



United Nations

Economic Commission for Latin America and the Caribbean

# Trinidad and Tobago's Information Society Country Profile

Subregional Headquarters for the Caribbean

November 2006

Este reporte fue elaborado para el Programa de Sociedad de la Información de la División Desarrollo Productivo y Empresarial y la oficina subregional del Caribe de la Comisión Económica para América Latina y el Caribe (CEPAL) de Naciones Unidas con la contribución financiera del UN ICT Task Force (Development Account project on Capacity-building on ICT policy making) en septiembre del 2006 por el consultor Carlos Miranda Levy.

Para más información, visite:

- [www.eclac.org/socinfo](http://www.eclac.org/socinfo)
- [www.eclac.org/portofspain](http://www.eclac.org/portofspain)

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# 1. Summary Profile

The twin island nation of Trinidad and Tobago is blessed with natural resources, including natural gas, and a privileged location, just 7 miles off the shores of Venezuela, that keeps it out the path of most hurricanes and tropical storms.

## Access and Infrastructure

While its telecommunications market has opened up just recently, there is no shortage in the availability of services, including broadband Internet access and business communications. Internet access to communities is provided through the national network of libraries.

## Policy Instruments

Trinidad and Tobago can be considered a pioneer and seasoned early adopter in the region when it comes to the formulation and implementation of structured and formal National ICT Strategies. A Universal Access Fund is defined in the Telecommunications Act, but has yet to be implemented. Cybercrime and computer misuse acts are part of the existing legal framework. Electronic commerce, digital transactions, among other ICT related legislation, are being formulated.

## Capacities and Knowledge

Despite the active development of ICT initiatives by the government and the existence of a dynamic ICT business sector, availability of skilled labor remains a challenge. The government has fostered several tertiary education initiatives to address this issue and is also setting up early childhood centers to increase the participation of women in the work force.

## Content and Public Services

The government has been active building a backbone infrastructure, implementing back-office components and several e-government initiatives under a coordinated strategy. National banks exchange information and transactions electronically, facilitating business operations. E-commerce is starting to flourish, with several national stores on-line and a small and medium enterprise business marketplace. In addition the government is promoting investment in technology through its plans for an attractive technological park and a clusters strategy.



**Table 1. Selected Data and Indicators<sup>1</sup>**

<b>Territorial Extension</b>	1,980.74 sq miles	
<b>Population</b>	1,301,307 76% Urban Largest City: Port of Spain - 263,800 (metro area) - 45,300 (city proper)	
<b>Gross Domestic Product</b>	USD 12,211 million USD 9,384 per capita	
<b>Cost of Internet Access</b>	USD 30 Dial Up (100 hr.) USD 72 Broadband (256k)	
<b>ICT Penetration</b>	<b>Total</b>	<b>per 100 pop.</b>
Fixed Line Subscribers	322,334	24.77
Mobile Subscribers	797,181	61.26
No. of Computers	102,803	7.9
Internet Users	159,280	12.24
Broadband Users	---	---

<sup>1</sup> Sources: Fixed Line and Mobile Subscribers (ITU, 2005); Internet Users, No. of Computers (ITU, 2004); Broadband Users, World Bank ICT at a Glance (2004).

## 2. Access and Infrastructure

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A relative latecomer to the telecommunications market liberalization process, Trinidad and Tobago however enjoys comfortable availability of telecommunications services. However, Internet penetration remains low under 15% and coverage of both fixed and mobile services is limited to the densely populated areas.

### 2.1. Telecommunications Sector

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#### Market Liberalization

Telecommunications Services of Trinidad and Tobago (TSTT) was until recently the monopolistic provider of telecommunication services in Trinidad and Tobago. While the firm, 49% of which is owned by British telecommunication provider Cable & Wireless and 51% by the Government, has had to adapt to increasing and aggressive competition, it remains a major player in terms of market share, coverage and innovation of services.

On August 2004, Trinidad and Tobago's amended the Telecommunications Act of 2001 and Cabinet authorized the Telecommunications Authority of Trinidad and Tobago (TATT) to award two (2) additional concessions for public domestic mobile telecommunications services. This officially marked the start of the Nation's telecommunications liberalization process.

As of 2006, the Telecommunications sector of Trinidad and Tobago is fully liberalized and open to competition.

#### Concessions

Just one month later, in September 2004, TATT invited parties interested in participating in the auction to apply for pre-qualification and five (5) companies responded and were approved:

- Telkom Caribe (Trinidad) Limited,
- New Cingular Wireless International,
- Laqtel Limited,
- NatTel, LLC, and
- Digicel Trinidad and Tobago Limited.

Out of those five, only two (2) participated in the actual auctioning process that took place in June 2005 and ended up being awarded of mobile phone service concessions:

- Digicel Trinidad and Tobago Limited.
- Laqtel Limited.

The Telecommunications Authority has continued to actively promote diversification and competition, opening new market opportunities calling for investors and issuing additional concessions, including:

- 3 concessions granted for mobile services.
- 4 concessions granted for cable/fixed line services.
- 4 concessions granted for international services.
- 1 new Cable network/service commissioned.

- Currently working on defining 4 additional concessions for international services, review policies/regulations for interconnection, access facilities, fees and radio spectrum management.
- Additional concessions for specific telecoms services, free-to-air radio and television services are expected.

› **Digicel's Launch in April 2006**

After months of preparation, Digicel officially launched its mobile service in Trinidad and Tobago on April 2006, despite not having reached an agreement with TSTT on interconnection prices. TATT has assigned a committee to determine the interconnection rate between the providers and both parties have committed to accept the committee's recommendations.

› **LaqTel's Plans**

LaqTel, a 100% locally owned company, plans to build and operate a Third Generation (3G) CDMA 2000 1xEV-DO Advanced voice and data wireless telecommunications network to provide local, inter-regional and international telecommunications services to the local and international customers in Trinidad and Tobago.

To accomplish this, LaqTel awarded SaskTel International in late 2005 a management contract to design, build and operate a US\$100 million CDMA network and has agreements with Nortel.

## Mobile Phone Coverage

Cell phone coverage offers good reception and wireless communication around virtually all important urban centers. Coverage outside those areas is limited, with significant gaps throughout the country as the following charts of TSTT CDMA coverage show:<sup>2</sup>

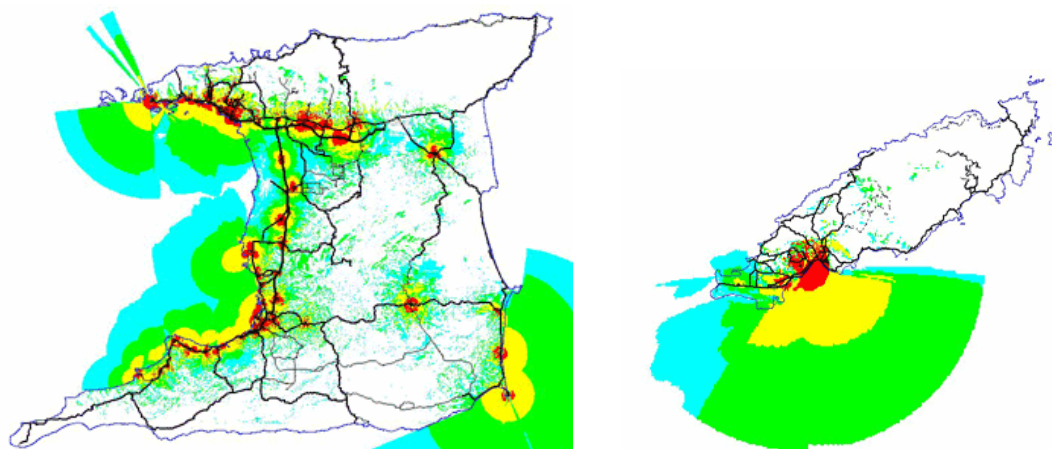


Figure 2. TSTT's CDMA Coverage in Trinidad in Trinidad and Tobago

## 2.2. Internet Access

Local high speed business and residential internet service has improved recently - faster service, lower rate - leading to increased usage (percentage of homes with Internet access

<sup>2</sup> Source: Telecommunications Services of Trinidad and Tobago, <http://www.tstt.net.tt>

has raised from 8% to 17% in the past two years). There is competition among a reduced number of local Internet Service Providers offering dial-up and broadband services:

- **Gillette Group Telecommunications Divisions:** This high profile locally founded business group with operations in several countries of the region has four (4) different companies offering dial-up, broadband, wireless and other Internet related services in Trinidad and Tobago - Open Telecom, CableNet, Carib-Link, and and InterServ Limited. [www.gillettegroup.com](http://www.gillettegroup.com), [www.opentelecomtt.com](http://www.opentelecomtt.com), [www.cablenett.net](http://www.cablenett.net), [www.carib-link.net](http://www.carib-link.net) and [www.trinidad.net](http://www.trinidad.net).
- **Greendot:** Broadband (fixed wireless), telephony over IP, hosting and other network related services. [www.greendottt.com](http://www.greendottt.com)
- **Lisa Communications:** Dial-up, broadband and e-mail. [www.rave-tt.net](http://www.rave-tt.net)
- **Opus Network:** Provider of e-mail services. [www.opus.co.tt](http://www.opus.co.tt)
- **Telecommunications Services of Trinidad and Tobago (TSTT):** Former monopoly and provider of a wide range of residential and business services, including dial-up, broadband, wireless, hosting, etc. [www.tstt.net.tt](http://www.tstt.net.tt)
- **WOW:** Dial-up, broadband (fixed wireless) and hosting. [www.wow.net](http://www.wow.net)

The waiting period for installation of broadband services is over two months with TSTT and around 2 weeks with competing provider Greendot.

Table 2. Residential Internet Prices in Trinidad and Tobago<sup>3</sup>

Provider	Monthly Rate	
	Dial Up (100 hours)	Broadband (256k down/64k up)
TSTT	TT\$230 (US\$38) <sup>4</sup>	TT\$460 (US\$77)
GreenDot	N/A	TT\$375 (US\$63)
Gillette Group companies	TT\$138 (US\$23) <sup>5</sup>	TT\$450 (US\$75)
Lisa Communications (Rave)	TT\$230 (US\$38)	TT\$399 (US\$67)
Wow	TT\$133 (US\$22) <sup>6</sup>	TT\$460 (US\$77)

## WiFi

There are limited WiFi hotspots mostly in cafes and restaurants catering a high income clientele in the major cities. However, no customer was observed taking advantage of the service during several visits conducted to monitor usage there.

On 2004, Open Telecom (part of the Gillette Group) set up WiFi hotspots in MovieTowne, a popular shopping center and movie theater, and on Piarco airport, the country's most important.

TSTT is providing free Internet access hotspots in three locations of the capital city, Port of Spain, including the Piarco airport.

<sup>3</sup> Information gathered directly from the providers.

<sup>4</sup> Unlimited hours.

<sup>5</sup> Small discounts available in paid in advance (3 months – TT\$403.65; 6 months – TT\$708.60; 12 months – TT\$1,407.60.

<sup>6</sup> Package only includes 75 hours. Service packages from other providers listed are 100 hours.

## Mobile Wireless Broadband

TSTT introduced in 2006 their Wireless Broadband Service, based on a CDMA2000 network using EV-DO technology that provides mobile users high speed access to the Internet from any area within its EV-DO network coverage. Although the technology allows a download speed of 2.4Mbps, it is expected to deliver download speeds of 400 to 700Kbps. For contracts of 1 year or more, TSTT waives the cost of the EV-DO device required.

**Table 3. Prices for Mobile Wireless Broadband in Trinidad and Tobago**

Charges	Month to Month	1 yr. contract	2 yr. contract	3 yr. contract
EV-DO Device	TT\$1,575	Free	Free	Free
Sign Up Fee	TT\$600 (US\$100)	TT\$600 (US\$100)	TT\$600 (US\$100)	TT\$600 (US\$100)
Monthly Rate	TT\$500 (US\$83)	TT\$475 (US\$79)	TT\$425 (US\$71)	TT\$375 (US\$63)

## Fixed Wireless Broadband

Other providers, such as GreenDot<sup>7</sup> and Gillette Group's Carib-Link offer high speed access within a single location at prices and speed comparable to DSL broadband.

**Table 4. Prices for Fixed Wireless Broadband Services in Trinidad and Tobago**

Provider	Installation	Monthly Rate
Carib-Link - 256k/64k	TT\$500 (US\$83)	TT\$450 (US\$75)
GreenDot - 256k/64k - 128k/64k	TT\$1500 (US\$250)	TT\$375 (US\$63) TT\$250 (US\$42)

## Cybercafe Prices

While somewhat common and no longer a novelty, cybercafés are also limited, hard to find and scarcely advertised. The price for Internet access varies widely depending on the location of the Cybercafes. On a survey of eight (8) cybercafés conducted in July 2006,<sup>8</sup> the hourly rate for Internet access went from US\$1.15 in Curepe and Princess Town up to US\$3.00 in the exclusive Chaguaramas Marina.

**Table 5. Internet Access Prices at Cyber Café in Trinidad and Tobago**

Cyber Cafe	Location	TT\$/hr	US\$/hr
The Mariner's Office	Chaguaramas	18.00	3.00
Café Cyberclix	Curepe	7.00	1.15
TT Surf Cyber Cafe	La Romain	15.00	2.50
Trini Café	Marabella	12.00	2.00
Cyberspace Network	Princess Town	7.00	1.15
Browwwsers Cyber Café	San Fernando	10.00	1.65
Cybernet Internet Services	San Fernando	10.00	1.65
Caveman Computing	Valsayn North	15.00	2.50

<sup>7</sup> The wait for installation of the service with GreenDot is two (2) weeks.

<sup>8</sup> See Appendix B for detailed information.

## 2.3. Community Access

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### Community Access Centres Model

As part of the Fast Forward strategy, the government is working to finalize a contract to develop a model for Community Access Centres (CAC) that facilitates coordination and alignment among the different agencies and stakeholders involved in the establishment of these centers. Beyond increasing access to ICT and empowering local communities, the CACs are also considered an integral part of the strategy for providing citizens access to the soon to be launched Government Portal and its many on-line services.

### Multi Purpose Community Based Telecentres

This initiative from the Ministry of Social Development aims to establish Multi Purpose Community Based Telecentres in each municipal region of Trinidad and one in Tobago to deliver affordable access to computers, access to Internet and training. During the 2005 Budget year, three (3) new telecentres were established in Trinidad (in Piparo, Princes Town and Couva) and one (1) in Belle Garden, Tobago, providing access to around 1,000 people and training for 121 in under served areas.

### LibraryNet

The National Library System has been providing Internet access and ICT services, including facilities for visually handicapped and physically disabled persons, to citizens at a number of local libraries at no charge for several years.

#### **Box 1. Community Based Radio Toco 106.7FM**

Winner of UNESCO's International Programme for the Development of Communication (IPDC) Prize for Rural Communication in 2003,<sup>9</sup> this community-based radio station serves the rural communities of North-Eastern Trinidad. Founded in 1997 with support from UNESCO, a local community Toco Foundation Trinidad and Tobago Citizens' Agenda Network (TTCAN),<sup>10</sup> it facilitates the exchange and distribution of information among stakeholders and empower the local communities and groups in areas related to sustainable development, including gender issues.

## 2.4. Top Level Domain Governance and Commercialization

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Trinidad and Tobago's country code top level domain (ccTLD) is ".tt" and is administered by the University of West Indies (UWI).<sup>11</sup> Administrative and sponsoring control of the TLD takes place at a local level, but Technical control and DNS handling are partially managed abroad by the University of Puerto Rico.

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<sup>9</sup> More info at [http://portal.unesco.org/ci/en/ev.php-URL\\_ID=13521&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/ci/en/ev.php-URL_ID=13521&URL_DO=DO_TOPIC&URL_SECTION=201.html)

<sup>10</sup> More info at <http://ttcan.intranets.com> or <http://ttcan.webexone.com>.

<sup>11</sup> <http://www.uwi.edu>

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**Table 6. Trinidad and Tobago's Country Code Top Level Domain (ccTLD)**

tld	Sponsoring Org.		Admin. Contact		Technical Contact		DNS Servers	
	Location	Nature	Location	Nature	Location	Nature	Location	Nature
.tt	Local	Educ.	Local	Educ.	Foreign	Educ.	Foreign	Educ.

While an order can be placed on-line, it is only complete when offline payment (via cheque or wire transfer) is made within 30 days of the order.

**Table 7. Commercialization of Trinidad and Tobago's Domain Names**

tld	Price		On-line Commercialization			
			Info Request	Availability Check	Order	Payment
.tt	National: .co.tt: US\$50/3yr .tt: US\$500/2yr; US\$500/5yr renew	International: .co.tt: US\$100/3yr .tt: US\$1000/2yr; US\$1000/5yr renew	●	●	◐	○

## 3. Capacity and Knowledge

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Although Trinidad and Tobago has a dynamic and active ICT sector, implementation of projects is affected by limited availability of ICT skilled personnel and migration of professionals to other countries. The Nation has identified as a top priority the development of human capacity in terms of skills and competencies that respond to national and international market trends and demands, support scientific research and innovation and improve competitiveness of the country as a whole.

### 3.1. Primary and Secondary Education

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Trinidad and Tobago's authorities are committed to SchoolNet, a broad initiative that looks at various aspects of ICT in education, including connectivity, curriculum and content development, teacher training, and distance learning. Progress continues to be made in many of the areas identified, with a number of teachers already trained in various disciplines and increasing numbers of schools being outfitted with computers and networked.

However there is not a lot of awareness from the public on advances in the application of ICT to improve the quality of education and there is a common notion among stakeholders that the government has stalled in its advances and investments on ICT in the primary and secondary levels.

The Ministry of Education is one of the few ministries without an official website and the SchoolNet program does not have an on-line presence either.

According to a 2004 statement by the Minister of Education at the International Conference on Education organized by UNESCO's International Bureau of Education (IBE) at Geneva on September 2004:

“The reform that is taking place in our education system is designed to provide challenging stimuli to all learners so that they may reach their fullest potential. We have redesigned the curriculum to give prominence to the infusion of Information and Communication Technology, Technology Education and the Visual and Performing Arts and as a result all secondary schools are being equipped with computer and media laboratories. A Student Support Services Division provides counseling, career guidance, prescriptive and diagnostic services.”<sup>12</sup>

There have been specific provisions for technology programs in education, according to the 2006 Budget presented by the Ministry of Finance on September 2005:

“In fiscal 2006, we will also:

- introduce foundation technologies in the curriculum to cater for secondary school graduates who may wish to enter the labour market immediately upon leaving school; and
- commence Technology Programmes at the sixth form (post-fifth form level) to cater for students with an aptitude and interest in this area.”<sup>13</sup>

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<sup>12</sup> *Message of Minister of Education of Trinidad and Tobago, International Conference on Education, International Bureau of Education, UNESCO, 2004*

[http://www.ibe.unesco.org/International/ICE47/english/MesMOE/MesMOE\\_main.htm](http://www.ibe.unesco.org/International/ICE47/english/MesMOE/MesMOE_main.htm)

<sup>13</sup> *Budget 2006. Government of Trinidad and Tobago, 2005.*

[http://www.finance.gov.tt/applicationloader.asp?app=doc\\_lib\\_details&id=130](http://www.finance.gov.tt/applicationloader.asp?app=doc_lib_details&id=130)

The Human Capital Development projects in the Social and Economic Policy Framework 2006-2008 include:<sup>14</sup>

- Implementation of the School Net Programme and the continuation of full computerization of all schools;
- Enhancement of adult education programmes through distance learning;
- Provision of infrastructure for Information and Communication Technology and Tech Voc Education.

#### Box 2. Early Childhood Care Centres

One of the main issues affecting the active participation of women in the labour market is the lack of child care centres, which makes them having to stay at home taking care of their children longer.

As part of its Social Sector Investment Programme 2006 (SSIP),<sup>15</sup> the Government of Trinidad and Tobago plans to build six hundred (600) Early Childhood Care and Education (ECCE) centres to provide total coverage throughout the island. Budget was allocated to complete fifty (50) of those in the 2005-2006 Fiscal year.<sup>16</sup>

## 3.2. Tertiary Education

A number of institutions have been created since the year 2000 to achieve these goals and extend beyond the capacity of the National Institute Higher Education (NIHERST):

- **The Ministry of Science Technology and Tertiary Education:** Established in December 2001 to support the development of national human capacity and promote coordination and interaction among the academic, scientific, technological and productive national sectors.
- **College of Science, Technology and Applied Arts of Trinidad and Tobago (COSTAATT):** Established in 2000 as a Community College to unite several former tertiary education institutions in the public sector and the former NIHERST Colleges under one umbrella.
- **University of Trinidad and Tobago (UTT):** A non-profit tertiary education institution that partners the Government, Industry and regional and international Universities to develop national human capital in light of the competitiveness requirements brought by globalization and the CARICOM Single Market Economy (CSME).

#### Box 3. The University of West Indies Telecommunications Regulation and Policy Programme<sup>17</sup>

The University of West Indies offers a Telecommunications Regulation and Policy programme at its Saint Augustine Campus in Trinidad and Tobago. It's available for completion with a post-graduate Diploma or a full Master's Degree. The two-year program is delivered over the Internet with complementary face to face seminars.

<sup>14</sup> *Social and Economic Policy Framework 2006-2008. Government of Trinidad and Tobago, 2005, p. 57.*

[http://www.finance.gov.tt/applicationloader.asp?app=doc\\_lib\\_details&id=125](http://www.finance.gov.tt/applicationloader.asp?app=doc_lib_details&id=125)

<sup>15</sup> [http://www.finance.gov.tt/applicationloader.asp?app=doc\\_lib\\_details&id=127](http://www.finance.gov.tt/applicationloader.asp?app=doc_lib_details&id=127)

<sup>16</sup> [http://www.finance.gov.tt/applicationloader.asp?app=doc\\_lib\\_details&id=130](http://www.finance.gov.tt/applicationloader.asp?app=doc_lib_details&id=130)

<sup>17</sup> More info at <http://mrp.uwi.tt>.

## 4. Business and Commerce

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Due in part to the presence of large multi-national corporations related to the natural gas and other industries, there is widespread and fairly advance use of ICT by corporations and in the large business world in Trinidad and Tobago. But corporations face a shortage of skilled personnel to handle their local ICT development, which often leads them to hire foreign staff for such needs.

Use of ICT by medium sized businesses is common, although it is mostly limited to the conventional applications for communication (e-mail, web browsing, etc.), managing finances (accounting systems) and as support business tools (spreadsheets, word processing and presentations). On the other hand, use of ICT among small business is limited and is consistent with the low penetration rate of ICT.

### Box 4. Copyright Music Organisation of Trinidad and Tobago<sup>18</sup>

This local, non-profit organization maintains an active agenda geared towards increasing awareness of copyrights and enforcing the licenses of its affiliates, mostly musical industry figures, as regulated by the government's Intellectual Property Office.<sup>19</sup>

### 4.1. Local On-line B2C Market

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There is an incipient e-commerce industry and market that has been evolving timidly in the last few years. A low penetration rate, the short distance to "real" providers, lack of awareness and distrust on on-line business transactions are factors that affect negatively the development of a local on-line business-to-consumers (B2C) market.

There is however a significant market opportunity for catering the interest of nationals living abroad on local products.

Some of the operating local e-commerce portals and virtual stores are:<sup>20</sup>

- Sacha Cosmetics: Local cosmetics manufacturer offering a full range of products targeting the needs of Caribbean ethnics. <http://www.shopsacha.com>
- D Rite Stuff: Local store offering mostly household items (kitchen, furniture, appliances, bathroom items, etc. <http://www.dritestuff.com>
- TriniShopper: An interesting local initiative that offers on-line products from local stores which are not on-line. It allows customers to pay via credit card, check or locally with cash. <http://www.trinishopper.com>

### 4.2. Government Backed Initiatives

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#### ▶ Small and Medium-Sized Enterprises Business to Business e-Marketplace

The government promoted the development of an on-line marketplace where small and medium enterprises (SME) could advertise their products, services and interests and business opportunities are matched. To this end, e-readiness and international best practice reports were undertaken and completed, and stakeholder consultations were held.

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<sup>18</sup> More info at <http://www.cott.org.tt>.

<sup>19</sup> More info at <http://www.ipa.gov.tt>.

<sup>20</sup> On-line stores based abroad were not considered.

The project was then implemented as a private endeavor by two local ICT companies<sup>21</sup> and launched on January 2006.

The on-line business exchange portal<sup>22</sup> provides the following services:

- An on-line e-Business guide for SMEs, including an introduction to e-business, strategies, case studies and other resources.
- An on-line database where small and medium size businesses can post their profile and information.
- A Business to Business (B2B) portal for advertising products and services and enable trading on-line.
- A virtual network for the exchange of business ideas, best practices, products and services.

▶ **Tamana Intech Park<sup>23</sup>**

The government is working with the private sector to establish a high-tech centre for developing Trinidad and Tobago's ICT Sector and as part of a Clusters approach to economic development.

▶ **Electronic Inter-bank Payments System**

This initiative by the Bankers Association of Trinidad and Tobago (which groups all six major banks operating nationally) and the Central Bank, facilitates the interconnection of local banks and paves the way for electronic and digital payments. It improves the efficiency of the banking system, with faster transfers and shorter funds clearance terms, as well as enhanced monitoring and tracking. Security is based on a combination of biometrics and encryption techniques. In addition to facilitating funds transfers among banks, the system lays the foundation and basic functionality for Government and businesses to maintain electronic payrolls and do electronic payments.

## Other Projects and Initiatives

As part of its Trade Support Program financed by the Inter-American Development Bank, the Ministry of Trade and Industry, "will finance an assessment of trade-related information and communication needs, and thereafter the design, acquisition and installation of information and communications systems for processing, updating and transmitting trade data and information".<sup>24</sup>

In addition, the government has plans for the:

- Development of a B2C e-Commerce strategy;
- Establishment of an e-Business Roundtable; development of a Code of Consumer Protection for e-Commerce;
- Development of a national Strategy for Electronic Payments (Smart Cards, Micro-payments, etc.).
- Development of an on-line Trade Information Centre.
- Development of a Business/Trade Gateway to facilitate Government to Business (G2B) trade.

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<sup>21</sup> Business Development Company Limited (<http://www.bdc.co.tt>) and Digital Business (<http://www.digital.co.tt>).

<sup>22</sup> <http://www.smexchange.com>.

<sup>23</sup> <http://www.eteck.co.tt>.

<sup>24</sup> <http://www.tsspmti.com>.

## 5. Policy Instruments

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With its Fast Forward strategy, Trinidad and Tobago became a pioneer in the formulation and implementation of structured National ICT Strategies. The Nation is also a seasoned early adopter of technologies in the Public sector.

The formulation of the Fast Forward National ICT Strategy benefited from collaboration and technical assistance by the Inter-American Development Bank and the Commonwealth Secretariat. This cleared the way for additional assistance from both institutions for implementing the Strategy once it was adopted as part of the National Public ICT policies. It is important to note that the role of consultants from both institutions was limited to advisory services, not interfering with the setting of priorities through consultation of national stakeholders and strategic decisions made by the authorities.

While Fast Forward had a vigorous start and thrust in 2003 and 2004, by the end of 2005, in the eyes of public opinion its development appeared to have somehow stalled by the end of 2005. This was a result of the government focusing on research for drafting recommend policies, building a backbone infrastructure, implementing back-office components and specific e-government initiatives that will render results at the end of 2006 and in 2007 in order to meet the mid-term objectives of the Strategy.

### 5.1. Public ICT Policy History

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Since the late 1990's, Trinidad and Tobago has been very proactive enabling and deploying several policies and initiatives regarding specific aspects and issues related to ICT. Although many of them had national impact and reach, a common central vision and holistic approach was attained with the development of the *Fast Forward* National ICT Strategy,<sup>25</sup> officially launched in December 2003.

#### Key Past Actors

##### › National Information Systems Centre (NISC)

Established on 1990 to replace the former National Computer Agency, the National Information Systems Centre (NISC) provides consultancy services to other government agencies and outlines standards and processes for the acquisition and deployment of Information Technologies in the public sector. It has also played an important role in the operation and management of several government systems and initiatives. It is now part of the Ministry of Public Administration and Information.

##### › Ministry of Information, Communications, Training and Distance Learning

As early as 1999,<sup>26</sup> the Ministry of Information, Communications, Training and Distance Learning, had an information website, ran by its Information Division, to facilitate public access to Government information.<sup>27</sup> It launched an early National Distance Learning System and policy on December 1998.

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<sup>25</sup> Information on the development process is available at on <http://www.gov.tt/nict> and information on the strategy is available at <http://www.fastforward.tt>.

<sup>26</sup> *The Parliamentary Debates, Official Report in the Fourth Session of the Fifth Parliament of the Republic of Trinidad and Tobago, Session 1998-1999, Volume 16. House of Representatives, Trinidad and Tobago, 1999.* <http://www.ttparliament.org/hansard/house/1999/hh990702.pdf>

<sup>27</sup> The website, <http://www.nisc.gov.tt> is no longer accessible.

By the year 2001, it had established nineteen (19) community based distance learning centres, two (2) of them in Tobago.<sup>28</sup>

› **National Electronic Commerce Policy Committee**

On October 1999, the Ministry of Trade, Industry and Consumer Affairs established a National Electronic Commerce Policy Committee with the mandate of formulating policy recommendations to foster the development of Electronic Commerce. It conducted several surveys and reports until 2003, when the National ICT Strategy, *Fast Forward*, came into effect.<sup>29</sup> The Committee's early work on e-Commerce was focused on formulating five (5) programs to address key issues limiting the local development of e-commerce:

1. Strengthening the Infrastructure.
2. Increasing Participation in E-Commerce.
3. Clarifying Marketplace Rules.
4. Building Marketplace Confidence for E-Commerce Users.
5. Programmes to Jumpstart the E-Commerce Agenda.

In a report published on June 2000, the NEPC recommended the creation of an e-Commerce Secretariat and an e-Government Unit. Both were established shortly after.

› **e-Government Secretariat**

On the year 2000, the Government of Trinidad and Tobago established an e-Government Secretariat within the Ministry of Science, Technology and Tertiary Education to focus and to further advance in the deployment of ICT in the Public Sector.

› **Ministry of Communications and Information Technology**

By the end of 2000, it was becoming increasingly clear that the government's needs and involvement on ICT issues went beyond e-government and e-commerce, and the government established on December a specialized Ministry of Communications and Information Technology with a vision for a IT-empowered and enabled society. It was later renamed Ministry of Information and Communications Technology and later absorbed by the Ministry of Science, Technology and Tertiary Education and the newly created and coordinating Ministry of Public Administration and Information.

› **e-Government Unit**

On April 2001, the Cabinet established the e-Government Unit within the Ministry of Communications & Information Technology with the mandate of coordinating the e-government initiatives. It later became part of the Ministry of Public Administration and Information.

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<sup>28</sup> *Caribbean Policy Response to the Information Age: A Review of Government Information and Communications Technology Policy and Services in Selected Caribbean Countries*. UN ECLAC, Port of Spain, 2001. <http://www.eclac.cl/publicaciones/xml/0/12360/lcarg676.pdf>

<sup>29</sup> *Although the Committee has not formally been disassembled, it has not produced any more documents since 2003 and its work seems to have been continued by the Fast Forward Steering Committee. The former website used to conduct surveys and inform the public on the Committee's activities, was offline during the entire period of our research (<http://www.ecommerce.gov.tt>).*

› The National Library and Information System (NALIS)

The National Library and Information System Authority was established in 1998<sup>30</sup> to provide nation-wide access to information and promote cultural, economic, educational, political and social development. By 1999, NALIS already had a website<sup>31</sup> to support its operations and inform the public. For several years now, it has been providing free Internet access to citizens at local libraries throughout the country.

It has played an active role in the definition of the early Public ICT policies and discussions including the National Distance Learning System and the establishment of the Ministry of Public Administration and Information.

› The Ministry of Science, Technology & Tertiary Education

This Ministry has played an important role in the formulation of Public ICT Policies through many of its current and past departments: Telecommunications Division, National Information Systems Centre, e-Government Unit, Distance Learning, Science and Technology Policy Formulation, National Skills Development Programme.

## Recent Restructuring

Several of the roles, units and departments mentioned above and their responsibilities have now been transferred to the Ministry of Public Administration and Information as part of the National Information and Communication Technology Plan, as explained below.

## 5.2. Current Coordinator and Main Actors

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The Ministry of Public Administration and Information, spearheaded the formulation and leads the implementation of the National ICT Plan,<sup>32</sup> coordinating several other agencies and institutions that still play an important role in the implementation and deployment of ICT in the public sector, including:

- The Ministry of Public Utilities and the Environment, since this Ministry has tended to have oversight of the Telecommunications agencies in the past.
- The National Information Systems Centre (NISC), currently part of the Ministry of Public Administration and Information.
- The Telecommunications Authority of Trinidad and Tobago (TATT).
- Individual Ministries would have responsibility for ICT projects and functions in areas under portfolio e.g. Ministry of Health (ICT applications at the Eric Williams Medical Sciences Complex, Mount Hope; Ministry of Works and Transport (and early computerization project in the Licensing Office, etc.).
- Telecommunications Services of Trinidad and Tobago (TSTT), former monopoly, partially owned by the State.

## Coordinating the National ICT Strategy

The ICT Division, located within the Ministry of Public Administration and Information and established by the Cabinet, is responsible for coordinating and implementing the National ICT Strategy and its related policies.

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<sup>30</sup> *National Libraries and Information System Act, Act No. 18, Trinidad and Tobago Parliament, 1998.*

<sup>31</sup> Still operating at <http://www.nalis.gov.tt>

<sup>32</sup> Details available at <http://www.nict.gov.tt>

A *Fast Forward* Steering Committee comprising Government Ministers and Senior Officials provides oversight, strategic guidance and sign-off. Membership of the Committee can evolve over time in response to changing circumstances.

The Integration and Measurements Unit of the ICT Division has lead responsibility for monitoring and evaluating e-Government projects.

The ICT Division (and in particular its e-Government Unit) has lead responsibility for coordinating e-Government issues. The *Fast Forward* Steering Committee provides national/strategic coordination, while the NISC provides technical ICT services and support to Government agencies.

### 5.3. National Development Strategy: Vision 2020

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The National Development Strategy is aimed at Trinidad and Tobago achieving developed country status by the year 2020, hence its name of Vision 2020. The National ICT Strategy *Fast Forward* was formulated taking into consideration the priorities of Vision 2020 and in particular to fulfill the goal of transforming the country into an Information Society and improving the local capacity and welfare of citizens, businesses and society as a whole.

### 5.4. Public Sector Reform Initiative Programme (PSRIP)

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Government currently has a major ongoing Public Sector reform programme, the Public Service Reform Initiation Programme (PSRIP), which seeks to

- To identify the issues for the transformation of the Public Sector;
- Define a suitable and feasible and politically sensitive strategy for the transformation of the Public Sector;
- Facilitate the widespread agreement and support necessary to implement such a strategy; and
- Develop basic management instruments and capacity to manage the reform.

It is currently in the first phase of execution, with consultants in place to identify issues for Public Sector transformation. The main support unit for PSRIP is the Public Service Transformation Division (PSTD) of the Ministry of Public Administration and Information.

The close relationship between public sector reform and e-Government is understood, and the PSTD and the ICT Division, both within the Ministry of Public Administration, are in the process of developing mechanisms to ensure the alignment of their programs and projects. The main area of ongoing cooperation is in the area of Change Management, whereby a network of New Systems Facilitators (NSF) has been established in most Ministries to assist them with their Change Management agendas.

### 5.5. Legislation

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Trinidad and Tobago has passed legislation regarding electronic and digital crime, but it has yet to enact legislation to formally regulate electronic transactions, digital signatures and documents. As of mid 2006, the relevant ICT legal framework included:

- Telecommunications Act (2001)<sup>33</sup>, amended on 2004.<sup>34</sup>

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<sup>33</sup> <http://www.ttparliament.org/bills/senate/2001/b2001s03.htm>

<sup>34</sup> <http://www.ttparliament.org/bills/house/2004/b2004h08.htm>

- Computer Misuse Act (2000).<sup>35</sup>
- Electronic Transfer of Funds Crime Act (2000).<sup>36</sup>
- Freedom of information Act (1999).<sup>37</sup>

## Legislation and Policies Under Consultation and Development

There has been a continuous and considerable amount of work to expand this legislative policy framework, including the formulation of:

- **Fair Trading Bill:**<sup>38</sup> I has already been discussed and amended by both the Senate (May 2006) and the House of Representatives (June 2006).
- **Internet Bandwidth Management Policy for 2006-2008:**<sup>39</sup> A draft was presented for consultation on February 2006 and feedback was expected to be received until June 2006. It aims to define a framework to improve the efficiency of bandwidth usage and the infrastructure for local backbone and access nodes that connect the country to the global Internet Network.
- **National Policy on Data Protection:** Based on the “European model”, and been worked upon since 2001, an updated draft was presented for consultation and comments in November 2004 and a second, revised draft version was made public in September 2005. On January 2006, the Ministry of Public Administration and Information presented the final version dated December 2005.<sup>40</sup>
- **Electronic Transactions Policy:** A draft was presented for consultation on November 2004, a revised version on September 2005 and a final version was made public on January 2006.<sup>41</sup>
- **Digital Signatures Bill:** It was introduced and later pulled from Parliament upon several concerns expressed by stakeholders.
- **Free Spectrum for All:** A “Draft Policy on License Exemption of Systems in the 2.4 GHz and 5.8GHz Bands” presented in April 2004 for consultation by the Ministry of Public Administration and Information to promote the use of wireless communications for local and wide area networks and broadband services.<sup>42</sup>
- **Spectrum Plan for Accommodation of Broadband Wireless Access (BWA) Services:** Presented for consultation on April 2006 by the Telecommunications Authority of Trinidad and Tobago. This draft document acknowledges recent technological developments and provides detailed and specific plans for frequency bands usage to enable broadband wireless communications.<sup>43</sup>

<sup>35</sup> <http://www.ttparliament.org/bills/senate/2000/b2000s27.htm>

<sup>36</sup> <http://www.ttparliament.org/bills/senate/2000/b2000s26.htm>

<sup>37</sup> <http://www.ttparliament.org/bills/house/1998/b1998h30.htm>. It was ammended the next year, on 2000 (<http://www.ttparliament.org/bills/house/2000/b2000h45.htm>). More information at <http://www.foia.gov.tt>.

<sup>38</sup> <http://www.ttparliament.org/bills/senate/2006/b2006s02.htm>

<sup>39</sup> [http://www.fastforward.tt/media/release\\_detail.asp?id=4642](http://www.fastforward.tt/media/release_detail.asp?id=4642)

<sup>40</sup> Available at <http://www.fastforward.tt/files/cms/Data%20Protection%20-%20Final%20Document.pdf> with a Explanatory Memorandum available at <http://www.fastforward.tt/files/cms/Explanatory%20Memorandum%20Final%20Document%20-%20Data%20Protection.pdf>.

<sup>41</sup> Available at <http://www.fastforward.tt/files/cms/ElectronicTransactionsV5.pdf> with a Explanatory Memorandum available at <http://www.fastforward.tt/files/cms/ExplanatoryMemorandumV2.pdf>.

<sup>42</sup> Presented for public consultation on April 2004 on [http://www.fastforward.tt/media/release\\_detail.asp?id=2455](http://www.fastforward.tt/media/release_detail.asp?id=2455)

<sup>43</sup> Presented at <http://www.tatt.org.tt/newdoc.htm> and available for review at [http://www.tatt.org.tt/ddocs/BVA\\_Spectrum\\_Plan\\_vr1.pdf](http://www.tatt.org.tt/ddocs/BVA_Spectrum_Plan_vr1.pdf).

The Trinidad and Tobago Computer Society has been actively reviewing these proposals, enabling open discussions and making formal written comments and recommendations on them.

## Legislative Review

An International Best Practice report and Gap Analysis have been completed as part of Fast Forward's aim to provide a policy and legislative framework to support the ICT initiatives and foster the development of the knowledge society.

## 5.6. Funding Sources

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The Telecommunications Act mandates the establishment of a Universal Access Fund, however it has not yet been enforced and the government is working in formulating the corresponding policy to bring it into effect.

Most funds for ICT development come from the government's central budget and are executed by each Ministry.

## 5.7. Fast Forward: The National ICT Strategy<sup>44</sup>

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Launched in 2003 with the goal of "transforming the country into a knowledge-based society by 2008",<sup>45</sup> the National ICT agenda consists of 14 core programmes, each encompassing a number of projects.

Implementation started with a selected group of key "Pathfinder Projects" that would in turn enable and empower other projects, fast-track the deployment of the Strategy and generate visible impact and results in the short-term.

### Box A.1. Trinidad and Tobago's Fast Forward Pathfinder Projects

- **ICT Governance:** Establish "Transition Team", develop detailed plans for a National ICT Governance Structure and integrate with existing plans and structure.
- **Promotion and Awareness:** Initiate awareness campaign
- **Community Access:** Connecting Communities Programme (Phase 1)
- **SchoolNet:** Establish ICT Scholarship Programme
- **e-Commerce / e-Business Development Programme.**
- **e-Government:** Initiate Government Portal (Phase 1).
- **Broadband Strategy and Implementation:** Develop Broadband Strategy
- **Legislative Review and Reform:** Initiate review and implement recommendations

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<sup>44</sup> This information has been provided by the ICT Division of the Ministry of Public Administration and Information and is current up to May 2006.

<sup>45</sup> <http://www.fastforward.tt/aboutffwd>

## Aims and Objectives

- ▶ **Strategic objectives of the National ICT Agenda:**
  - Provide all citizens with affordable internet access.
  - Focus on the development of children and adult skills to sustain a vibrant future.
  - Promote citizen trust, access and interaction through good governance.
  - Maximize the potential within all citizens and accelerate innovation to develop a knowledge-based society.
- ▶ **Specific deliverables include:**
  - 2005: Telecommunications Sector opened up to full competition.
  - 2006: All appropriate Government information available on-line.
  - 2008:
    - All schools with computer and high-speed Internet access.
    - Community Connection Programme in place.
    - 50% homes with PCs and Internet access.
    - 50% population “regular Internet users”.
    - 50% of business on-line and see business benefits from this.

## Challenges Faced and Lessons Learned

As the implementation of Fast Forward approaches its third year and is already halfway to its 2008 goals, the government has experienced a number of challenges which it has been able to properly identify and is currently taking into consideration to improve the efficiency and success rate of the ICT initiatives. Below are some of the lessons learned as reported by Trinidad and Tobago’s own government and according to their own assessment.

### ▶ **Change Management**

The success of some ICT implementations and initiatives has been limited by the common oversight and lack of sufficient consideration for managing the human aspect of change. Despite sound technical implementation, projects have been challenged by fears and perceptions at the lower levels resulting in limited buy-in.

#### **Box 5. Lead with Change**

“A new model was developed that called for the selection and recruitment of Twenty-Five (25) New Systems Facilitators (NSFs), assigned and fully dedicated to the implementation of the change management initiative of the Communications Backbone project, and thereafter, to continue the change management process as part of the Public Sector Transformation Division (PSTD’s) Programme for Public Sector Transformation.

These NSFs have been working in the respective ministries and have achieved commendable success. By engaging persons from all levels of the organization on a continuous basis throughout the development of the plans and the execution of small ICT related projects, the NSFs have built and maintained momentum for change that will be critical for the success of the ongoing change strategy of all ICT projects to follow.”

E-Government Case Study - Government Communications Backbone.<sup>46</sup>

<sup>46</sup> [http://www.fastforward.tt/media/release\\_detail.asp?id=4607](http://www.fastforward.tt/media/release_detail.asp?id=4607)

Close collaboration among *Fast Forward* implementation teams, the Public Sector Transformation Division and change management consultants was critical not only in achieving buy in from the stakeholders but also in achieving broader objectives towards improving the improvement of the government's efficiency.

➤ **Available Human Capacity**

There has experienced considerable difficulty in assembling or developing the expertise necessary to properly plan and execute the ICT development agenda. This is in true in particular for a number of very specialized areas that are not easily sourced at home, and which it may not be practical to develop locally. In an effort to bolster its own ICT capacity, the government has been forced to look outside, competing with both the domestic and the international private sectors. It has proven extremely difficult to attract and retain persons with the required skills and experience within the Government system. In general, this affects the availability of strategic ICT planning and focus, clarity and specificity in Terms of Reference and other requirements documents, and adequate expert knowledge on evaluation teams.

➤ **Generating International Interest.**

In a number of cases, the government has experienced difficulty in attracting quality vendors / consultancies with sufficient competence and capacity to execute ICT projects. While reasons might include issues with the Request for Proposals (RFP) and Terms of Reference (TOR) themselves, there is also the challenge of having to compete with other international ICT opportunities, and the difficulty in advertising projects to the international vendor community.

➤ **Adaptation and Delays**

For a number of reasons, mainly related to the restructuring and expanding of the *Fast Forward* Secretariat from a planning to an implementation unit, there has been slippage in the original implementation time-table. Consequently, aspects of *Fast Forward* are now 6-18 months behind schedule.

**Box 6. Adjusting to Bottlenecks and Challenges along the way**

“The Test Plan’s coverage of the application did not extend beyond the basic functional and system testing of the client/server environment. Little emphasis was placed on demonstrating the application’s speed (performance), reliability and scalability.

After the bottlenecks and poor performance encountered during peak times, the system test plan was amended to incorporate the following tests, for all future systems implementation:

- Performance - identifies functions in the application that can result in bottlenecks;
- Load - measures how the application handles large tasks;
- Stress - examines the application behavior under peak periods of activity; and
- Scalability - examines the application’s behavior when increasing the number of concurrent users to establish the threshold for failure.”

E-Government Case Study - Home Application and Fulfillment System.<sup>47</sup>

This generates the additional need to:

<sup>47</sup> [http://www.fastforward.tt/media/release\\_detail.asp?id=4606](http://www.fastforward.tt/media/release_detail.asp?id=4606)

- Develop strategies to address a perception that *Fast Forward* has stalled;
- Assess whether, and if yes how, any of this slippage be recovered; and
- Determine whether, given the rapid pace of change and innovation in the ICT Sector, adjustments need to be made to the Plan and what those adjustments should be.

➤ **Alignment and Coordination**

As expected, the implementation of *Fast Forward* has had to deal with the tendency of government bureaucracies to operate in silos. Major issues faced are:

- **The Need for Sequencing and Synchronization:** Arranging priorities in the execution of the ICT plan, properly identifying issues that are prerequisites to other initiatives and issues that need to be addressed simultaneously by several agencies
- **Avoidance of Duplication:** In particular in cases where initiatives were already in execution or planned and where approaches, processes and functionalities specific to one institution may appear to justify stand-alone development.

Recognition of these issues and a big emphasis on constant and open communications proved to be very successful in the implementation of initiatives.

**Box 7. Relationships in the Implementation of Fast Forward**

“Although Ministers and Permanent Secretaries gave top level support, it was identified very early in the project that, although critical, this required an execution arm.

In recognizing the need to have effective actions taking place in all ministries, the e-Government team developed strong relationships at the managerial and operational levels of each ministry, and most importantly, with the IT departments and other key operational personnel (Administrative officers, Property Managers, Communications Specialists).

These relationships developed through continuous communication, regular fact-to-face meetings and periodic presentations to stakeholders during times of rapid progress and most importantly during times of delays and challenges.

Through these relationships many innovative tasks were made possible including working extra hours and on weekends in order to complete installations. This approach catered for the demands of aggressive time frames.”

E-Government Case Study - Government Communications Backbone.<sup>48</sup>

➤ **International Policy Alignment**

Since the goal is to integrate the country with today’s global society, special care and importance has been assigned to meet global policies, arrangements and tendencies. But it is a constant challenge to keep track and properly align the domestic ICT policy with external initiatives, such as e-LAC 2007, CARICOM’s ICT agenda, the Commonwealth Action Programm