999 | | | | Estimated PCs | |
| | Hosts | | Users | | Total (000) | Per 100 Pop |
	Total	Per 10K Pop	Total	Per 10K Pop		
ECTEL Countries						
Dominica (U-M)	181	23.66	2.0	261.44	5	6.54
Grenada (U-M)	3	0.32	2.5	267.70	11	11.78
St. Kitts/Nevis (U-M)	8	2.06	2.0	516.10	6	15.48
St. Lucia (U-M)	13	0.85	3.0	195.18	21	13.66
St. Vincent/Gr (L-M)	---	---	3.0	265.09	11	9.72
Barbados (U-M)	68	2.53	6.0	222.82	21	7.80
Jamaica (L-M)	367	1.43	60.0	234.35	110	4.30
Trinidad/Tobago (U-M)	4,852	37.54	30.0	232.14	70	5.42
Lower-Middle Income Total/Avg.	376,585	4.28	6,593.6	78.84	19,516	2.57
Upper-Middle Income Tot/Avg.	2,347,283	36.97	29,297.5	461.50	36,291	5.80
High Income Tot/Avg.	69,150,849	775.65	186,099.3	2,088.05	309,641	34.80
Americas	56,005,148	687.50	94,407.6	1,158,92	170,532	21.50
WORLD	72,005,852	120.46	235,449.42	398.44	389,890	6.84

NOTES:

CARANA Report (page50)

Fibre Optic Backbone Networks
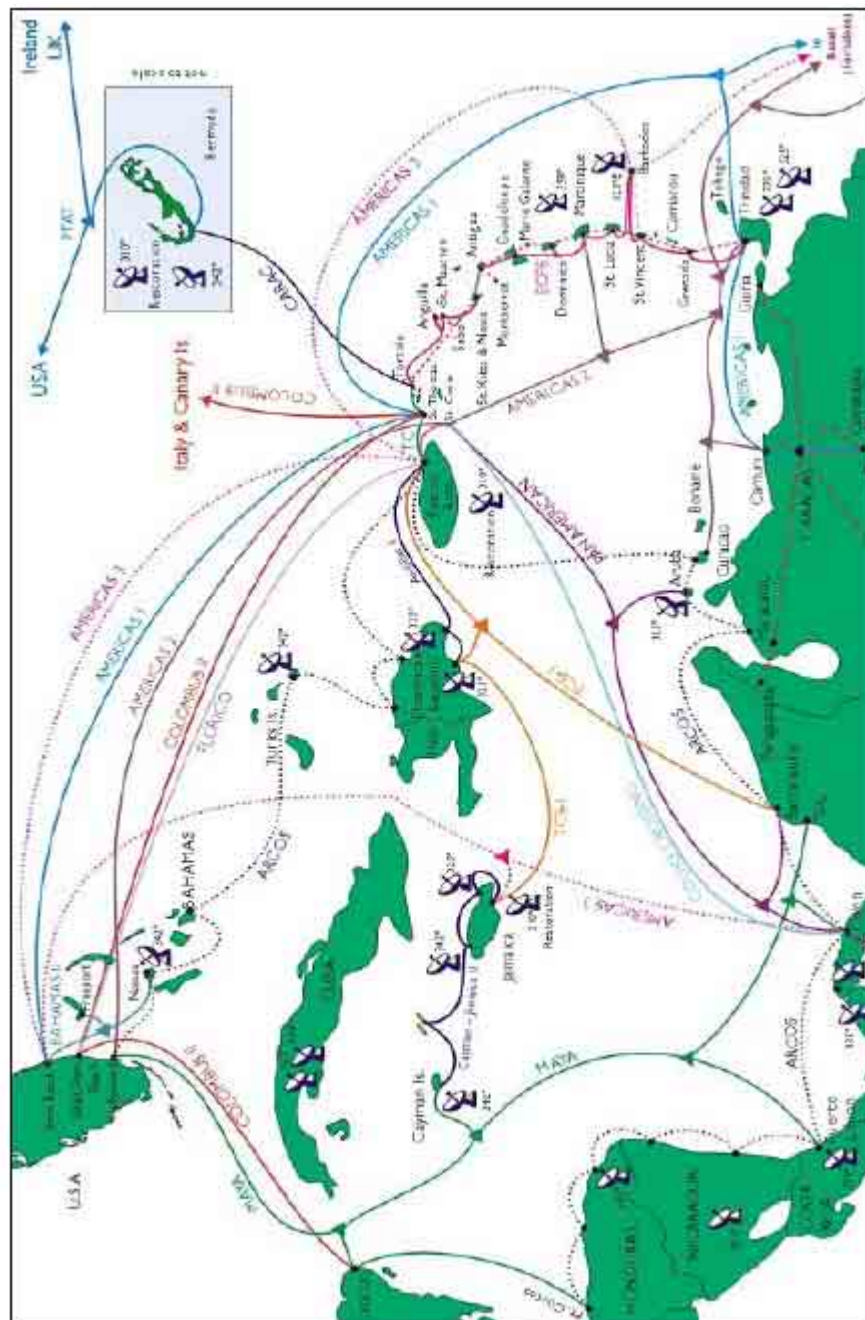
There are currently 21 fibre optic submarine cable systems in the Caribbean. Of these, thirteen primarily serve the region. The other six serve other regions (mainly South America) but have landing points in the Caribbean. (See Figure 25 and Table 26). The combined total capacity of the thirteen "Caribbean" cables at the time of their construction was about 70 Gbps. Their combined potential capacity, however, is nearly 3 Terabits/second (Tbps) due largely to the huge potential capacity of ARCOS cable system.

Of these fibre optic backbone networks, two land in St. Kitts and Nevis: The ECFS as can be seen from the table below. The other, *Global Caribbean Network (GCN),* was landed early in 2006.

Country/Territory	No. of cables	Cable systems landing in country or territory
Anguilla	1	ECFS
Antigua & Barbuda	1	ECFS
Aruba	2	Pan American, Alfonso de Ojeda
Bahamas	3	Arcos-1, Bahamas II, Bahamas Internet Cable System (BICS)
Barbados	1	ECFS
Belize	1	Arcos-1
British Virgin Islands (Tortola) - BOT	2	CARAC, Taino
Cayman Islands (BOT)	2	CJFS, MAC
Curacao (incl. Bonaire)	3	Amerigo Vespucci, Americas-2, Alfonso de Quejeda
Dominican Republic	4	Antillas-1, Arcos-1, TCS-1, FibraLink
French Guyana	1	Americas-2
Grenada (OECS)	1	ECFS
Guyana	1	Americas-2 via French Guyana and Suriname
Jamaica	3	CJFS, TCS-1, FibraLink
Martinique/Guadeloupe	2	Americas-2, ECFS
Montserrat (BOT)	1	ECFS
Puerto Rico	7	Americas-2, Antillas-1, Arcos-1, Emergia, Taino, TCS-1, SMITCOMS
St. Kitts & Nevis	1	ECFS
St. Lucia (OECS)	1	ECFS
St. Martin/St. Maarten	3	ECFS, SMPR-1, SMITCOMS
St. Vincent (OECS)	1	ECFS
Suriname	1	Americas-2 via French Guyana
Trinidad & Tobago	3	Americas-1, Americas-2, ECFS
Turcs & Caicos (BOT)	1	Arcos-1
US Virgin Islands (St. Croix, St. Thomas)	7	Americas-1, Americas-2, Pan American, PAC, MAC, SAC-1, Taino

Number of Fibre Optic Cable Systems which land in each country and territory

The figure below shows the entire Caribbean Fibre Optic Cable Systems.

Caribbean Fibre Optic Cable System

Global Caribbean Network (GCN), (http://www.globalcaribbean.net/index.htm) is an initiative of The Guadeloupe Region, the regional government of Guadeloupe, and some private investors.

The northern section of the 1 Tbps GCN cable is has recently (February – March 2006) finished construction. It connects Guadeloupe with St. Croix and Puerto Rico and lands in St. Kitts (branch) and St. Martin (See Fig. 29). The St. Croix – Puerto Rico segment is being built by Centennial, one of the partners in the project. A planned southern section will connect Martinique, Dominica (branch) and eventually Trinidad & Tobago. The € 21.9 million project is 75% publicly funded with € 7 million coming from the Region Guadeloupe, €9.4 million from the European Union (FEDER) and the rest from the private sector partners which include Groupe Loret, AT&T, Alcatel, Centennial and Global Crossing.

Business people, public officials, and residential customers alike complain about C&W's high prices and, secondarily, about its network reliability. The increased competition that should result from the GCN cable landing in St Kitts may result in the price of telephone services declining and becoming more affordable for most customers. Market forces may result in universal improved service and pricing without governmental intervention.

Northern Section of Global Caribbean Network (GCN)

Summary

Earlier we showed that the lack of choice and high prices of leased circuit capacity were important barriers to investment and development of ICT in St Kitts and Nevis. Faced with a similar situation the European Commission in 1992 issued a directive to harmonize conditions – tariffs (which must be cost-oriented and transparent), technical characteristics, supply and usage conditions, and licensing requirements) - for the provisions of leased lines in the then twelve member states of the European Union. EU harmonization directives were part of a wider policy of establishing a single market for goods and services which along with competition directives have, inter alia, resulted in bringing down prices for circuit leases as was shown earlier. Whether such harmonization measures are applied to promoting economic integration or simply to promote regional cooperation there are lessons to be learned from the European experience. By mutually agreeing to apply harmonization measures to conditions for leasing circuit capacity, procedures and conditions of licensing, use of frequencies, regulation of dominant suppliers and other measures, regulators, policymakers and citizens of St Kitts and Nevis can benefit through their impact on the development of ICT in the region. It would be essential to employ mechanisms to promote harmonization such as establishing a regional forum of policymakers and regulators to harmonize policies, laws, regulations, procedures and standards.

Strategic Steps towards Building Infrastructure

Additionally in order to ensure that infrastructure is built, certain key steps should be taken. The goal would be to enforce affordable universal access and interconnectivity, reliability and technological neutrality

Important steps have already been taken through the Telecommunications Acts to achieve affordable and universal access to telecommunications facilities. Steady efforts towards their actual implementation and improvement by the Government should boost market forces and compensate for their imperfections in order for all citizens and organisations, irrespective of their location, to have access to state of the art ICT facilities at an affordable cost. In addition it is

essential for effective competition to bear fruits and to guarantee the reliability, innovation, and technological neutrality of the ICT infrastructure.

Related strategic moves include:

- Rural, isolated or ill-favoured communities which commercial operators are not willing to offer high quality services to within the year following their introduction into the more densely populated and easily accessible areas should be granted the right to use any suitable alternative for local and wide area networking and obtain for themselves or their providers all required licenses.

- An annual audit of the implementation of the deregulation of the telecommunications sector should be conducted in conjunction with the National Round Tables, its results made public and appropriate adaptations brought into the Telecommunications Act and related policy positions.

- Ongoing evaluation should be conducted on the need to issue new telecommunications licenses to respond to demand and to improve the competitive environment.

- Government should enforce regulations that allow for providing services adjudged essential at a socially acceptable cost e.g. by compensating users for price differences resulting from localization constraints or abuse of dominant situations.

- Government should pursue the efforts underway with a view to reclaiming the administration of the Internet Top Level Domain Names for the OECS countries and establish suitable and effective registry operations.

- Government should develop plans by which all citizens can obtain a free electronic mail address and organisations a domain name address at an appropriate cost under the countries top level domain name, with a view to expand the visibility of OECS countries on the Internet.

- The combined use of open source software and proprietary software should be pursued and open source software systematically applied whenever appropriate, especially in the public sector.

- The current legislation should be revised in order to exempt certain value added and not-for-profit services from the need to obtain telecommunications licenses. For example opening a small Internet Café of less than ten computers is a very involved and costly process. Streamlining this could possibly help facilitate the creation of more of these type of services.

- The regulatory authorities should be required to constantly review the range of services that are available or could become available under normal economic conditions in the countries with a view to updating the definition of those services included under universal service and ensure that access to high quality services is not restricted *de facto* to certain categories of citizens and organisations.

Enabling the Policy and Legal Environment

In his 2000 survey of e-readiness and capacity for e-business of various Caribbean countries, Alwyn D. Singh found that little had been done by St Kitts and Nevis to update laws to accommodate the emergence of online commerce and communications. E-commerce affects a vast array of subjects and issues and entails an enormous commitment of resources. E-business and online activities are requiring countries to examine subjects that range from the general to very specific e-commerce issues and policies. Laws dealing specifically with cybercrime are non-existent. Laws to facilitate online transactions and communications, such as digital signature and electronic transaction laws, are also absent but are currently being worked on urgently. Other statutes, such as those dealing with intellectual property rights (IPR), need to be updated for the online environment. Consumer protection, child protection, and privacy laws that are important to the new ICT environment are also needed so that users feel more confident when they go online to surf the Net or to conduct business.

These legal/regulatory gaps are important and must be addressed. Jurisdiction over online activities must also be addressed. Some countries take an expansive view of their courts' legal jurisdiction, while other countries accept only a limited jurisdiction of other countries' courts. At present, St. Kitts and Nevis as well as other Eastern Caribbean nations are lagging in the development of their legal/regulatory frameworks to accommodate the widespread utilization and deployment of ICTs. It is important that a legal analysis be undertaken to identify gaps in the legal framework and where new laws are needed. This must be done, however, in harmony with the developing global legal framework.

Furthermore, the SKN Government needs to identify operational policies and practices that will be substantially affected as a result of increased usage of ICTs and an online environment. This includes requirements for authentication, certification, network availability and reliability, and combating cybercrime. For example, all enterprise networks (which include Government networks) now face the threat of attack or unauthorized intrusion. The administrators of SKN's Government network must be prepared to handle security breaches and restore systems. SKN

law enforcement officials need to be trained in how to conduct cybercrime investigations and cooperate on an international level, and forensic scientists need to develop skills in handling electronic evidence. At a minimum, this means establishing round-the-clock contacts and obtaining assistance from the U.S., EU, and other governments and donor organizations. The area of cybercrime is but one example of how the SKN Government must anticipate problems that are caused or exacerbated by an interconnected global network. The OECS Legal Drafting Unit and ECTEL have some important experience in this matter and can be counted on to provide ongoing assistance to St Kitts and Nevis in this area.

As has been noted elsewhere, five (5) multinational institutions will also have an impact on ICT deployment and e-readiness. Chief among these are the WTO (World Trade Organization) and WIPO (World Intellectual Property Organization). The WTO at one time commenced a new round of trade negotiations entitled the Doha Round that would have had, as a major component, a focus on e-commerce to fall under the General Agreement on Trade in Services (GATS). The Doha round has since stalled. Since trade negotiations are still evolving, no firm trade-related ICT policies are required at this time. However, governments need to be aware of the negotiations and the relevant issues and to educate themselves about the evolution of the debate so that they can fully participate and not be blindsided when decisions are made during the negotiations. The St Kitts Nevis Government will be working mainly through CARICOM.

IPR is another e-commerce-related area of which SKN must be aware. In 1996, the WIPO concluded a new treaty on copyrights that seeks to limit the copying that is legally permissible in the digital electronic environment. For example, it specifically limits the copying that can occur during transmission via electronic means, including a PC. It requires its members to adopt laws consistent with the treaty and to enforce its provisions. The treaty has gone into force, and WIPO is encouraging members to become signatories. If St Kitts and Nevis signs the treaty, it will be obliged to impose limits on personal and enterprise behavior, which will have to be reflected in its other e-commerce laws.

Legal and Regulatory Framework for E-commerce

ICTs have led to new electronic markets that extend customer choice while resulting in significant benefits in efficiency. This new environment, however, requires new policies and laws and amendments to existing legal frameworks. For e-commerce to flourish in SKN and become a significant economic factor, market participants must have confidence that transactions will follow predictable guidelines and that the rule of law will protect all stakeholders. A basic legal framework must cover an extensive list of issues and policies, beginning with electronic transactions, digital signatures, privacy and protection of data, cybercrime, consumer rights, quality of service, dispute resolution, and jurisdiction of courts to hear disputes, to name a few. The absence of a comprehensive legal/regulatory framework does not preclude online commerce but it will limit the value and growth potential of electronic markets. The task of reforming or adopting new laws will be time consuming and St Kitts Nevis should consider regional initiatives and mechanisms to share information to facilitate the process. The task of identifying laws implicated in e-commerce requires the active participation of both the private and public sectors and the dedicated assistance of local attorneys and experienced consultants who know the global legal framework and the issues under discussion.

Keeping legislation attuned to ICT and ICT use

St Kittts and Nevis needs to ensure that legal rules and procedures are adapted and kept up-to-date so that individuals and organisations can use ICT to the fullest possible extent. This effort is a fundamental requirement for all other policies to come into effect. However a number of E-business activities can and in fact have begun before the new legislation has been passed. Due attention ought also to be paid to securing the fullest possible compatibility with internationally accepted standards and regulations (e.g. UNCITRAL model laws) as well as those of major partner countries. Major topics requiring attention are the legal force of electronic documents and contracts, authentication of parties, protection of intellectual property and privacy, definition of the legal responsibilities of participants in electronic communications, prevention of new forms

of crime, and protection of pluralism and democracy.

Strategic Steps to produce Legislatory Enabling Environment

- A thorough inventory of all existing legislation and regulations related to the use of ICT should be conducted with a view to identifying inadequacies and gaps and to draw a programme for legislative revision and drafting. An annual review of all ICT-related legislation should be conducted.

- Existing legislation should be revised with a view to ensuring that electronic record or documentation would not be denied legal effect, validity, admissibility or enforceability, that a legal requirement for "writing", or a description of something as being "in writing", and that the requirement for information to be presented or retained under "original form" is satisfied by an electronic record if the integrity of the information can be reliably assured.

- Legislation should be put in place with a view to authorizing certification service providers to issue accredited certificates that confirm the veracity of an electronic signature and ensure authentication of issuers of electronic documents or Internet users when required by administrative or legal provision. A regional electronic signature and authentication agency, with due control of all governments and private sector (e.g. financial institutions) should be put in place as soon as possible. This legislation should be technology neutral.

- Legislation should be adapted or established in order to define the conditions of the formation of contracts and provision of contractual documents in electronic form, including the protection of the legitimate interests of vendors and buyers and the provision of legal evidence to the administration and jurisdictions. Provisions should be made in order to give legal force to agreements between partners in business-to business electronic commerce regarding the appropriate technological and business methods of

authentication.

- Legislation should be established for the protection of privacy and personal data in all forms of electronic transactions in the private and public sectors. This includes the establishment of an independent agency, led by representatives of the public sector, private sector and civil society organisations with powers to take quick action in order to correct infringements. St Kitts and Nevis may further wish to follow the specifications that may help turn the region into a *"safe harbour"* in North American and European Union terms.

- Legislation should be established in order to allow for the lawful acquisition, use, import and export of encryption programs or other encryption methods with due provision for national security and justice prerogatives.

- Legislation should determine the taxation rules applying to the various forms of electronic commerce. These rules should to the extent possible be harmonised across the OECS if not the CARICOM countries.

- Legislation should make provision for clear definition of the liabilities of Internet Service Providers, owners of Internet-based resources, providers of Internet-based services and Internet users at large, for information transmitted or transactions carried out over the Internet. It should adapt existing basic democratic, social and human rights to the new environment. It should put in place a regulatory and arbitration body representing all categories of stakeholders, that can take immediate action in order to correct a situation pending final judiciary decision, when appropriate.

- Legislation needs to be developed with a view to reducing and punishing the new forms of crime that global ICT networks facilitate. This "cybercrime" legislation would better be harmonised if not unified among OECS member countries. It should further seek to be aligned as appropriate with comparable legislation in other countries. Since this is a domain in continuing transformation, a regional commission should be entrusted with its

monitoring and proposing required adaptations. ECTEL presents itself as the best possible facilitator of such a need.

- Existing legislation regarding intellectual property rights should be revised and adapted to the globalised ICT environment. Due account should be taken of the similar developments in other countries as well as of the need for protecting the natural and cultural heritage of the Caribbean nations. Appropriate provisions should be made for all materials essential for the citizens or produced with public funding to be made accessible in open archive systems.

- Legislation would need to be devised with a view to facilitate the establishment and activities of virtual companies operating mainly from physical installations in an OECS country and/or owned by a majority of individuals or companies of these countries, or owned by foreign interest, as well as those operating mainly from physical installations outside of the OECS countries but having a domain name from these countries.

- Standards and regulatory bodies representing all categories of stakeholders, including civil society organisations, should be put in place with a view to supporting pluralism and preventing over-concentration in the ICT sector generally, and digital media specifically.

Summary

Objective

The four main areas of legislation that need to be urgently addressed are *Electronic Transactions, ICT Crimes, Data Protection,* and *Intellectual Property Rights.* It would become the top priority of the GSTK&N to create the enabling legal environment for the development of ICTs including the enactment of required Laws by Parliament to facilitate e-government, e-business as well as attract ICT-related foreign direct investment. Keeping abreast of the developments on the WSIS, WTO, UNCITRAL, WIPO and other important international organizations and acceding to related treaties are critical to having an up-to-date legal framework.

Electronic Transactions Legislation

This strategic component would ensure the preparation of an Act of Parliament for the facilitation and recognition of electronic contracts, the creation and exchange of electronic communication, the establishment of a Certification Authority and the accreditation of Certification Service Providers and facilitate the recognition of electronic filing by Government departments.

This project also envisages institutional capacity building in Government for the accreditation of Service Providers under the proposed Act of Parliament and the development of legal standards with UNCITRAL Secretariat as well as assisting in the formulation of appropriate regulations.

ICT Crimes

The ICTU would function as the convenor in a review of the Computer Crimes Bill. This project component would examine criminal implications of spamming and e-surveillance, and facilitate the establishment of a specialized Computer Crime Forensics Unit (CCFU) in the Police Department for the enforcement of Computer Crimes and also create the framework for the analysis of forensic evidence. Further, capacity building for law enforcement officials would be undertaken under this project as well as developing linkages with foreign law enforcement agencies. To exploit existing synergies across the government, the CCFU may be integrated with the Financial Crimes Unit in the Police Force.

Data Protection

The aim here is to develop and implement legislative or other measures to ensure that St Kitts and Nevis meets the adequacy levels required by the EU Directive on Data Protection, and promote institutional development for data protection and privacy issues. This would help to ensure that St Kitts and Nevis complies with required legal standards for the development of the IT Enabled Services sector and the BPO sector.

Intellectual Property Rights

This strategic component would ensure the development of appropriate legal standards with the UNCITRAL Secretariat as well as assist in the formulation of appropriate regulations to ensure that IPRs are protected as per international standards.

Target Group

The target groups would be Ministries, Government Departments, Legal and Judicial, Commercial, Banking, Shipping and corporate sector.

Expected Results

- The formulation of proposals for e-Transactions Legislation and finalised legislation through the Legal Department

- The establishment of a Unit for the Accreditation of service providers at the Ministry of Technology

- The development of appropriate regulations under the e-Transactions Legislation in conjunction with UNCITRAL.

- Establishment of an integrated Computer Crimes Forensic Unit and Financial Crimes Unit in the Police Force

- Preparation of a Code of Practice on Data Protection

Benefits

The establishment of an appropriate Legal framework for ICT development would help facilitate the growth of ICT in St Kitts and Nevis, including e-business and e-government related activities, and create the environment for ICT-related foreign direct investment.

Developing ICT Human Resources and Building Capacity

Information Society

The widespread deployment and utilization of ICTs is directly dependent upon the opportunity of a population to become ICT proficient. Whereas the public sector can set ICT strategy and policy, and the private sector can bring together opportunities and needed financial resources, both are dependent upon the intellectual capital of a nation and the ability of its people to provide the requisite skills and human capabilities. In the end, the ultimate change agent is a nation's citizens.

This section explores the intellectual resources of the people of St. Kitts/Nevis, their educational background, their capabilities and potential from an ICT-related perspective, and their desire and willingness to use ICTs and help develop the ICT sector. There are a few countries that serve as development models of success and useful case studies for countries to emulate. Ireland and India are two of the more prominent. Ireland used about a third of its EU infusion money to develop education and human resources that in turn developed knowledge industries, like IT.

One of the major constraints to the growth of the ICT sector in SKN has been the lack of a skilled labor force. The availability of appropriate skills is a major concern of the Government, SMEs, and educational institutions. The Government of SKN has launched a number of initiatives to address this issue, but time lags may mean that the shortage of trained labor will act as a constraint to growth and productivity improvements in the short to medium term. It has been reported that firms encounter myriad difficulties, ranging from getting IT service professionals to trouble-shooting basic PC problems to finding and retaining systems administrators. For educators, retaining good IT faculty and identifying the appropriate ICT curriculum components are difficult because of the demand for qualified professionals in this field. This shortage of ICT personnel is exacerbated by limited public sector funding.

SKN's labor sector competitiveness has been eroded somewhat in the last few years as wages

have risen faster than in most countries in the region. The labor force numbers about 22,000 workers. As for ICT professionals, a SKN private sector manager estimates that salaries for ICT network professionals are roughly half of the U.S. level. The SKN Government is the main provider of basic education. It has invested significant resources into outfitting primary and secondary schools with computers and Internet connectivity.

Strategic Steps to Develop ICT Human Resources

Beyond ICT literacy - shaping an information and learning culture

Of absolute necessity is the continuing struggle towards a smarter society. To that end one should first seek the widest possible level of ICT literacy through inclusion of ICT in formal and informal education and the training of teachers and instructors. One should further seek that all citizens are given the chance to achieve the highest possible level of education, develop their skills and talents throughout their lives, have their innovative and creative capabilities encouraged to be in a position to actively contribute to the production of local content for the electronic resources. This requires deep changes in curricula, teaching methods, operation and management of formal and informal educational programmes and institutions, provision of teaching and learning materials as well as supporting lifelong learning through a combination of traditional classroom (face to face), distance and open education methods.

Related strategic steps are to:

- Develop a sensitisation and training programme about the opportunities and challenges of the effective use of ICT in organizations and society targeted at senior and middle managers, and decision-makers in all sectors.

- Call for and support vocational training (e.g. with a professional education levy or incentive, subsidies, study loans, etc.) with a view to upgrading the ICT skills of the present workforce. Special attention must be paid to the unskilled workforce and women.

- Call for and support learning and information-oriented lifelong education programmes to be coordinated by community-based organizations and other NGOs.

- Expand on-going computer literacy efforts in primary and secondary schools into information literacy and cultural improvement programmes through appropriate curricular and pedagogic changes.

- Train teachers in the use the computer as a tool for teaching Reading, Writing, Mathematics, Art, and other core subjects, and working with the Curriculum Development Unit (CDU) and the Education Planning Division.

- Support the establishment of an Education Management Information System (EMIS) for the management of education at the school and Ministry levels. The monitoring and evaluation of the teaching-learning process with the involvement of parents and parent-teacher associations (PTAs) should be a central feature of the EMIS.

- Initiate the building of training and support capacity in the use and customization of open source software in order to sustain generalised use of open source software in parallel with proprietary ones. The new Saddlers High School can be a test bed for the use of open source application and system software.

- Support the creation of a national or regional consortium for education that can negotiate licenses for access to learning material and courses, serve as a hub for the distribution of these materials, facilitate sharing of efforts in the use of Internet-based distance education modalities, and support the development of a national and regional inter-library loan system. Support the creation and use of digital libraries. Give strong support to educational institutions including the CFB College and the University of the West Indies for the use of ICTs in the delivery of education and the possible emergence of an open university. The concept of the Caribbean Knowledge Learning Network (CKLN) or CaribNet must also be strongly supported.

Community Access Points

Community Access Points (CAPs) are community or public buildings where computers, colour printers and scanners are installed for persons in the community to use either free of charge or for relatively low costs.   It is hoped that all the computers would have broadband connection to the Internet. Currently in St Kitts and Nevis the Community Centres have been designated to fulfill this role. These centres have been newly built with grant support from the Taiwanese government.

The CAPs are intended to help rural and disadvantaged communities finance and implement projects aimed at improving their daily lives through the use of ICT. It is hoped that these CAPs would be characterized as being demand-driven development programme where decisions are taken by the communities themselves and funds are allocated according to priorities decided on by the community. Furthermore these CAP seek to build capacity of communities by enhancing existing skills and facilitating the acquisition of new skills. To ensure the success of these initiatives, the rollout of CAPs should be done alongside an awareness campaign in target communities on the role of ICT as a tool for development and empowerment.

Local Community Access Point would generally be able to do the following:

- access government information and services
- surf the Net
- send and receive e-mails
- shop online
- follow on-line training courses
- review job adverts
- book plane tickets
- trace ancestors or long lost friends
- scan photographs or other pictures
- write a letter or resume

- play games
- receive beginner to intermediate training courses

Promote the systematic use of ICT by organisations of the cultural sector

Projecting cultural activities of St Kitts and Nevis on the Internet will enhance the image of the region as an ICT savvy one. It will also contribute to a balanced long term cultural transformation by ensuring the preservation and visibility of national cultures. In the short term, many cultural activities are also likely to contribute to income generation. By creating a critical mass of ICT-savvy actors in the various cultural associations and activities, and by supporting the development of cultural products using ICT, a dynamic process of expansion of the use of ICTs will be created.

Related strategic steps:

- Design a program for training a nucleus of members of local musical and other artistic groups in the use of ICT for production, marketing and distribution of musical recording and other artistic works.

- Design and implement a program to demonstrate electronic publishing and E-book techniques; train an initial nucleus of instructors or resource persons and build a demonstration collection of original literature from St Kitts and Nevis.

- Support the electronic creation of literary works, particularly on local history and culture, through the institutionalization of an award (monetary) system for such works.

- Design and implement a program for the training in St Kitts and Nevis of a nucleus of specialists that can assist the cultural associations and local artists in producing quality web sites to be hosted on the co-operative cultural web site.

- Initiate a program for the systematic recording and presentation on quality web sites of our historical, cultural and natural heritage (e.g. museums, places of interest, etc.)

- Ensure web streaming and if possible live diffusion on the Internet of major cultural events in the region.

Harnessing ICT for making everyday life easier

Segments of society or certain societal issues require special attention and measures to which the application of ICT can bring more effective solutions. In the mean time ICT application should, from the inception, cater for the particular requirements of persons with disabilities.

The provision of practical information and guidance or special services to cope with the particular situations such as gender and age discrimination, incidence of disease (morbidity), disabilities, Diasporic relations, etc. in conjunction with related civil society organisations are among the contemplated activities.

Related strategic moves are to:

- Promote compliance of electronic resources with internationally recognised standards for accessibility by persons with disabilities.

- Establish or expand public information and advice resources with related Internet-based resources for women in particular (e.g. about health, social benefits, child care, prevention of abuse, self-employment, geriatric care, etc.).

- Liberalise the use of Internet telephony by individuals and its provision by all Internet Service Providers, at a reasonable cost, with a view to strengthening the interaction among families and social groups with members and affiliates abroad.

- Establish or expand public information and advice resources with related Internet-based resources on common public health and other issues.

- Establish a regional / international tele-medicine network among hospitals, health centres and practitioners for exchange of information, access to medical information resources world-wide, preliminary diagnosis and assistance for treatment. At one point the JNF General Hospital had a relationship with Dalhousie University in Canada and that is certainly a relationship that we can look to build upon.

- Establish or expand public information with related Internet-based resources for persons with disabilities and train personnel from the organisations of civil society that are supporting particular groups of disabled persons to act as intermediaries in the gathering and diffusion of electronic information.

ICT in Schools

Research has shown that ICT can provide stakeholders and administrators with new tools for increased communication for management efficiencies, and teachers and learners with improved learning opportunities by:

- empowering citizens, managers and other stakeholders by enabling online teamwork for increased participation, collaboration and information sharing through the use of email, the Web-logs and other remote collaboration tools.
- enabling the rapid creation and inexpensive distribution of educational information and knowledge
- encouraging professional development, in-service-training, remote support and mentoring for lifelong learning for teachers, managers and other citizens
- facilitating fast and easy access to information and expertise around the world.
- increasing motivation through the use of multimedia (sound, video, graphics, animation and text.)
- allowing each student to learn at his/her level and speed thereby giving pupils greater

control over their own learning.

- enhancing the development of the abilities of mentally and physically challenged students.

- promoting active rather than passive learning.

- engaging students in research, data analysis and problem solving, thereby facilitating higher-order thinking processes such as synthesising , interpreting and hypothesising.

Objectives of ICT in Education

- promote equitable access to educational resources through the strategic application of ICT.

- make all school-leavers computer literate thereby providing them with the requisite ICT skills as a platform for imminent employment and/or entry to specialised training for the information economy

- create a teaching force in which all practitioners possess the critical requisite skills and competencies required to use ICT as a tool in enhancing the teaching/learning process and a cadre of ICT teacher specialists.

- improve the efficiency and effectiveness of educational administration through the promotion of the use of appropriate school management information systems

- exploit the interactive potential of Information and Communications Technology in the provision of lifelong learning, anytime, anywhere via distance education programmes

- create **smart partnerships** for a sustainable ICT programmes through collaboration with between the public, private and community sectors,

- establish a schools network system for the collaborative sharing of educational resources **and stakeholder participation**.

- employ the new ICT tools for increased online communication, stakeholder participation and improved management of the sector

Factors which will impact on ICT in Education

- Equity of access to the technology for all students

- Preparation of teachers to optimize the use of ICT in the teaching/learning process. The

process of preparing teachers in training as well as the upskilling of those now in the classroom

- Provision of technicians to support the work of teachers and administrators in the schools

- Security of hardware and software in schools

- Health and safety issues .

- Cultural relevance and suitability of courseware .

- Sustainability of programmes considering the high rate of obsolescence of equipment and the high cost of replacement relative to the country's resources

- Capacity of the central Ministry to manage the partnership process for development and to monitor the implementation of the policy at the institutional level

- The Ministry of Technology websites will be developed, together with an INTRANET for the school system using content prepared by the various units of the Ministry of Technology and the Ministry of Education as well as individuals and groups within the sector. The Intranet will be of help to teachers, administrators, students, parents and other stakeholders.

Strategic Concerns and Expectations

Equity of access is an overriding consideration. The Ministry of Technology will therefore work collaboratively with educational institutions to make available facilities, equipment and personnel to permit access to ICT for all students.

- Schools will be expected to use the most effective configuration - classroom, type of equipment, networking, software - to optimize both access and quality.

- Accountability for all ICT resources, as with all other school property and facilities rests with the school's administration.

- Students completing primary education should have had some exposure to ICT, and possess some awareness of its applications.

- Students leaving Fifth Form after five years of secondary education must be computer literate defined as being able to use a computer safely to do the following

  o   compose a document using word processing functions, being able to copy, cut,

    paste, save and print

  o prepare a simple spreadsheet

  o send and receive an electronic mail message

  o access sites desired on the internet

- ICT at the institutional level will serve multiple purposes, all of which contribute to the creation of a knowledge-based, information-oriented, system driven by modern society. These include primarily

  o supporting individual mastery of literacy and numeracy skills at the primary level

  o improving the general quality of learning throughout the curriculum

  o providing strong support for technical/vocational programmes in the upper levels of the secondary system

  o remediation where needed

  o increasing professional development opportunities for teachers and other staff

  o improving the efficiency of the school's administration, including student record keeping, and evaluation of academic and non-academic progress

  o facilitating the accurate and timely flow of data and information between institutions and the Ministry of Education

  o building the creative capacity and the expertise of ICT users and sharing the products with others

- The Ministry of Technology will have the responsibility of ensuring the most efficient use of all resources involved. It will expand its existing courseware evaluation committee to include a broader representation from the stakeholder community to perform a number of functions. The ICT Standards Committee will perform the following:

  o advising on the appropriateness of hardware

  o determining approved software for educational/curriculum purposes

o determining management systems to ensure compatibility with the national system

- The Ministry of Technology will actively encourage collaborative partnerships in furtherance of the national development objectives. To this end, it will

  o work with public, private, local and foreign training institutions to expand the number of teachers equipped to work in an ICT mode within the schools

  o develop guidelines for schools to work directly with providers of goods and services required by the ICT programme in their institutions

  o remain responsive to the needs of corporations, small business enterprises and individuals in respect of ICT skills and the relevant curricula

  o encourage the sharing of skills between the schools and the workplace so that curricula can be adapted to suit skills required for the workplace

  o provide information to the private sector on partnership opportunities with individual educational institutions, not excluding the extent of tax incentives for benefactions.

- The Ministry of Finance, Sustainable Development, Information and Technology and the Government in general will work to make maximum use of the opportunities available through the Telecommunications Policy arrangements to ensure that access to the relevant services is available to the entire student population at the best possible cost.

- The staffing arrangements in the schools and the recurrent costs for approved programmes will be reviewed and modified from time to time by the Ministry of Technology to ensure that the efficiency of the operations is supported.

- Financing of ICT within the education sector will remain as a partnership exercise. The partners will include:
  o The Government of Saint Kitts and Nevis
  o Public Corporations and Statutory Bodies
  o Private Enterprise
  o Local and International Foundations

> o Bilateral and Multilateral Organisations
>
> o Community Organisations
>
> o The educational institutions through income-generating activities
>
> o Parents through the cost-sharing mechanisms in secondary and tertiary institutions

- All policies and provisions in respect of copyright, professional conduct, confidentiality, rights and responsibilities of lecturers, teachers, instructors, trainees and students will apply to the conduct of ICT programmes.

Issues regarding ICT in Education

Several issues have been considered in order for the country to make optimal use of ICT in the teaching/learning process. With the rapid changes in the technology itself and its applications, these issues and others will have to be constantly reviewed to ensure that policies are kept relevant and current.

Relevant considerations and policy objectives include:

- The Ministry of Technology's institutional capacity to utilize information management tools and to ensure the implementation and support of ICT programmes in the nation's schools.

- The revised policy instruments, including incentives, guidelines and performance evaluation instruments as appropriate to management in the information age.

- The supply of hardware and relevant software to allow students equitable access to the technology.

- The equipping and retooling of the Teacher Training College to prepare teachers in the integration of ICT in the curriculum.

- The country's capacity to develop software and courseware, which support the curriculum and reflect Kittitian and Nevisian culture.

- The capacity of suppliers to maintain hardware and software supplied to the school

system.

- The funding required for the introduction, maintenance and review of ICT programmes.

- The development of ICT curricula for the primary and lower secondary levels of the education system.

Modernizing Government and Delivering Citizen Services

ICT Use by Government and E-government Initiatives.

The SKN Government is fully committed to deploying information and communications technologies more widely throughout Government. For the most part, ICTs are currently used for point-to-point communications, rather than to deliver services and to make government information more readily available or to enable citizens to communicate with their Government. Some Government information is available online, but there is no consistent, uniform policy pertaining to information disclosure and publication. The Honourable Prime Minister has recently met personally with private sector consultants abroad to discuss successful e-government programs and the development of integrated consistent policies to guide future initiatives of the GSKN . One aspect of e-government that must be thoroughly addressed is how to improve program design and organizational structures to accommodate the new online environment. Few, if any, programs were originally designed with ICTs specifically in mind. The Prime Minister's personal interest gives this sector the necessary impetus, leadership, and political urgency, and he has access to experienced IT consultants who can help SKN develop a national plan and strategy to advance ICTs. As each country has its idiosyncrasies, ordinary citizens and industry must be part of the process of designing and rolling out e-services to ensure their appeal to and use by local citizens.

Expanding SKN's Internet Presence.

The lack of an Internet presence by the Government is largely due to the under-utilization of the Web by Government agencies for basic services such as posting information, much less hosting services and applications. Once control over the ".kn" domain name is regained, there should be more Web sites with the country's domain name. The Government may wish to encourage a shift to the ".kn" domain. More importantly, the Government and the private sector should consider the value of a content-rich national portal with an anchor in interactive e-government services. Simultaneously, the Government should engage its neighbors in discussions regarding the

establishment of a regional portal to enable Caribbean enterprises to more effectively market their goods and benefit from the synergies, and strengths of one another.

Government as a catalyst and example of best practices

The credibility of any ICT policy is to a large extent dependent on the government sector's own efforts toward an effective deployment and use of these technologies. As a major employer, service provider and consumer the government is also in the best position to initiate and sustain the spread of ICT applications in the other sectors and the subsequent growth of ICT industries. This requires the application of ICT in all administrative procedures and the related reengineering of the latter with a view to making them more cost-effective and more customer-oriented, overcoming when necessary existing boundaries and prerogatives. A significant training and retraining effort should be undertaken. The definition and actual construction of a public information domain accessible to all citizens now and in the future is also an important aspect of this effort. The introduction of knowledge management practices is furthermore a natural complement to the above endeavours.

Related strategic moves are to:

- Undertake a stepwise and thorough revision of all procedures (in order of priority) involving direct transactions between the public, individual and corporate, in any area, on the one hand and government offices on the other hand, with a view to simplifying and streamlining them and installing these new procedures on E-government sites.

- Design and implement a stepwise program for installing computer networks in public administration agencies and related training of all civil servants with a view to supporting the deployment of Government-to-Government and Government-to-Public, including E-procurement, electronic transactions through Intranets, Extranets and Internet sites. Priority may be given to transactions between businesses and public administration.

- Determine what documents and transactions form part of the public domain and should remain available to the general public at zero or nominal cost.

- Set up Web based resources providing basic official information for the citizens of OECS countries, especially information related to main circumstances of life.

- Set up Web based services and other appropriate electronic resources (e.g. CDRom versions of the web sites) providing practical information and advice on natural disaster preparedness and emergency situations in conjunction with alert and rescue programmes.

- Establish a country portal providing basic information about the country, its administrative organisation, investment and migration regulations and procedures, etc. targeted at economic partners and customers in other countries.

- Establish fixed and/or mobile administrative service points that will allow the public to accomplish administrative formalities related to basic social and economic events at single points. While using ICT-based transactions these points should cater for the needs of the persons who cannot use ICT as well as provide the required advisory services.

- Establish a phased program with a view to allowing for electronic payment to the public administration.

- Establish a phased programme aimed at making the public sector as a whole an example of best practices in ICT applications, knowledge management and learning.

Government ICT Policy

The Policy is to be a guide for the Government sector in using ICTs to achieve overall development within agencies and in delivery of services. It will assist in benchmarking each

organization's activities against the Policy, which will enable agencies to identify the areas which need attention and where interventions need to be carried out. It will also ensure consistency and synergy in ICT activities. The Policy articulates the minimum requirements expected of Government organizations, and Government organizations could add to this and create their own organizational ICT policies, within this policy framework. Thus, the Policy will be a first step towards implementing a standards-based approach in implementing e-Government services. The mission of the Policy is enunciated below:

Mission:

- Improved efficiency and effectiveness of Government organizations in Saint Kitts and Nevis thereby making each Government organization's budget go farther.
- Ease and accessibility of Government information and services for citizens, thus creating a citizen-friendly Government.
- Creating a business-friendly environment by improving the interface between Government and business.
- Promoting transparency, inclusion and general good governance.
- Developing ICT competence among Government employees to improve productivity and customer service.

Time frame:

The implementation time frame is to be 5 years, commencing January 2007.

Scope:

The ICT Policy is to be implemented by all Government organizations; Ministries and Government Departments. Adoption of the Policy by Government Corporations, Statutory Bodies, and fully government owned companies is recommended.

Process:

The ICTU of Saint Kitts and Nevis will set up an ICT Policy Implementation Committee in December 2006 to formulate the first draft of the ICT Policy Implementation Plan for the Government. The document will be circulated to the members of the ICTU Working Group and Focus Groups, and to members of academia, to obtain their views. The document will be made available on the web in order to ascertain the views of a wider audience. Comments will be received from the Government organizations, private organizations, citizens, associations, health personnel, etc. All comments will be reviewed and the policy amended thereafter incorporating recommendations.

Enabling legal environment:

The issue of formulating and incorporating into the country's legal system suitable measures relating to ICT, so as to promote the development of ICT, and to create a facilitating legal environment will be addressed as being top priority by the ICTU. The emphasis will be placed on legislation to facilitate e-transactions and the preparation of a Code of Practice for Data Protection. The drafting of Electronic Transactions legislation will also be regularized.

Salient points:

The Government should identify the following factors, which are intrinsic to e-Government, as key principles on which ICT solutions will be implemented. E-Government solutions will contain the attributes listed below.

- **Accessibility:** Providing information and citizen services over the web and ICT channels will make them available to a larger section of the general public. Therefore all possible measures should be taken to make the services accessible to the public without discriminating on ethnicity, religion, gender, disability, or based on geographical locations, time, or on economic levels.

- **Transparency:** ICT based solutions should improve the transparency by allowing the pubic to monitor the mandate of the organization, functionality, decision making processes, the progress of a process at different stages and clearly informing them of the type and the quality of the services they obtain. The e-government models should always encourage transparency within Government.

- **Efficacy:** It is important that the services provided by Government organizations using ICTs, meet and exceed the expectation of the citizens. The efficacy at which the services offered should be a key factor that determines the quality of the services provided through using ICTs.

- **Efficiency:** Services should be available to the public within the minimum possible time. A concept popular in e-government solutions, is *"same day service";* where a service requested by a citizen in the morning should be made available to him/her before the end of the same day. Although it is difficult to expect this level of delivery from every service from the inception, all Government organizations are expected to provide citizen services efficiently so that the public is not made to wait for the services requested. Citizen centric: In providing services, Government organizations should have a holistic approach. Thus, citizens should be able to obtain a service through submitting the minimum necessary supporting documents and visiting a minimum number of organizations.

- **Inter-operational:** Government organizations should ensure when implementing ICT programs that these are inter-operational - enabling data sharing and data exchange between different systems - throughout all Government organizations, and also with the industry and other key sectors.

- **Confidentiality, integrity and availability:** All Government organizations should preserve the confidentiality, integrity and availability of the information within their purview. This entails that citizens should have the assurance that Government information is shared only among authorized persons or organizations, that the information is authentic and complete and can be relied on for the purpose for which it is

needed, and also that it is accessible when needed by those who need it.

- **Accountability:** Government organizations should be accountable towards the citizens and for the services provided, so as to foster confidence in citizens in the use of such services, and in interacting with Government organizations.

- **Equity:** Information and services should be fairly distributed to citizens to enable them to be benefited on equal terms. It is essential that the marginalized groups and differently-abled persons be taken into account while devising e-government solutions.

Leveraging ICT for Economic and Social Development, through Public-Private Partnerships

Ultimately, it is the private sector that must generate the business activity that establishes and maintains economic growth and improves the living standards of the citizens. This third area of the ICT Assessment focuses on two key areas relative to leveraging ICTs in St. Kitts and Nevis:

1. Determining and improving the strength and potential of the ICT-related sector in domestic and international markets, and

2. The utilization of ICTs by the local business community in an effort to improve the productivity and efficiency of their operations and, where appropriate, to potentially become more competitive in the regional and global marketplace.

National Economy and Private Sector

Over the past decade, the Federation of St. Kitts and Nevis (SKN) has been reasonably effective at diversifying its economy. SKN has achieved long periods of uninterrupted growth in services (tourism, financial services) and relative prosperity in light manufacturing and assembly. Notwithstanding negative external economic forces and extensive damage caused by two consecutive hurricanes in 1998 and 1999, levels of inflation, employment, and overall GDP continue to be favourable. During the years that followed the hurricanes, a world economic slowdown prevented the islands from achieving a full recovery, only to have conditions exacerbated by the September 11 terrorism attacks and the overall downturn in the tourism industry. GDP growth dropped five percentage points in the first year of the new millennium when compared to pre-hurricane growth but still remained positive. Additionally, the Sugar Industry, which was once a major employer and contributor to the economy, has come to an end.

Economic strengthening is being led by (1) the construction of several large tourism projects and new tourism product development and (2) the redirection of foreign investment strategies towards more near-term and low-risk opportunities in information technology areas. SKN has also realized investment benefits as a result of the legal/regulatory changes that resulted in the country's removal from the OECD Financial Action Task Force (FATF) blacklist. Since its appearance on the OECD's list of uncooperative tax regimes in early 2001 and its subsequent removal in the first quarter of 2002, SKN has demonstrated a commitment to fair banking practices. This led to the creation of the Financial Intelligence Unit to facilitate investigations of suspected tax avoidance as well as to enforce a transparency mechanism, which was recently added to the Companies Act. The imminent launching of a website where offshore companies can register will give tremendous boost to the financial services sector.

The government has emphasized the advantages of ready-to-work commercial infrastructure for targeted ICT FDI, and already development space has been earmarked and a plan of action is being developed for the placement of the infrastructure. The government has stressed the importance of equipping commercial space as part of an overall strategy to attract ICT investment. Called "smart" facilities, they play on the notion that "intelligent" jobs are created there.

Business Competitiveness and Development

Promoting and supporting initiatives of the enterprises towards ICT use

In view of the extensive transformation that ICT use calls for, the market structure and enterprises' size may be obstacles until ICTs have become commonplace. Since the objective is to be among the early adopters rather than laggards, targeted support is required. It should be directed in the first place at small and medium enterprises, the tourism industry and agri-businesses. The development of e-commerce further requires appropriate logistics to be in place as well as quality of service standards and consumer protection mechanisms.

Related strategic moves will:

- Support the formation of service centres, especially as cooperatives, joint ventures or as part of trade associations, that can provide ICT based services(such as e.g. accounting, clients data bases, customer relationship management (CRM), billing., Internet market places, e-shops, etc.) for the Small and Medium Enterprises, offer training in the use of ICT, support the transfer of these functions into the individual enterprises or trade associations when feasible.

- Include in the programmes for promotion and support of Small and Medium Enterprises incentives and services for training in ICT applications, ICT investments, formation of users groups and appropriate fora for sharing of experience among SMEs managers.

- Establish a scheme for encouraging firms to invest in ICT and train their staff, e.g. through low rate loans to be administered by commercial banks with a consolidation or guarantee from the government. Such schemes should apply to existing companies as well as new investors.

- Establish a consumer information and protection service related to e-business transactions by companies operating in St Kitts and Nevis to be jointly operated by public sector, private sector and civil society organisations. It should offer an arbitration procedure and benefit from fast judicial action procedures.

- Support the participation of enterprises of the tourism sector and tourism authorities in portals that can provide a variety of information and inquiry services as well as on-line reservations and auctions. Also support training for entrepreneurs in digital content development.

- Support the creation and/or development of agri-business portals that can provide to the farmers and enterprises of the sector, with their active participation, a variety of technical,

commercial and administrative information and inquiry services as well as support co-operative commercial services.

- Encourage and support efforts geared towards strengthening of logistics (e.g. warehousing facilities, packaging, transportation, courier services, customs clearance, contracting distributors, marketing, contracting intermediaries for payments and transfers, etc.) required by e-Commerce, in the country as well as abroad, including the formation of co-operative or joint ventures.

- Promote the establishment of standards about quality of service by e-commerce providers and put in place appropriate regulation mechanisms to ensure compliance .

- Develop IT parks that can offer state of the art wired premises, call centre, industrial and warehousing space, training facilities, incubator facilities, business development support, accommodation, catering and entertainment facilities that can attract and host external investors and host temporary events (such as staff training and leisure packages, professional meetings, etc.)

- Establish an employment portal to be jointly operated by public sector, private sector and civil society organisations that would compile professional profiles, labour regulations, notices of training opportunities, job offers and demands, etc. The contents shall also be made available to communities in CD-ROM or print format.

- Explicitly include ICT activities in the investment promotion packages and adjust the latter when appropriate.

Financial Services

Switching progressively toward electronic payments and financial transactions

The implementation of e-business rests with adaptations of the financial system so that electronic transactions become a standard feature. The deployment of ICT also requires that the financial sector adjust its practices to an economy that relies upon services and intangible assets with a view to offering attractive packages especially for the creation of new enterprises.

Related strategic moves will:

- Assign priority to ICT investments, including manpower development, and creation of ICT activities by existing or new business in the loans policies of the financial sector and adapt existing regulations and business rules to the particular requirements of this type of business.

- Establish mechanisms for the consolidation or guaranteeing of loans made by banks to ICT investments, enterprises or activities under appropriate conditions e.g. recruitment and training of nationals.

- Establish a package that includes access to study loans, access to incubators and access to employment or business creation loans, with a preferential regime for women. This package would be operated by commercial banks but supported by government incentives (e.g. cofinancing or guarantees).

- Encourage the establishment of micro-finance or credit unions by community organisations that can take advantage of Internet banking to channel remittances of expatriates to their relatives in the home country. These transactions may enjoy reduced rates and charges and at the same time contribute to the funding of community projects through a small percentage received on the transactions.

- Encourage and support the introduction of electronic banking, including Internet banking, and electronic payment technologies for domestic, international and inter-bank transactions.

- Develop an online registering facility for offshore financial services businesses.

Conclusion

The National ICT Strategic Plan (NISP) represents a major achievement for the Government of St. Kitts and Nevis. The NISP represents simultaneously both a vision roadmap for ushering in the information society. It provides a basis for engaging our local, regional and international social and economic development partners in a much more focused way in relation to ICT and how it can transform our society. Bearing this in mind, the NISP will go into wide circulation among our development partners.

The achievement of an information society, and therefore the implementation of the NISP, will require the commitment of significant amounts of resources in human and financial terms. Government must commit a considerable fraction of these resources to both lead and demonstrate support for the vision of an ICT-transformed society.

The first order of business emanating from this plan is the drafting of a three-year NISP Implementation Plan that attempts to identify specific activities, maximize synergies and identify specific resources. Undoubtedly, the instituting of the ICT Unit which will itself constitute the framework for the implementation of the plan will be critical to the early success of the plan.

As it is with any important long term plan, the NISP will be reviewed, revised and fine-tuned on a periodic basis to take into consideration emerging ideas and experiences. On an annual basis, audits will be conducted to measure progress on the five major facets of the ICT plan. These audits will attract cross-sectoral involvement and will form the basis for interventions that will be designed to ensure that development targets are achieved.

Appendix A

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Appendix B

Participants (Attendees) of the National ICT Strategy Workshop

Held Thursday June 1, 2006

NAME	ORGANISATION
Amory, Dennis	TDC Ltd
Armony, Kachi	Independent Consultant
Blake, Ivor – Supt.	Ministry-National Security
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Caines, Sanjay	St. Kitts Tourism Authority
Edwards, Calvin	Ministry of Finance
Edwards, Glenville	Ministry of Education
Greaves, Earlgarth	SKNA National Bank
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Hazelle, Roslyn Amb.	Ministry of Industry and Commerce
Inniss, Desirée	Ministry of Public Works
Jules, Junior	SKNA National Bank
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Mc Phail, Sonia	CFB College
Morton, Quinton	Ministry of Education
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Phillip, Keith	Ministry of Agriculture
Phillips-Lee, Marlene	Ministry of Tourism
Pollock, Reuben	Police Headquarters
Skerritt, Andrew	Ministry of Health
Somersall-Berry, Jacqueline	Financial Intelligence Unit
Springette, Novella	Ministry of Finance
Wattley, Douglas	Public Sector Reform
Wharton, Wesley	Ministry of Technology
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Appendix C

Map of St Kitts and Nevis