Project Document

Monitoring Caribbean Information Societies

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Subregional Headquarters for the Caribbean

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Acronyms

ABIS Agricultural Business Information System
BHIS Belize Health Information System

CANTO	Caribbean Association of National Telecommunications Organizations
CARICAD	Caribbean Centre for Development Administration
CARDICIS	The Information Society and Cultural Diversity of the Caribbean
CARICOM	Caribbean Community
CARIMAC	Caribbean Institute of Media and Communications
CCPF	Caribbean Communications Policy Forum
CDB	Caribbean Development Bank
CDM	Comprehensive Disaster Management
CDERA	Caribbean Disaster Emergency Response Agency (CDEMA as of 1 September 2009)
CIVIC	Caribbean ICT Virtual Community
CKLN	Caribbean Knowledge and Learning Network
CTU	Caribbean Telecommunications Union
CSME	CARICOM Single Market and Economy
CSO	Central Statistical Office
CXC	Caribbean Examinations Council
CUPIDE	Caribbean Universities Project for Integrated Distance Education
DIRSI	Regional Dialogue on the Information Society
dLOC	Digital Library of the Caribbean
ECLAC	Economic Commission for Latin America and the Caribbean
EFJ	Environmental Foundation of Jamaica
EIU	Economist Intelligence Unit
ETA	Electronic Transactions Act
FTC	Fair Trading Commission
GDP	Gross domestic product
GIS	Geographic Information System
HEART	Human Employment and Resource Training
HIPCAR	Enhancing Competitiveness in the Caribbean through the Harmonization of ICT Policies, Legislation and Regulatory Procedures
ICT	Information and Communications Technology
ICT4D	Information and Communication Technology for Development
IT	Information Technology
ISPs	Internet Service Providers
ITU	International Telecommunications Union
LMS	Learning Management System
MGDs	Millennium Development Goals
MIND	Management Institute for National Development
MIS	Management Information System
MRP	Masters in Regulations Programme
NRA	National Regulatory Authority
NQR	National Qualifications Register
OECD	Organization for Economic Co-operation and Development
OECS	Organisation of Eastern Caribbean States
OUR	Office of Utilities Regulation

POETA	Partnership in Opportunities for Employment through Technology in the Americas
PMIS	Patient or Project Management Information System
RADA	Rural Agricultural Development Authority
REOC	Regional Emergency Operations Center
SCF	Southern Caribbean Fiber
SMA	Spectrum Management Authority
SMEs	Small and Medium Size Enterprises
SMS	Short Message Service
STATIN	Statistical Institute of Jamaica
SWMCOL	The Trinidad and Tobago Solid Waste Management Company Limited
TRP	Telecommunications Reform Programme
UAF	Universal Access Fund
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UWI	University of the West Indies
UTECH	University of Technology, Jamaica
VSAT	Very Small Aperture Terminal
WAN	Wide Area Network
WRC	World Radiocommunication Conference
WSIS	World Summit on the Information Society

Abstract

The current short-term plan of action on the Information Society for Latin America and the Caribbean, eLAC 2010 comprises 83 specific goals in six thematic areas. In an effort to improve the coverage on the Caribbean subregion in the process of measuring and monitoring the progress being made towards the development of information societies, the 83 goals have been grouped into 29 areas, under the six eLAC themes. This is in an effort to better reflect the levels of development in the subregion, including the availability of reliable quantitative as well as qualitative measurements.

ICT indicators, particularly on usage and the impact of ICT on human and economic development, are not generally readily available on the Caribbean. A few countries, notably Antigua and Barbuda are beginning to do surveys to provide these measurements. The approach used in the latest Antigua and Barbuda survey provides a good benchmark for the rest of the subregion. Basic supply side access indicators are available from sources such as ITU.

On the education theme, access to and use of ICTs in the delivery of curriculum is a consistent theme that is seen in national ICT plans and strategies of Caribbean governments. Increasingly, schools and institutions at all levels of the education system are being equipped with ICT infrastructure and capabilities. However, at the primary and secondary levels, in particular, access to and the use of ICTs in the teaching process is not at the desired level needed to make the transformational changes necessary, to adequately and consistently provide the labour market with the skilled workforce needed for information societies.

The Caribbean subregion enjoys pervasive access to mobile telephony, with some countries having over 100% penetration. However, internet broadband penetration levels are in single digits. A range of factors such as price and capacity limitations contribute to this.

To provide citizens (particularly vulnerable groups) with access to broadband and other ICTs, developing and maintaining community access points is a common strategy used throughout the subregion. However, robust information on the number of citizens being served and the impact that these centres are making is not readily available. ICTs are increasingly being used in the area of disaster management, through the work of the Caribbean Disaster Emergency Response Agency (CDEMA)

In the health sector, ICT applications tend to be more related to management information systems and/or patient management information systems. The subregion, as a whole, is yet to incorporate ICT in the delivery of health services in a way to make any marked impact on service delivery

Caribbean Governments understand that they need to move beyond merely opening up markets, in order to provide an environment in which the deployment of ICT creates greater digital opportunity in human and economic development. As such, they are taking steps to formulate and implement national ICT plans and strategies in the public sector as well as the private sector. Countries have used different approaches, for example, the first National ICT Plan for Jamaica was done in 2000 with subsequent reviews in 2002/2003 and 2006/2007. On the other hand, Antigua and Barbuda has not published a similar long-term plan with review cycles, but is using a more bottom-up approach in implementing initiatives of the *Connect Antigua and Barbuda* initiative. Across the subregion, countries are also at various stages of the journey towards the development of information societies.

Almost all subregional governments have an official web presence. Based on the United Nations classification of government websites, 68% are at, or above, the enhanced classification. In terms of e-transactions, more and more countries are putting in the appropriate legislative framework, and there are individual projects/initiatives that demonstrate how ICT can deliver government services more effectively and efficiently and enhance the competitiveness of the productive sector. Adoption of ICTs in the large business sector is quite high, in the small- and medium-size enterprises, the situation is less clear. There is some progress, but adequate information is not available to make a definitive assessment.

In terms of the development and implementation of action plans needed to streamline and drive the progress towards reaching the goal of sustainable information societies, both at the national and subregional levels; there are many projects, (some long-standing) that have yet to be fully implemented and deliver on goals and objectives. There are a number of challenges that need to be addressed to improve the effectiveness of these efforts. These include:

a) Capacity-building at sectors of society

b) Institutional strengthening particularly in project planning, implementation and monitoring

c) More intentional and strategic collaboration at all levels (between governments, between agencies and between governments and agencies

d) Development and dissemination of best practice guidelines in areas such as e-government and e-commerce

e) More innovation in financing options for ICT projects

f) A culture of monitoring and measuring the results of programmes and projects aimed at improving accountability

At a very high level (the thematic level) the progress in using ICT to impact the lives of the average citizen could be classified as follows:

a) Education - some progress

b) Infrastructure and access – mobile strong, other areas some progress

c) Health – limited progress

d) Public management – some progress

e) Production sector – some progress

f) Policy instruments and strategies – progress

In general, the availability of ICT measurements to effectively monitor the progress at the level of individual goals is a major challenge. To address this, governments need to ensure that systems for monitoring and measuring are included as part their national ICT plans and strategies.

I. Introduction

1. Development imperative

Information and Communications Technology (ICT) is recognized as a vehicle for social and economic development. Goal eight of the United Nations Millennium Development Goals (MDGs) seeks to "Develop a Global Partnership for Development". One target of this goal speaks to making the benefits of new technologies, especially information and communications technology, available to all.

It is this development imperative that was the basis for the convening of the World Summit on the Information Society (WSIS). One of the driving forces of the Summit was the need to "turn the digital divide into a digital opportunity for all, particularly for those who risk being left behind and being further marginalized". For the first phase in Geneva (2003), nine of the Caribbean countries which are the subject of this report[1] joined with 166 other nations of the world to come up with a common vision: "to build a people-centred inclusive and development oriented Information Society". To achieve this vision by 2015, 11 action lines were established at the Geneva Plan of Action, which may serve as a global reference for national and regional e-strategies.

For the second phase in Tunis (2005), 194[2] countries of the world participated. This time, 13 Caribbean countries were represented: Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname and Trinidad and Tobago. At the Summit the participants reaffirmed their commitment to the development of the Information Society and the principles that should underlie its development.

> *"… improve access to information and communication infrastructure and technologies as well as to information and knowledge; build capacity; increase confidence and security in the use of ICTs; create an enabling environment at all levels; develop and widen ICT applications; foster and respect cultural diversity; recognize the role of the media; address the ethical dimensions of the Information Society; and encourage international and subregional cooperation".* (Tunis Commitment: http://www.itu.int/wsis/docs2/tunis/off/7.html)

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1 Barbados, Belize, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Suriname, Trinidad and Tobago and United States Virgin Islands. CARICOM was also represented.

2 http://www.itu.int/wsis/participation/accreditation/lists/states.pdf

To build on the work done in Geneva, in Tunis the participants elucidated some additional issues including implementation of a follow-up mechanism to take forward the agenda.

In order to facilitate the implementation of their commitments, countries need to develop national ICT policies, strategies and action plans to progress their respective ICT development agenda. In the Caribbean, countries are at varying stages of the development and implementation of their national ICT plans. WSIS encourages global participation in the process of incorporating the developments of information and communication technology into the mainstream of the global social and economic development.

2. eLAC plan of action

The Economic Commission for Latin America and the Caribbean (ECLAC), as part of its mandate to provide coordination and support to facilitate the economic and social development of the region, has an established mechanism to help to transpose the broader international goals of WSIS to the specific needs and priorities of Latin America and the Caribbean.

In fact even before the formalization of the WSIS process, initiatives such as the work of the Latin American and Caribbean Regional Network of the United Nations Information and Communication Technologies Task Force, The Agenda for Connectivity in the Americas, the Plan of Action of Quito 2002, and the Bávaro Declaration 2003 laid the groundwork for the regional initiatives that emanate from the global WSIS process. As such, the long-term vision and the core principles are consistent with those of WSIS. The long-term goal of WSIS is to connect the unconnected by 2015. However, the eLAC efforts have sought to further distil the goals set out by WSIS into a framework of objectives and targets which are more in line with the needs and realities of the region.

Subsequent to the Tunis Summit, regional stakeholders met in Rio de Janeiro in June 2005 to sign on the Plan of Action on the Information Society for Latin America and the Caribbean. This Plan of Action for the period 2005-2007 (eLAC2007) was developed to address the specific needs of the countries of the region, and consisted of 30 goals and 70 specific activities, covering five critical areas:

a. Digital access and inclusion

b. Creation of capacities and knowledge

c. Efficiency and transparency of public content and services

d. Policy instruments

e. Empowering environment

In October 2007, in Buenos Aries, the monitoring and evaluation phase of eLAC 2007 took place.

To give effect to the multi-stakeholder approach and in an effort to identify and refine the ICT development priorities for the Latin American and Caribbean region, ECLAC commissioned a Policy Priorities Delphi Study in 2006. This is an innovative tool used to identify the public policy priorities for the development of the Information Society in the subregion. A five-stage consultation process was used to gather input from a wide cross section of stakeholders and progressively refine the thematic priorities, goals and targets for ICT development in the Latin American and Caribbean region. The output from this process was used to inform the updating of the regional ICT goals and activities.

In February 2008 at the II Ministerial Conference on the Information Society in Latin America and the Caribbean, which was held in San Salvador, the delegates agreed on an adjusted short-term action plan that incorporated the output of the Delphi Study. This is referred to as the San Salvador Commitment or eLAC 2010.

The Plan of Action (eLAC 2010) comprises a total of 83 specific goals. Theses goals are grouped into six thematic areas:

a. Education (first priority)

b. Infrastructure and Access (second priority)

c. Health (third priority)

d. Public Management (fourth priority)

e. Production Sector (fifth priority)

f. Policy Instruments and Strategies (sixth priority)

The monitoring and evaluation phase of eLAC2010 is planned for Peru in 2010. A critical part of the strategy and action plans is the development and implementation of appropriate mechanisms to measure and monitor the progress towards the attainment of the Information Society.

3. eLAC monitoring process

To date, while there has been significant focus and input from Latin America, the focus and input from the Caribbean subregion has been very limited. For example, in the 2007 eLAC Monitoring Report there is little reference to the Caribbean countries. There are several reasons for this, including the fact that there are ICT development gaps and differences in development focus between Latin America and the Caribbean. The need for this report underscores one of the key challenges of seeking to address the ICT development issues and concerns of the Caribbean subregion as part of the wider ECLAC grouping of Caribbean and Latin America.

4. Purpose of this report

This research and report is aimed at highlighting the ICT developments in the Caribbean subregion and to make the eLAC initiatives more visible, serving as a catalyst to deepen the level of coordination and cooperation from all governments, inter-governmental agencies, other regional institutions and stakeholders in general in the eLAC process.

5. Geographical coverage of study

From a purely geographic standpoint, the Caribbean generally refers to the islands which are bordered by the Caribbean Sea. Extending the Caribbean to include the geo-political, and social and economic dimensions, some mainland States of South and Central America (Guyana, Suriname and Belize) are included.

For the purpose of this paper the countries covered are: Anguilla,*[3] Antigua and Barbuda, Aruba*, Bahamas, Barbados, Belize, British Virgin Islands*, Cayman Islands*, Dominica, Grenada, Guyana, Haiti, Jamaica, Netherlands Antilles*, Montserrat*, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Turks and Caicos Islands*, United States Virgin Islands*.

These countries are ECLAC members and associate members that are supported from the Subregional Headquarters for the Caribbean, Port of Spain, Trinidad and Tobago. The Spanish-speaking countries from this subregional grouping (Cuba, Dominican Republic and Puerto Rico) are not addressed in this report, as the monitoring for these countries is being followed from ECLAC Headquarters, Chile, because of the language similarity.

6. Overview of ICT development in the subregion

The combined population of the countries being addressed by this review is about 15 million. The most populous of these countries is Haiti with over 8 million people and Montserrat with less than 6,000 inhabitants. The official languages are English, French and Dutch.

These small, predominantly island countries are open and very susceptible to the windfalls and shocks of the global economy. Growth and development in these economies are largely dependent on foreign direct investment. With the opening up of the telecommunications markets since the year 2000, a number of these countries have benefited from investments in the sector. In addition to the inflow of capital goods, which is a

[3] Countries with the (*) are Associate Members of ECLAC.

direct consequence of investment, other spin-off effects such as increased production, improved efficiencies and improvements in knowledge and skills base are expected to multiply the impact of the initial ICT related investment to these societies.

As is the case with many areas of socio-economic development, ICT development varies from one Caribbean country to another. There is also the widely-accepted premise that the starting point for the pervasive deployment and use of ICT in the broader socio-economic development is linked to the level of market development and regulatory reform.

The following table summarizes of the ownership structure, level of competition and regulatory regimes in selected markets of the countries being studied.

TABLE 1
STRUCTURE OF CARIBBEAN TELECOMMUNICATIONS MARKETS
SELECTED COUNTRIES, MARCH 2009

Country	Structure of Sector	Market Status	Year competition achieved[a]	Type of Regulator
Anguilla	Private	Fully liberalized	2003	Public Utilities Commission
Antigua and Barbuda	Public and private	Competition in mobile and internet		Telecommunications Division, Ministry of Broadcasting Information and Telecommunications
Bahamas	Public and private	Duopoly in fixed, monopoly in mobile, internet liberalized		Independent / Public Utilities Commission
Barbados	Private	Fully liberalized	2005	Independent
Belize	Public and private	Competition in mobile and internet	2003	Public Utilities Commission
Cayman Island	Private	Fully liberalized	2004	Independent
Dominica	Private	Fully liberalized	2003	Independent
Grenada	Private	Fully liberalized	2003	Independent
Guyana	Public and private	Mobile and internet markets liberalized		Public Utilities Commission
Haiti	Public and private	Competition in mobile and internet		
Jamaica	Private	Fully liberalized	2003	Independent
Montserrat	Private	Monopoly providers		Ministry of Communication and Works
Saint Lucia	Private	Fully liberalized	2003	Independent
St Kitts and Nevis	Private	Fully liberalized	2003	Independent

(continues)

Table 1 (concluded)

St. Vincent and The Grenadines	Private	Fully liberalized	2003	Independent
Suriname	Public and private	Fully liberalized	2007	Independent
Trinidad and Tobago	Private	Fully liberalized	2004	Independent
Turks and Caicos Islands	Private	Fully liberalized	2004	Telecommunications Commission

[a] The year in which full market access was legally permitted.
Note: In some of the fully liberalized markets, competition in fixed line telephony is limited or non existent.
Source: Compiled by Researcher March 2009.

7. Approach to monitoring ICT development in the Caribbean for eLAC2010

The proposed approach is informed by the framework used in the ECLAC publication (Monitoring eLAC2007: Progress and current state of development of Latin American and Caribbean Information Societies). This report is predominantly based on information from Latin American countries.

The report cited above is based on eLAC 2007, which was the short-term action plan (Rio de Janeiro, June 2005), or the first step in the eLAC process towards the 2015 global target time frame. As such, the quantitative and qualitative indicators have been expanded to take account of the new short-term action plan, eLAC 2010 (San Salvador, February 2008)

However, the Caribbean report will, of necessity, seek to capture the ongoing realities in terms of the levels of development in the sector and the availability of reliable, quantitative measurements. While the structure of the report will maintain the six thematic areas, the 83 targets will be combined into 32 in an attempt to better capture the stage of ICT development and the ICT focus in the Caribbean.

In cases where the goals allow for quantifiable indicators, and where this information is available from data in ECLAC archives or other secondary sources, these will be collected and presented graphically with relevant commentary so as to give an informed position of ICT development in the Caribbean.

Where the goals are more action related, qualitative indicators will be used, as in the eLAC 2007 report. Where qualitative information is sparse or non-existent, anecdotal information will be considered, where it informs the current state or current thinking in the subregion.

II. Education

1. Coverage of ICT in school curriculum (eLAC2010, 1 and 2)

Access to and use of ICTs in the delivery of curriculum is a consistent theme that is seen in national ICT policies that have been drafted or approved by Caribbean governments. On the ground, significant efforts have been made to include instructions in information technology (IT) skills and to incorporate the general use of ICTs in the education system.

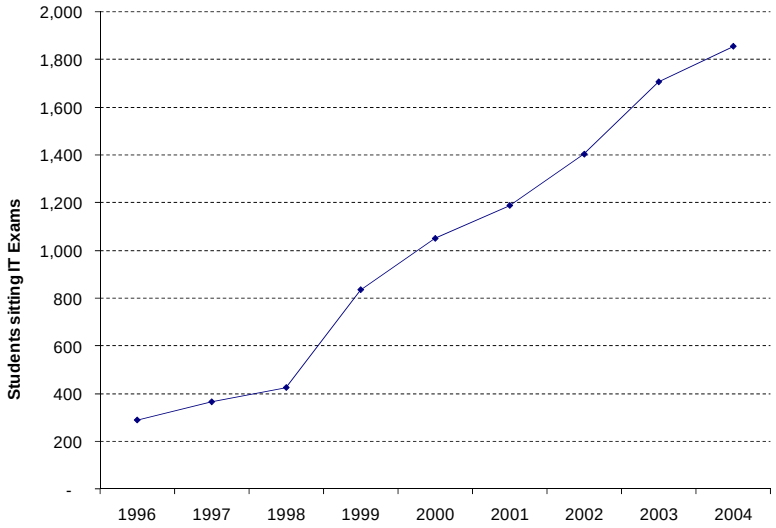
At the primary level, schools are increasingly being equipped with computers and internet access. Usually this is based on government initiatives and also private sector initiatives. At this level, the focus tends to be the development of basic computer skills. However, there is evidence to indicate that, in some instances, there are efforts to use ICTs in delivering some elements of the school curriculum.

The findings from a survey conducted across sixteen Caribbean countries and published in "Survey of ICT in Education in the Caribbean Volume 1: Regional Trends and Analysis"[4] found that at the secondary level almost all schools have computer facilities and some level of internet access. However the level of access is not adequate. Where access is not adequate preferential access is given to the higher grades and to students doing courses in information technology for example.

At the secondary level students have the option of pursuing a course of study in information technology both at the fifth and sixth form levels. The number of students pursuing IT at the secondary has been increasing. In Trinidad and Tobago, the number of students who sat the Caribbean Examination Council (CXC) examinations in information technology over the period 1996 to 2004 showed a steady increase.

[4] 2008 (*Gaible, Edmond. 2008. Survey of ICT and Education in the Caribbean: A summary report, Based on 16 Country Surveys. Washington, DC: infoDev / World Bank. Available at hppt://www.infodev.org/en/Publication. 441.html*)

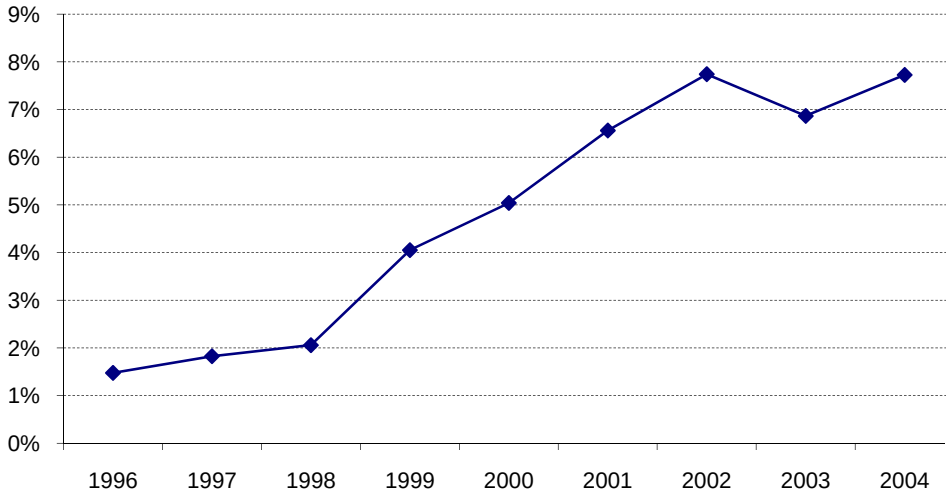
FIGURE 1-A
NUMBER OF STUDENTS SITTING CXC IT EXAMINATIONS IN TRINIDAD AND TOBAGO



Source: Central Statistical Office, Trinidad and Tobago.

The numbers increased in nominal terms, but also as a percentage of the number of students sitting English Language, which most if not all students would sit.

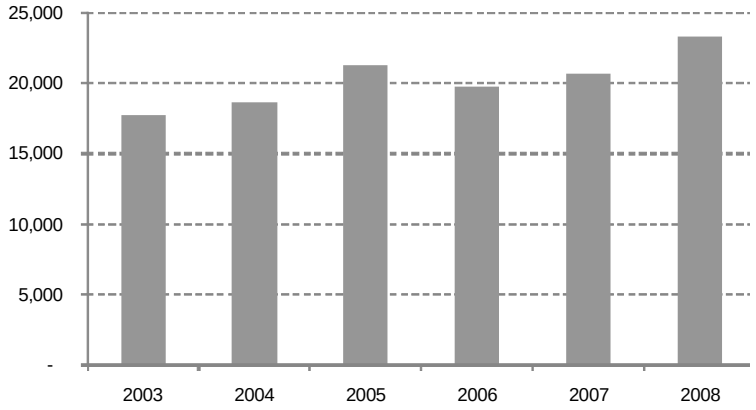
FIGURE 1-B
STUDENTS SITTING IT AS A % OF STUDENTS SITTING ENGLISH LANGUAGE



Source: Central Statistical Office, Trinidad and Tobago.

At the regional level, statistics for 2003 to 2008 in Figure 1-B show an increasing trend, although the increase has not been steady year on year.

FIGURE 1-C
NUMBER OF STUDENTS SITTING CXC CSEC IT EXAMINATIONS, 2003-2008



Source: CXC Reports on candidates' work in the Caribbean secondary education certificate, years 2003-2008.

To give some indication of the coverage being given to ICT in Caribbean schools and educational institutions across the Caribbean, table 2 identifies some ICT elements that are being incorporated in the school curriculum through a variety of ICT based initiatives.

TABLE 2
SCHOOL BASED ICT INITIATIVES

	Vocational and Technical Training	Microsoft Certified Professional Training	Academic Software	ICT Based Instructional Material e.g. DVD and Digital White Boards	Radio Cable or Video Broadcast / Feed	Access Databases
Antigua and Barbuda Go Live With Island Wi-Fi	●		●	●	●	
Barbados Edutech	●	●	●			
Cayman Island Little Cayman Education Centre					●	
Jamaica E-Learning Project	●	●	●	●	●	●
Trinidad and Tobago Fastforward	●					
US Virgin Islands				●		

Source: Information from focal points, online resources and other secondary sources.

1.1 Challenges

Efforts are being made by governments, private sector and non-governmental organizations to expand the coverage on ICT in the school curriculum. However, these efforts have not yet resulted in the pervasive level of ICT coverage in the curriculum that is needed to achieve the level of transformation to convert into

consistently producing the sufficiently skilled workforce needed for the information economy. Some challenges include,

a. Insufficient access to ICT equipment (computers and internet)

b. Curriculum tends to be centred on examination preparations and basic technology skills as opposed to integrating ICT in learning process to develop critical thinking and higher value skills

c. Insufficient capacity in terms of adequately trained teachers and institutional capacity to implement policies.

2. Internet access and use in public educational institutions (eLAC2010, 3 and 4)

Connectivity at schools and other public educational institutions is one of the themes given a great deal of attention and emphasis in the discussions, meetings, conferences, national development plans and ICT strategy and action plans across the subregion. A review of the national ICT strategy and or action plans of Caribbean countries will reveal that development and implementation of policies to integrate ICT into the education system is a consistent theme.

Quantitative data on the level of internet access in schools and other public institutions is not readily available. In a recently published study "Survey of ICT and Education in the Caribbean Volume 1: Regional Trends and Analysis"[5] published by InfoDev, it is noted that,

a. Some primary schools have internet access

b. All or almost all secondary schools have internet

c. In most primary and secondary schools with connection, the connection is typically via ADSL broadband connection.

Connectivity in Caribbean educational institutions is largely driven by education initiatives which are part of governments ICT development thrust. Table 3 gives the status of the implementation of programmes in selected countries.

TABLE 3
SCHOOL CONNECTIVITY INITIATIVES IN SELECTED CARIBBEAN COUNTRIES

Country	Programme	Education Level	Number of Institutions
Antigua and Barbuda	Connect Antigua and Barbuda	Primary Secondary	14 9
Barbados	EDUTECH	Schools	28[a]
Jamaica	e-Learning [b]	Secondary and tertiary	180 33
Trinidad and Tobago	Government Schools Programme [c]	Primary	250

Source: Complied by Researcher, March 2009.

[a] BARBADOS' NATIONAL ICT STRATEGIC PLAN Mobile Barbados: Building the Networked Nation Draft Report, pg 39

[b] This is a pilot programme under the Jamaica eLearning Project. The project is targeted at the secondary level. On full implementation all secondary schools on the island should be included.

[c] This information was attributed to Prime Minister Manning in the Trinidad and Tobago Express, of June 6, 2008. Under the SchoolNet Programme (outlined in Fastforward, the National ICT Plan) the objective is to connect all schools to the internet by 2008.

[5] This report is based on a survey of 16 Caribbean countries.

BOX 1
ANTIGUA AND BARBUDA MOBILE PROGRAMME

A unique aspect of the Antigua and Barbuda ICT programme is the mobility element. Five coaster buses are outfitted with mobile classrooms. The facilities use a Wi-Fi network solution. Each centre is equipped with mobile routers, wireless internet connection, mobile touch PCs, GPS and a mobile video phone.

This facility is used to serve public and private primary schools, non-governmental organizations and faith based organizations with ICT training. This training is conducted by Community Technology Officers who are trained to perform this function.

Source: http://news.caribseek.com/Antigua_and_Barbuda/article_72324.shtml

While the level of access is not at the desired levels, the expectation is that this will improve over time, as government initiatives are fully implemented.

3. ICT training for teachers (eLAC2010, 5 and 6)

Teacher training institutions provide students with at least basic IT skills. In-service training for teachers in the use of ICTs and in incorporating ICTs in the development of school curriculum is another approach that is used. For example, the Barbados Edutech programme provided several teacher training elements:

a. Computer training

b. Technology mastery courses

c. Microsoft certified professional training

d. Overseas study tours to observe integration of technology into teaching.

The Connect Antigua and Barbuda programme also has a teacher training component. Training programmes aimed at boosting the IT skills of teachers were held during the 2008 summer and Christmas vacations. This continues to be a feature of the Public Servants Training Programme.

In the subregion generally the efforts to equip teachers with core IT skills and the capability to use the technology to improve the learning experience has not reaped the desired results. Some of the challenges include:

a. Programmes tend to be technology focussed (the focus on acquisition of basic IT skills

b. Focus on IT as a subject rather than as teaching and enabling tool

c. Inconsistent standards for teaching with technology

BOX 2
SURINAME TEACHER TRAINING INITIATIVE

With the support of Suriname-Dutch Cooperation, teachers' colleges in Suriname have received training in the use of digital white board which bring the internet in the classroom without any computers present.

Source: A contributor to CIVIC (Email dated February 25, 2009).

4. Use of ICT in curriculum delivery (eLAC2010, 9, 10 and 11)

While countries in the Caribbean make efforts to expand the level of connectivity in educational institutions, there are also efforts to integrate ICT into the delivery of the curriculum. In the school connection programmes for Barbados and Trinidad and Tobago, the point is made that the infrastructure should be integrated into the teaching and learning process.

At the tertiary level, ICTs are being used to deliver distance education programmes. University of the West Indies (UWI) Open Campus[6] is a virtual campus with physical locations in 42 sites across 16 countries in the English-speaking Caribbean. The programme offers a blend of online and face-to-face approach to deliver its programmes.

Caribbean Universities Project for Integrated Distance Education[7] (CUPIDE), a collaborative effort between United Nations Educational, Scientific and Cultural Organization (UNESCO) and UWI is another distance-learning programme. It is aimed at developing and delivering quality distance learning programmes using ICTs. Regional universities participating in CUPIDE are:

a. Anton de Kom University of Suriname
b. The University of the West Indies
c. University of Guyana
d. University of Technology, Jamaica
e. University Quisqueya, Haiti
f. This virtual learning environment is facilitated through a portal[8] to enable collaboration among the participants of the programme.

At the primary and secondary levels, a review of the country initiatives gives some early indicators of the use of ICTs in delivering the curriculum. Table 2 (presented in an earlier section) gives some indication of the range of ICT tools that are being use to support the education process. The efforts of governments are being supplemented by initiatives of international agencies, non-governmental organizations and civic groups.

TABLE 4
NON-GOVERNMENTAL ICT LEARNING INITIATIVES

Organization	Project	Target Group	Description
The Trust For The Americas POETA[a]	Web portal www.poetayouth.org	Youth (Eastern Caribbean in particular)	A regional initiative was recently launched in the Eastern Caribbean. It is designed to promote the use of ICTs in providing skills training and support knowledge sharing among Caribbean youths. The portal will also facilitate online civic education training and give youths a platform to get their voices heard and potentially impact decision making.
UNESCO & Environmental Foundation of Jamaica (EFJ)	Learning Now[b]	Jamaicans between the age of 14 to 35	Educational software was originally designed for Jamaica and the West Indies. It is includes an interactive literacy course designed for the 14 to 35 age group.

Source: Compiled by researcher, March 2009.
[a] Partnerships in Opportunities for Employment through Technologies in the Americas.

6 http://www.open.uwi.edu/
7 http://www.cupide.org/index.html
8 http://www.cupide.org/moodle/

III. Infrastructure and access

1. Availability of ICTs (eLAC2010, 16 and 17)

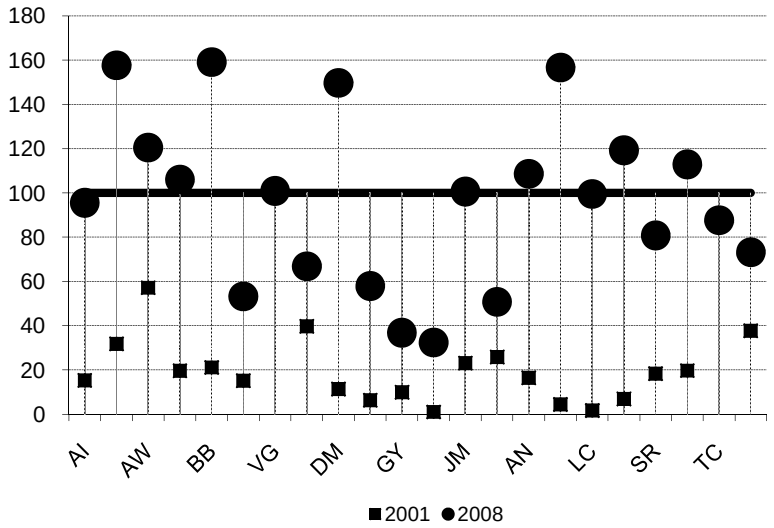
In the Caribbean subregion individual access to voice telephony services is primarily via mobile. The penetration of mobile telephony has seen explosive growth starting about 2001. This growth came with the liberalization of the telecommunications markets. The graph below shows this trend.

FIGURE 2
OVERALL MOBILE GROWTH IN 22 CARIBBEAN COUNTRIES[a], 2003-2008
(Number of subscribers, millions)

Source: International Telecommunications Union (ITU).
[a] The Caribbean countries included are the ones object of this study, which are listed on page 13.

The penetration per 100 population for individual Caribbean countries trends with overall growth in the region.

FIGURE 3
MOBILE SUBSCRIPTIONS PER 100 INHABITANTS, 2001-2008



Source ITU http://www.itu.int/ITU.

As of 2007, three countries (Antigua and Barbuda, Aruba and Trinidad and Tobago) registered over 100% mobile penetration.

Another indicator of the pervasiveness of mobile telephony in the subregion is population coverage of mobile. A study by the ITU gives the mobile population coverage of Latin America and the Caribbean at 87% in 2006. The following table gives some Caribbean countries are approaching or have achieved 100% population coverage.

TABLE 5
MOBILE POPULATION COVERAGE

Country	Year	% Coverage
Antigua and Barbuda	2004	100.0
Aruba	2006	90.0
Bahamas, The	2007	100.0
Barbados	2005	99.9
Cayman Islands	2005	100.0
Guyana	2005	95.0
Haiti	2007	32.0
Jamaica	2006	95.0
St. Lucia	2005	80.0
St. Vincent and the Grenadines	2007	100.0
Trinidad and Tobago	2007	100.0

Source: The World Bank Group, World Development Indicators Online 2009.

This level of growth is largely a result of liberalization which has fuelled the injection of private capital into this segment of the market. The new investments are primarily as a result of the entrance into the market of the Irish firm, Digicel. Cable and Wireless has had a long-standing interest in the mobile market and continues to be another of the main players.

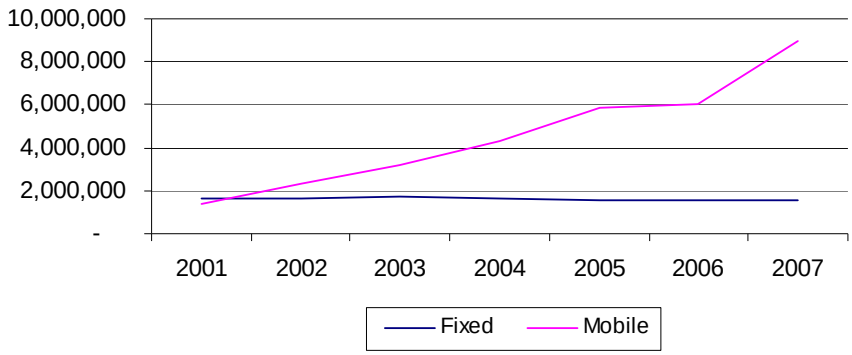
In some Caribbean countries (Jamaica, for example) the pervasive access to mobile telephony has resulted in a policy determination that universal access to voice telephony has been achieved. The Office of Utilities Regulation (OUR) articulated this policy position as part of a consultation on universal voice access.

1. Factors that have contributed to the success of mobile in the Caribbean are:
2. Prepaid pricing plans - This allows for more effective control of expenditure, which is very attractive to users, particularly those who have affordability challenges
3. Mobility - This allows for flexibility which is valued given today's fast paced lifestyle
4. Personal communication options - Mobile is feature rich. It supports the use of the latest communication applications (e.g. SMS and camera capability) which are very attractive to the youth population in particular).

1.1 Fixed telephony

As shown in Figure 4, while mobile telephony in the subregion has been growing, the penetration of fixed telephony has been flat and even declining. This is very consistent with the global trends.

FIGURE 4
FIXED VS. MOBILE GROWTH IN THE CARIBBEAN, 2001-2007

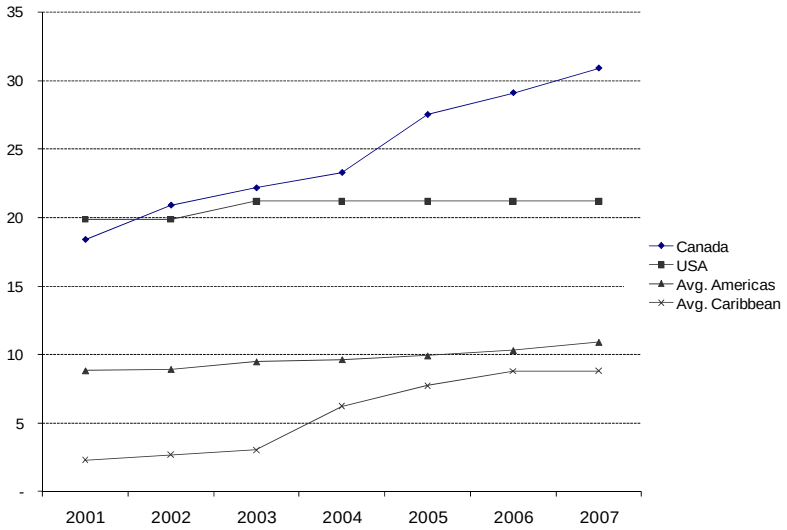


Source: ITU Statistics.

1.2 Dial-Up internet

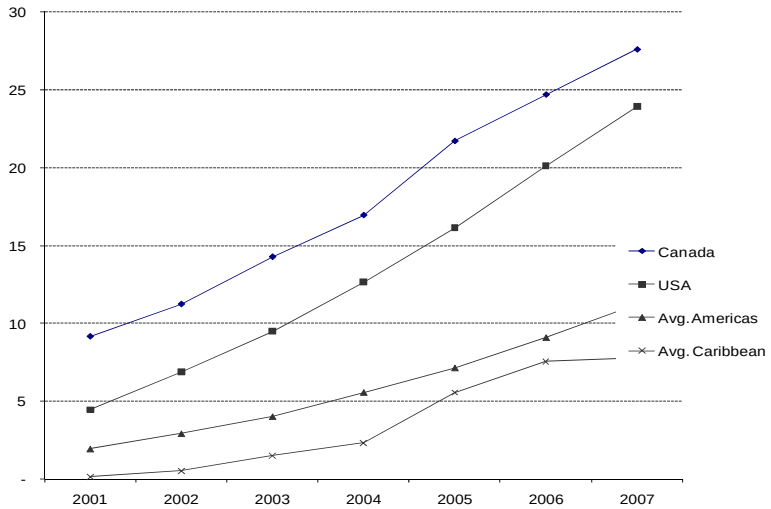
Access to internet services and specifically internet broadband is the literal and figurative highway that needs to be in place in order for countries to begin to effectively transform into Information Societies. Figure 5 shows that internet penetration per 100 inhabitants has been increasing steadily since 2001 in the Caribbean. Dialup has increased from about 3 persons per 100 inhabitants, to about 9 persons per 100 population. A similar increasing trend is seen across the subregion in broadband penetration, moving from almost none in 2001 to an average of about 9 persons per 100 inhabitants in 2007. While the trend is in the right direction, the levels of penetration are nevertheless lagging behind those in Organization for Economic Cooperation and Development (OECD) countries and rest of the Americas.

FIGURE 5
DIAL-UP PENETRATION IN THE CARIBBEAN COMPARED WITH THE REST OF THE AMERICAS, 2001-2007
(subscribers per 100 inhabitants)



Source: International Telecommunications Union (ITU).

FIGURE 6
BROADBAND PENETRATION IN THE CARIBBEAN COMPARED WITH THE REST OF THE AMERICAS, 2001-2007
(subscribers per 100 inhabitants)



Source: International Telecommunications Union (ITU).

The factors that contribute to the lower rate of internet penetration in the subregion are multifaceted:

a. Infrastructure gaps

b. Capacity limitations

c. Regulatory uncertainty

d. Service affordability

e. Level of ICT literacy

f. Accessibility to information

g. Low innovation capabilities

h. Slow adoption rate in integrating the use of ICTs in all sectors of the economy, particularly in the public sector

It is interesting to note that in some countries of the subregion the number active of Internet Service Providers (ISPs) is less than the number of ISP licenses that have been issued. The first three contributory factors noted above may explain this situation.

TABLE 6
NUMBER OF ISP LICENCES ISSUED VS. NUMBER OF ACTIVE ISPS, MARCH 2009

Country	ISP licences issued	Number of active ISPs
Barbados[a]		5
Dominica[b]	3	2
Grenada[c]	6	2
Jamaica[d]	76	12
St. Kitts and Nevis[e]	3	3
St. Lucia[f]	4	3
Trinidad and Tobago[g]	9	4

Source: Compiled by researcher, March 2009.
[a] Source: http://www.ectel.int/Telecoms%20Market%20Data/Annual%20Telecommunications%20Review%202007%20-%202008%20f.pdf
[b] Source: http://www.ectel.int/Telecoms%20Market%20Data/Annual%20Telecommunications%20Review%202007%20-%202008%20f.pdf
[c] Source: http://www.ectel.int/Telecoms%20Market%20Data/Annual%20Telecommunications%20Review%202007%20-%202008%20f.pdf
[d] Source: Rural Connectivity Report
[e] Source: http://www.ectel.int/Telecoms%20Market%20Data/Annual%20Telecommunications%20Review%202007%20-%202008%20f.pdf
[f] Source: http://www.ectel.int/Telecoms%20Market%20Data/Annual%20Telecommunications%20Review%202007%20-%202008%20f.pdf
[g] Source: http://www.tatt.org.tt/ddocs/Market_Report_2007.pdf

1.3 Household and individual ICT access

In the Caribbean, measurement of ICT developments is still largely focused on the supply side. Much of the supply side information that is available is sourced from operators, usually by the regulatory authority or some other government agency. In fact, the more statistically robust information is usually obtained from the International Telecommunications Union (ITU) and other international agencies. The development and availability of statistics related to the demand and use of ICTs is in its infancy.

As part of the development and implementation of national ICT plans, countries are starting to conduct surveys on household and business access and usage of ICTs, as follows:

a. Antigua and Barbuda – Antigua and Barbuda National ICT Household Survey, 2008 and e-Readiness Business Survey Report, 2008

b. Barbados – Barbados' Information Technology Indicators Study, 2003

c. Trinidad and Tobago – 2003 Household Survey and 2003 Business Survey

The following information was compiled from these studies:

TABLE 7
HOUSEHOLD / INDIVIDUAL ICT INDICATORS FROM VARIOUS SURVEYS

	Antigua and Barbuda	Barbados	Belize[a]	Trinidad and Tobago	Suriname[b]
Household with radios	82%		90%		
Household with television	97%	96.1%	20%		
Household with cable television	72%	49.2%			
Household with computer	47%	39.6%		25%	14%
Used computer during the last 12 months	60%				
Used internet				58%	
Fixed telephone line per household	49%		40%		
Mobile telephone per household	78%				
Individual ownership of mobile phone		61.2%	50%		
Internet access at home	36%	34.3%			5%
Household usage of internet over last 12 months	53%				

Source: Compiled by researcher, March 2009.
[a] These indicators are based on interviews conducted as part of as part of the ICT Benchmarking Assessment done in 2005 to 2006.
[b] This is based on information provided by participant at UNECLAC training course on Measuring ICT Access and Use in Households and Businesses.

Because the studies were done at different times, and the contexts and levels of statistical robustness vary, one is not able to make accurate comparisons across the countries represented in the table. However, it gives a view of what is happening on the demand side of the market at the household and individual levels.

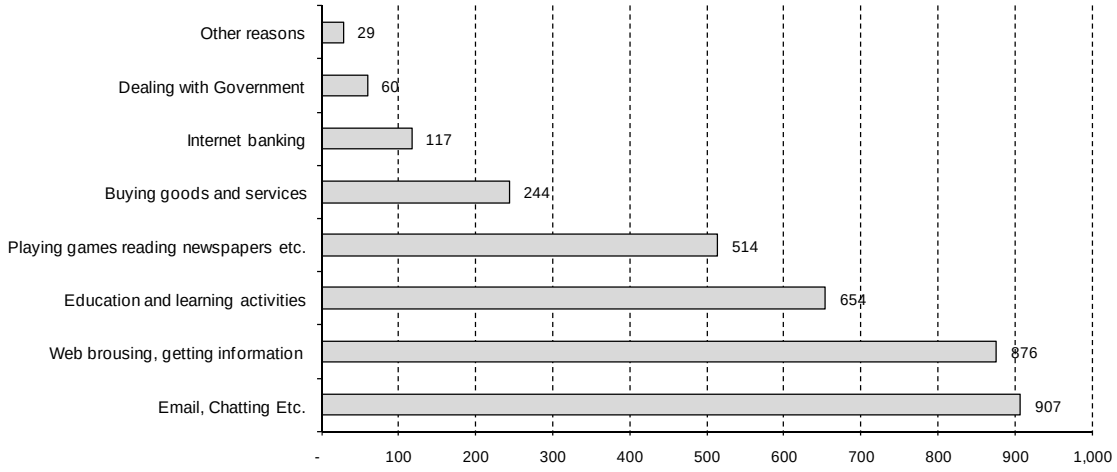
Household penetration of the traditional ICT devices (radio and television) is quite high, between 82% to 97%. This is with the exception of television penetration in Belize, which is reported at 20%. Household computer penetration ranges between 14% in Suriname to 47% in Antigua and Barbuda. The cost of acquiring a computer was consistently given as the reason for not having a computer at home. (Antigua and Barbuda, 39%; Barbados 67.1%; and Trinidad and Tobago 57%).

Thirty six per cent of the households in Antigua and Barbuda reported having internet access at home and 34% in Barbados. The study results also indicate that most internet users in these markets use the internet at home rather than at other locations such as community access centres. From the Barbados study, 68.9% of users access the internet from home. The Antigua Barbuda National ICT Household Survey (2008) indicates that 59% of users use the internet at home.

1.4 Household and individual usage of ICTs

The survey done in Antigua and Barbuda is the most recent and most comprehensive of the surveys. The survey was conducted in 2008 to: (a) gauge the extent of ICT usage by households; and (b) to provide data to measure the progress towards the attainment of global ICT targets, in particular the WSIS. The results of this provide some useful information on the usage behaviour of internet users in that country.

FIGURE 7
REASONS FOR USING THE INTERNET

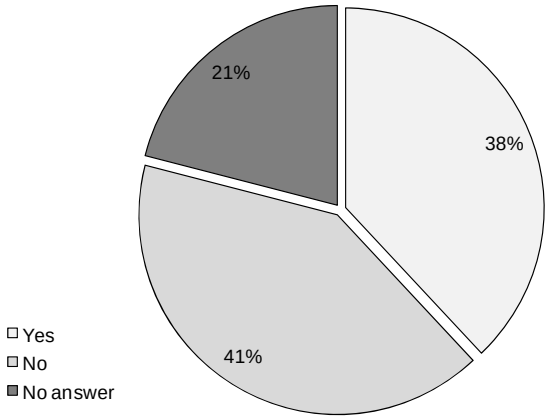


Source: Antigua and Barbuda National ICT Household Survey.

Use of the internet for social interaction (email, chatting, browsing) is ranked higher than the use for business transactions and interacting with government. In the Barbados study, emailing and searching for information were the online activities that users considered as most important. This is likely a reflection of the fact that generally the national e-Government initiatives in the subregion are in the early stages of development and have not yet reached the level of transforming the way citizens communicate with the government.

Thirty eight per cent of those who responded indicated they were aware of the government websites.

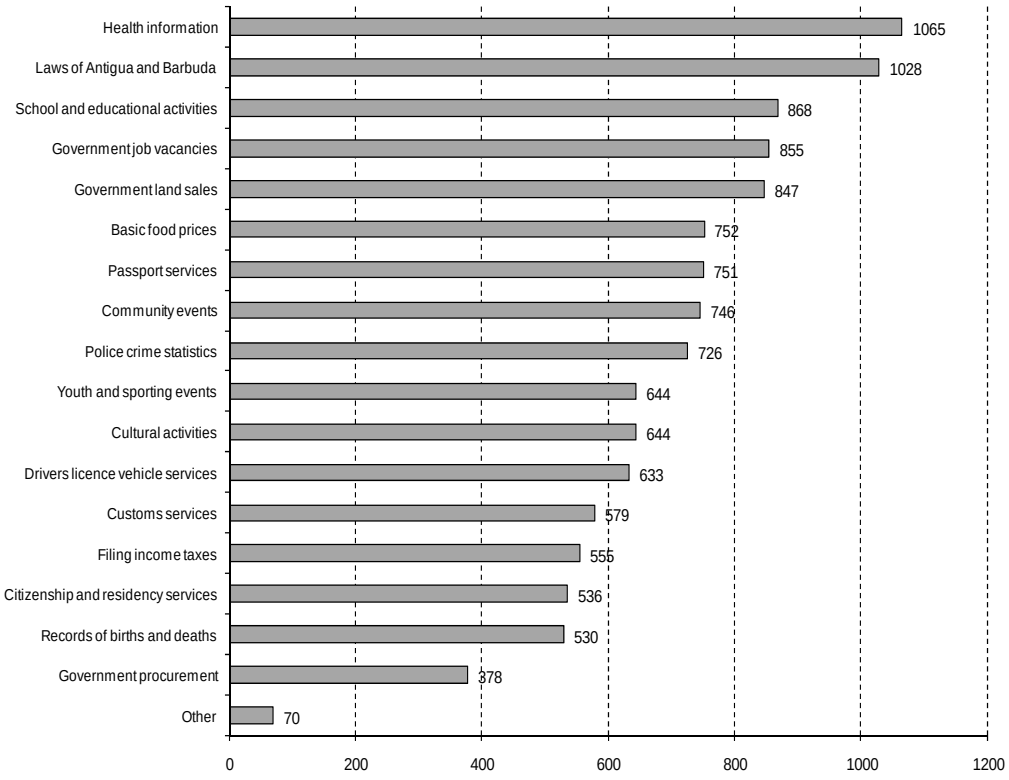
FIGURE 8
AWARENESS OF GOVERNMENT WEBSITES



Source: Antigua and Barbuda National ICT Household Survey, 2008.

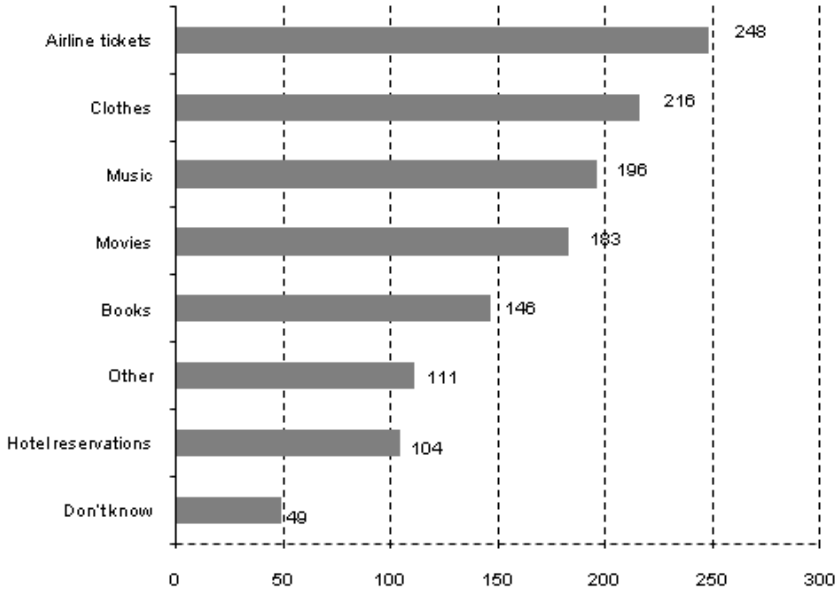
In terms of the kind of information respondents considered important for the government to provide online, health information, laws and education-related information ranked first, second and third, respectively.

FIGURE 9
USEFULNESS OF GOVERNMENT WEBSITES



Source: Antigua and Barbuda National ICT Household Survey, 2008.

FIGURE 10
PURCHASES BY RESPONDENTS WHO USED THE INTERNET IN THE LAST TWELVE MONTHS



Source: Antigua and Barbuda National ICT Household Survey, 2008.

Measurement of the usage behaviour and the impact of ICT usage are in the very early stages of development. The approach used in the Antigua and Barbuda survey provides a good benchmark for the rest of the subregion in several respects:

a. It makes use of a body of work on ICT measurements that is the result of the collaboration of a consortium of United Nations and other development agencies

b. It uses core indicators that allow for international comparability

c. The programme of measuring seems to be continuous and streamlined, as reference was made to previous surveys.

2. Community access points (eLAC2010, 18)

Developing, equipping and maintaining community access points is a popular strategy used by developing countries to provide citizens with access to ICTs. The goal articulated by eLAC is to increase the numbers of such centres serving the community to achieve a ratio of 1,750 persons per centre.

In the Caribbean subregion at this time adequate information is not available to reliably compute a ratio. Many countries are in the process of developing and implementing initiatives related to providing community access. The following table provides information on several country programmes.

TABLE 8
COMMUNITY ACCESS POINT INITIATIVES

Country	Initiative	Type of facility	# Existing	Target #
Antigua & Barbuda	Connect Antigua & Barbuda	Public Primary School	10	22
	"	Community Computer Access Centers	20	
	"	Mobile buses	5	
Barbados	Community Technology Programme	Community Resource Centres	14[a]	
		Schools		4
Jamaica	E-Learning Project	Community Access Centres	13[b]	
	Jamaica Library Service	Libraries	250 (app.)[c]	
	Universal Access Fund	Post Offices		
	International Development Bank ICT Project	Community Access Centres	10	
Trinidad and Tobago	Community Access Centres			
	LibraryNet	Public libraries		All

Source: Complied by researcher, March 2009.
[a] Barbados ICT Projects Programmes.
[b] Jamaica Information Service, January 21, 2009.
[c] United Nations ECLAC, Jamaica's Information Society Country Profile, 2006, page 5.

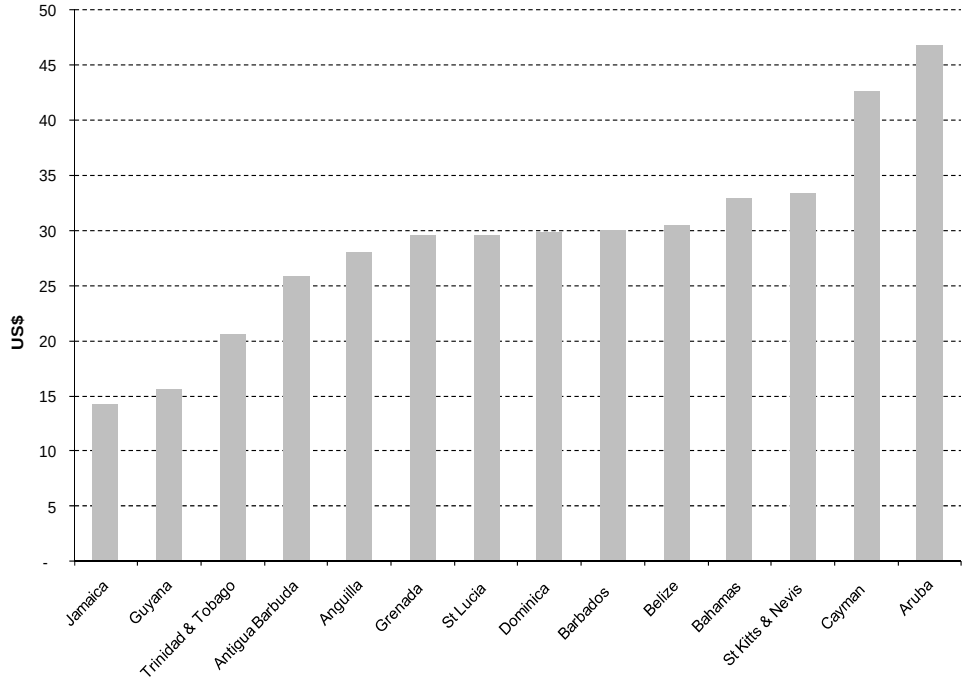
A unique feature of the Community Computer Access Center programme in Antigua and Barbuda is the Multilingual Studies Programme which offers citizens free classes in five foreign languages. The programme utilizes the Berlitz software series for this initiative.

3. Affordability of ICTs (eLAC2010, 21)

As indicated earlier in this report, the success of mobile voice telephony in Caribbean markets has been attributed to the availability of prepaid pricing plans. Users, particularly the poor, value the fact that they do not have a monthly commitment fee. In terms of usage they also have the ability control their expenditure by buying credit when they have the cash to do so. Some may even acquire the mobile phone primarily for receiving calls. The acquisition helped by the fact that mobile providers in the subregion have pursued a marketing strategy of subsidizing the cost of mobile handsets to push demand for the service. This subsidy is then covered by the revenues from call usage.

Mobile prepaid pricing plans have proved very effective in addressing the affordability issues for Caribbean users. The graph below shows the cost a basket of 100 mobile prepaid minutes across a selection of countries across the subregion.

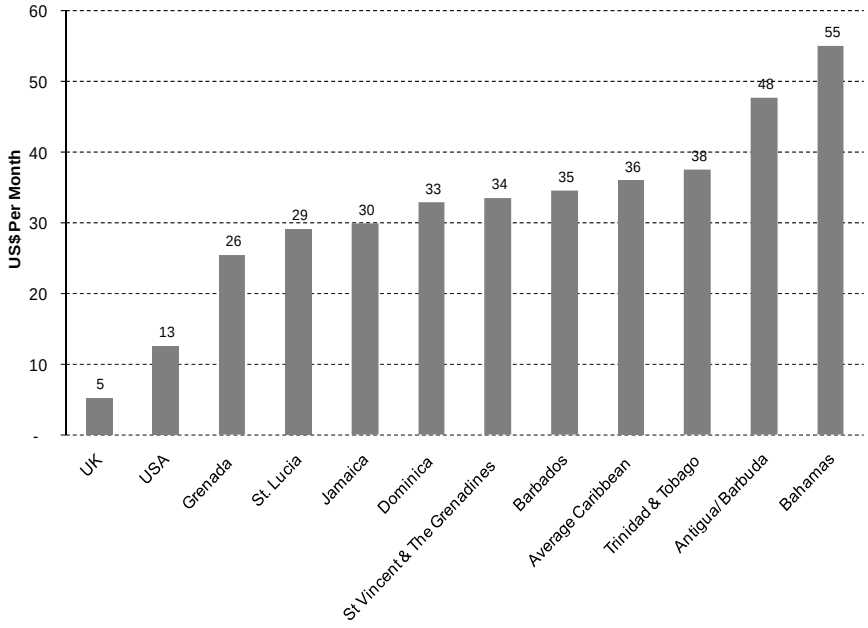
FIGURE 11
PRICE OF A BASKET OF 100 MOBILE PREPAID MINUTES



Source: complied by researcher at March 2009.
[a] This is based on the highest rate for a call originating on a mobile network and terminating locally on any mobile or fixed network.

The price range is wide, the lowest being Jamaica (US$15) and the highest Aruba US$47.

FIGURE 12
PRICES OF BROADBAND 1 MEGABIT DOWN-SPEED SERVICE



Source: Compiled by researcher, March 2009.

The average price of one megabit down-speed service across the subregion is approximately US$36 per month. This is close to three times the price in the United States and seven times the price in the United Kingdom. This difference in price is one of the reasons for low broadband penetration in the subregion as compared to the more mature markets. To get around this problem, several Caribbean governments have articulated a policy position to include access to broadband service as part of their universal access policy.

4. Mechanisms to provide ICTs to vulnerable groups (eLAC2010, 22 and 23)

Universal Access Fund (UAF) is a mechanism that is widely used to provide access to telecommunications services to those who cannot afford the full cost of the service. Traditionally, this was designed specifically to address access to basic telephony. However, as countries seek to transform their economies to information economies, internet and other ICT services are being included as part of the universal access package.

The design of UAFs vary in several respects: source of funds, how funds are disbursed and type of administration. The design of UAFs will vary from country to country, and is based on the national priorities and imperatives.

To date, Jamaica is the only Caribbean country that has implemented a UAF. The fund was established in 2005. The source of funds is from a levy imposed on international incoming voice calls to fixed and mobile networks. At least a portion of these funds will go towards the development and implementation of Jamaica's E-Learning Project.

Other countries in the Caribbean, Trinidad and Tobago, Barbados and the Organisation of Eastern Caribbean States (OECS), are in the process of developing universal access policies.

However, governments are not waiting on the agreement on policy or drafting of legislations to act. Many countries are moving forward with initiatives, such as computer centres in Trinidad and Tobago and the Community Resource Internet Centres Programme in Dominica, to provide ICTs to vulnerable groups.

5. Use of ICT's in disaster management (eLAC2010, 26, 27 and 28)

ICTs are increasingly being used in disaster management in the Caribbean. The Caribbean Disaster Emergency Response Agency (CDERA) is a Caribbean Community (CARICOM) subregional intergovernmental agency. The agency is responsible for the coordination of disaster management in the 16 member countries. The agency is currently undertaking several projects with ICT components:

a. Institutional support and capacity-building for disaster management. This includes the enhancement of ICT infrastructure to support information sharing across member countries. Target completion date for this project is February 2010.

b. Tsunami and other costal hazards warning system. This will involve augmenting traditional communication methods with short message service (SMS), pagers and website. The target completion date for this activity is October 2009.

c. Caribbean Subregional Emergency Operations Centre Information Systems Project. This is a web-based information management system that will facilitate communications across CDEMA participating countries.

Once operational, the Regional Emergency Operations Centre (REOC) will facilitate more effective communication and coordination among the CDEMA Coordinating Units, affected countries and supporting agencies. It will allow real time sharing of critical information to give decision makers, emergency managers and first responders access to up-to-the-minute information on the nature, location and other critical details about disasters. It will also provide information on emergency operations.

The status report at December 2008 shows the following timelines for the centre to be operational:

a. REOC System fully operational (February 2009, completed)

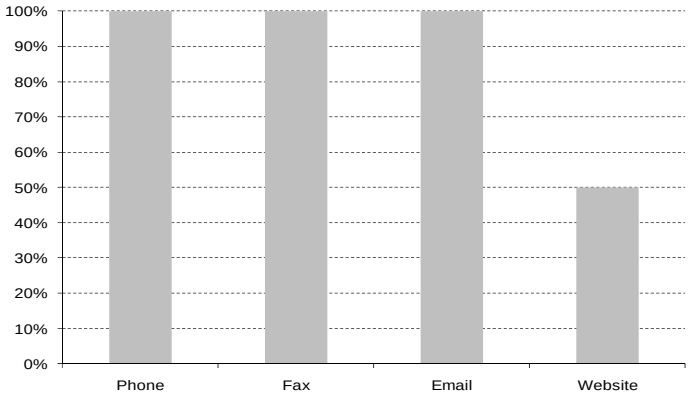
b. Training Workshop on System (March 2009, completed)

c. In country Very Small Aperture Terminal (VSAT) installations for Jamaica, Trinidad and Tobago and Antigua and Barbuda (March 2009).

The agency's website (http://www.cdera.org/) is used for information dissemination. The site hosts the Online Comprehensive Disaster Management (CDM) Database (http://cdm.cdera.org/database/index.php). The database provides information on projects and other activities being carried out in the subregion on disaster management. The site includes a section "Alerts" which contains information on threatening situations, such as weather systems and volcanic activities.

At the national level, the graph below shows the prevalence of ICT facilities at the national disaster agencies of member countries.

FIGURE 13
ICT TOOLS IN NATIONAL DISASTER AGENCIES IN THE CARIBBEAN



Source: Compiled by researcher, March 2009.

IV. Health

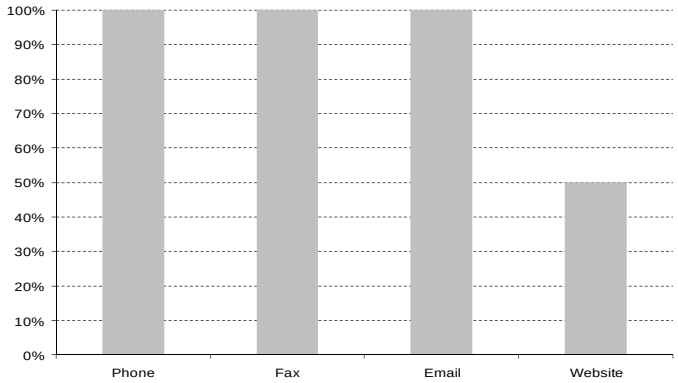
1. Regional trends in using ICTs in delivery and use of health services (eLAC2010, 29 and 30)

The eLAC targets related to the public health sector seeks to challenge the sector to move in the direction of providing services via the internet and to equip health professionals with the appropriate skills to function effectively in this environment.

All the Caribbean countries that have developed national ICT plans have included E-Health as one of the areas for focus. At this point, however, beyond the availability and use of the traditional ICT tools (phones, fax, emails and, to a lesser extent, websites) there is very little integration of ICT into the delivery of health care in the subregion.

Caribbean health facilities are reasonably well equipped with the traditional ICT capabilities such as telephone and fax and, to a lesser extent, with emails and websites. For example, information gleaned from the CARICOM website on drug treatment facilities across the subregion shows that while telephone contact is close to 100%, facilities for fax contact is available in less than 50% of these facilities. Less than 10% of them have a website.

FIGURE 14
USE OF BASIC ICT TOOLS IN CARIBBEAN DRUG TREATMENT FACILITIES



Source: http://www.caricom.org/jsp/community_organs/sustainable_development/directory_drug_demand_authorities.jsp.

The more traditional public health facilities (hospitals, clinics and health centres) generally show similar profile in the use of ICTs.

BOX 3
BELIZE NATIONAL HEALTH INFORMATION SYSTEM

The Belize National Health Information System (BHIS) is a fully integrated information system that connects hospitals, clinics, labs and pharmacies across the country. This system provides and maintains electronic health records for all citizens.

It is a web based system that supports the ready availability of citizens' health records across the full spectrum of the health services. Modules included are:

- Maternal child care
- HIV:AIDS
- Laboratory and testing
- Supply chain management
- Public health
- Human resources

Source: http://www.caribbeanpressreleases.com/articles/3964/1/New-Belize-Health-

The BHIS has been successful in using ICT to make citizens' health records readily available across the health system.

In general, the subregion, as a whole, is yet to incorporate ICT in the delivery of health services to make any marked impact on service delivery.

2. Use of process planning and management software in hospitals and health centres (eLAC2010, 33 and 34)

Throughout the subregion there are a number of initiatives and programmes in which Management Information Systems (MIS) have been effectively incorporated into the administration of health services:

a. The BHIS, described above.

b. Barbados Computerisation of Health Ministry Programme. This is a five stage project aimed at implementing information systems to support decision-making, information sharing and research in the health system. This is expected to be completed in phases.

   i. Planning and preparation (Completed)

   ii. Installation of two core modules in the wide area network (WAN) in health centres

   iii. Installation of disease management module in primary health care system

   iv. Establishment of fully staffed health information unit

   v. Establishment of a Hospital Information System

c. Guyana Enterprise Architecture and Patient Management Information System (PMIS). This is a Health Information System linking hospitals and health centres. This facilitates the storing of patient records and epidemiological data across the health administration system.

V. Public management

1. eGovernment (eLAC2010, 37and 38 role of CARICAD)

Globally, countries are looking for ways to improve their public administration systems. To succeed in the ultra-competitive, global marketplace, governments need to become more efficient, more proactive, and more transparent. Given the role that appropriate use of ICT can play in delivering on these objectives, Egovernment is recognized as a key component of this process of transformation.

Effective development in eGovernment requires some key foundational pillars to be in place – infrastructure, integration of back office government systems, appropriate policies, human resource skills and capabilities, ICT applications and relevant content. The Caribbean Centre for Development Administration (CARICAD) is a CARICOM intergovernmental agency that has the mandate to modernize the public sector in member States. As part of its mandate, CARICAD has the responsibility to promote the development of the CARICOM Single Market and Economy (CSME). This will involve promoting standards for eGovernment services and interoperability across the Caribbean. CARICAD is currently in the process of developing an eGovernment Strategy for the subregion. The first meeting was held in January 2009 and focused on a subregional assessment of the status of eGovernment. Two follow-up meetings took place in April and June 2009. The outcome of the April meeting was the "Caribbean e-government strategy 2009-2012".

2. EGovernment availability in the Caribbean (eLAC2010, 39, 40, 45 and 46)

At the national level, the online presence of government ministries and agencies; the nature of the information available online; the extent to which government websites facilitate interaction of government to citizens and vice versa, and allow for actual transactions to be completed online, give some indication of the level of success of eGovernment programmes. Almost all the countries in this study have some level of online presence. Table 9 lists the official/main government websites and shows the extent of the coverage or linkages across the wider government services in terms of number of links.

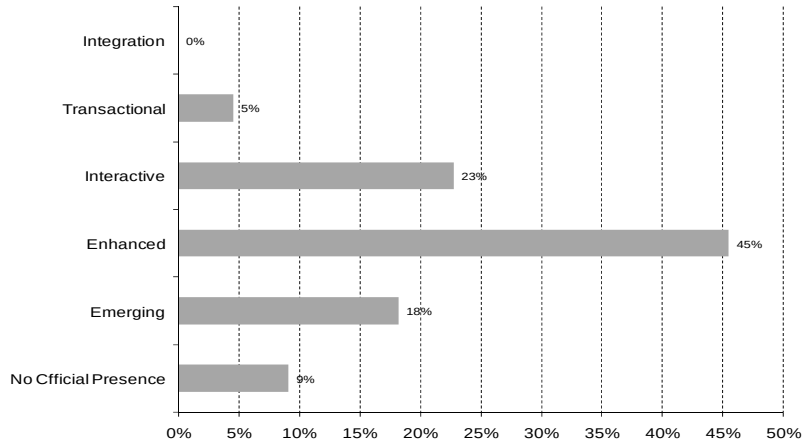
TABLE 9
CARIBBEAN E-GOVERNMENT AVAILABILITY MAP

Country	Official Government Site	Hyperlinks to Ministries & Gov. Agencies
Anguilla	http://www.anguillqfsc.com	12
Antigua and Barbuda	http://www.ab.gov.ag/gov_v2/index.php	16
Aruba	http://www.aruba.com/ExploretheIsland/IslandFacts/law.aspx	
The Bahamas	http://www.bahamas.gov.bs/bahamasweb/home.nsf	41
Barbados	http://www.gov.bb/portal/page/portal/BIG_Portal_ Home_Page/BIG_Government_Channel_Page/BIG_Gov_Ministries	32
Belize	http://www.governmentofbelize.gov.bz/	27
British Virgin Islands	http://www.bvi.gov.vg/	
Cayman Islands	http://www.gov.ky/portal/page?_pageid=1142,1&_dad=portal&_schema=PORTAL	
Dominica	http://www.dominica.gov.dm/cms/	18
Grenada	http://www.gov.gd/	25
Guyana	http://www.gina.gov.gy/	89
Haiti		
Jamaica	http://www.jis.gov.jm/	176
Netherlands Antilles	http://www.gov.an/	
Montserrat	http://manishval.com/gov/	8
Saint Lucia	http://www.stlucia.gov.lc/	23
Saint Kitts and Nevis	http://www.gov.kn/mp.asp?mp=1	8
St Vincent and the Grenadines	http://www.gov.vc/govt/index.asp	15
Suriname		
Trinidad and Tobago	http://www.gov.tt/	142
Turks and Caicos	http://www.tcimall.tc/government/	10
U.S Virgin Islands	http://www.gov.vi/	24

Source: Compiled by researcher, March 2009.

Official government websites were found for 20 of the 22 countries covered by this study. Many of the websites are web portals which provide information in a structured format across a wide cross section of government ministries and/or agencies. Generally, hyperlinks are used to facilitate easy navigation to the various sections of the portal.

FIGURE 15
CLASSIFICATION OF MAIN WEBSITES BASED ON UNITED NATIONS GROUPINGS



Source: Compiled by researcher, March 2009.

Based on the United Nations matrix for the classification of the stages of e-Government development,[9] an examination of the websites indicates that the majority (45%) are in the enhanced category, showing a well-established presence with a wide range of up-to-date information available. About 23% of the sites are interactive, in that users are able to download forms from various government agencies. In the case of Jamaica, the online presence has a number of transactional elements. One application is the tax system. This is described in further details in the section on ePayments.

Additionally, the Trade Facilitation Portal (http://www.jamaicatradepoint.com/) has achieved a high degree of integration. It allows importers and exporters to carry out trade online in a seamless manner. This is made possible as five sectors which are integral to the trade process are integrated to deliver a cost-effective trading solution. The sectors involved are: trade facilitation, business information, transportation, banking and insurance and information and communication technologies.

The report on E-readiness rankings 2008[10] put out by The Economist Intelligence Unit (EIU) is aimed at assessing the extent to which countries have been able to employ information and communication technology to deliver social and economic benefits to the country. Of the 70 countries included in this report, only two Caribbean countries, Jamaica and Trinidad and Tobago are included. Jamaica and Trinidad and Tobago have been ranked 49th and 50th, respectively.

2. ICT training for civil servants (eLAC 41 and 42)

eLAC's goal for 2010 is to increase the number of ICT-trained workers in the civil service (80% trained, or triple the current numbers) so that the training will positively impact job performance. Information on the number of civil servants that have been trained in the various countries is not readily available, however, generally, capacity-building programmes are conducted as part of the overall eGovernment initiatives.

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9 Stage of eGovernment Development:
Emerging - An official government online presence is established.
Enhanced - Government sites increase and information becomes more dynamic.
Interactive- Users can download forms, email officials, and interact through the web.
Transactional - Users can actually pay for services and do other transactions online (e.g. send forms and query balances)
Integration - Full integration of services across administrative boundaries.

10 The EIU e-readiness ranking is based on the weighted average score across five categories - Connectivity and technology infrastructure (20%); Business environment (15%); Social and cultural environment (15%); legal environment (10%); Government policy and vision (15%) and Consumer and business adoption (25%). The maximum score is 10. Jamaica and Trinidad and Tobago scored 5.17 and 5.07 respectively.

3. Use of ePayment, eDocument and eSignature (eLAC2010, 43, 44 and 47)

As a first step to the adoption and development of electronic transactions between citizens and the State (e-payment, e-document, e-signature and e-contracting) an enabling legislative framework needs to be in place. To date, Caribbean countries that have enacted e-transactions related legislation include:

(a) Anguilla – Electronic Transactions Act (2006)
(b) Antigua and Barbuda – Electronic Transactions Act (2006)
(c) Bahamas – Electronic Communications and Transactions Act (2003)
(d) Barbados – Electronic Transactions Act (2001)
(e) Belize - Electronic Transactions Act (2003)
(f) British Virgin Island - Electronic Transactions Act (2001)
(g) Cayman Islands - Electronic Transactions Law (2000)
(h) Grenada – Electronic Transactions Act (2008)
(i) Jamaica – Electronic Transactions Act (2006)
(j) St. Vincent and the Grenadines – Electronic Transactions Act (2007)
(k) Trinidad and Tobago – Electronic Transactions Bill (2009)
(l) Turks and Caicos Islands – Electronic Transactions Act (2000)

Jamaica has been very successful in using e-transactions to improve its tax collection system. The online revenue collection system covers several statutory and non-statutory revenue streams. These include general consumption tax, property tax, national insurance, and fees for drivers' licenses, traffic tickets, and motor vehicle fitness, among others.

Between 2005 and 2008 the value of property taxes that have been collected via the online payment system has increased more than five times. The total number of transactions on the tax portal more than doubled between 2006 and 2008.

Barbados is undertaking an Electronic Signature Project. Once completed, this will allow secure and dependable electronic communications within the public service. One feature of the system will be the capability for official exchange of documents and the capability to affix electronic signatures for certification and approval.

4. Geographic Information System (GIS) for decision support (eLAC2010, 48)

GIS systems are used across the Caribbean in a number of areas (e.g. mapping, agriculture, marine, costal management and disaster management). For example, Anguilla has implemented a GIS system to assist in its mapping and management of its coastal and marine resources.

In Trinidad and Tobago, for example, GIS technology is being used in the area of security. The Trinidad and Tobago-based operations of Gavitrak is providing security-related services, such as vehicle tracking. Using this service, a customer can identify where their vehicle is from anywhere in the world. This is done through a remote control system which is linked via the internet or mobile phone.

In terms of subregional consolidation and standardization, the work at institutions such as Mona GeoInfomatics Institute[11] and CDEMA, which have a subregional reach, provides the basis for some level of consolidation and standardization.

[11] http://www.monagis.com/index.html

VI. Production sector

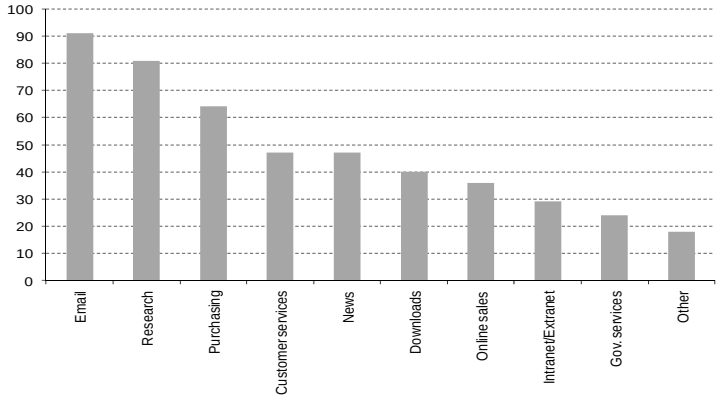
1. ICT for Small and Medium Enterprises (SMEs) (eLAC2010, 49, 58 and 59)

Adoption of ICTs in the large business sector is quite high. The presence of multi-national corporations in subregional industries such as natural gas in Trinidad and Tobago, bauxite in Jamaica and in large corporations, generally, has helped to generate widespread use of ICTs in that sector. Electronic banking applications are widespread.

The situation regarding SMEs is not as clear. In Antigua and Barbuda, a comprehensive survey was done (in 2007) to access the use of ICTs in the business community. The findings were published in the Antigua and Barbuda E-Readiness Survey Report 2008. One hundred and two companies from a wide cross section of sectors responded to the survey. The largest percentage of the respondents (17%) was from the retail sector; 92% of the businesses indicated that they used computers in their businesses; and 71% of the businesses had up to 10 computers. The number of computers may give some indication that the majority of the businesses that responded were small- to medium-size enterprises (SMEs).

Ninety eight per cent of the businesses that responded indicated that they had access to the internet. In terms of the use of the internet, figure 16 captures this information.

FIGURE 16
RESPONSES ON USE OF THE INTERNET BY BUSINESSES

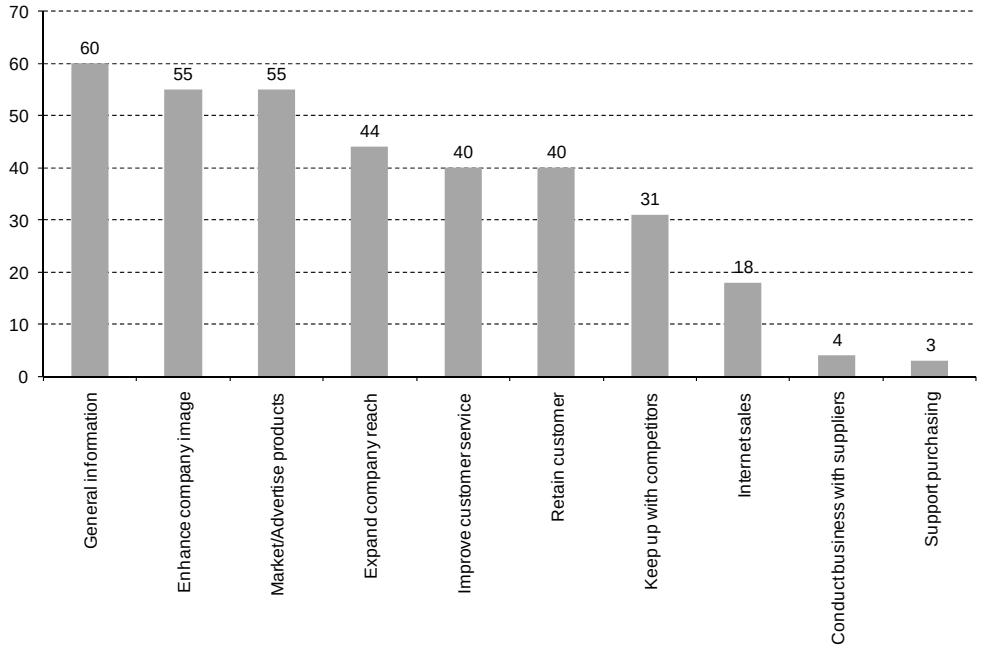


Source: Antigua and Barbuda E-Readiness Survey Report 2008.

The above suggests that SMEs are, to some extent, using the internet to facilitate business activities. This is further supported by the number of the companies that reported having websites and the use they are making of these sites. Sixty two percent of the companies indicated that they have a website.

General information, company image, marketing and customer services were given as the main reasons for having a web site. Actual business transactions (e.g. sales and purchasing) were ranked low.

FIGURE 17
REASONS FOR SETTING UP WEBSITE



Source: Antigua and Barbuda E-Readiness Survey Report 2008.

Across the subregion at the micro level, there are some initiatives, such as incubation projects, aimed at helping SMEs with acquisition and/or use of ICTs. Technology Innovation Centre - http://www.ticjamaica.com/ is one such initiative.

In Jamaica, the Agricultural Business Information System (ABIS),[12] is a web-based information system developed by the Rural Agricultural Development Authority (RADA). Information on a range of agricultural activities and processes are collected, processed and made available to stakeholders. ABIS:

a. Registers farmers and other stakeholders

b. Tracks activities of some farmers

c. Provides output forecasts based on inputs and applied practices

d. Provides information on best practices in marketing and production

e. Facilitates trade in agriculture

[12] http://www.abisjamaica.com.jm/

2. ICT Innovations and services – hardware, software and content (eLAC2010, 50)

Growth in technology-based enterprises that provide hardware, software, and content and/or technology-based services needs to be encouraged in the subregion. The experience of SymSure,[13] a software development company in Jamaica, highlights some of the challenges faced in this area. SymSure is a software company that specializes in fraud detection products. After two years in business, they have been fairly successful in competing for international contracts. Unfortunately, to achieve this, SymSure has had to market itself as a North American entity. This underscores some of the challenges faced by indigenous technology based companies in the subregion:

a. The perception that small economies cannot produce high value added technology based goods and services, comparable to "first world" economies

b. Insufficient availability of capital

c. Availability of adequately skilled staff

d. Ability to retain talented staff needs to be addressed before the subregion can see sustainable growth in this area.

3. ICT training accreditation standards (eLAC2010, 55)

At the secondary and tertiary levels, uniformity in accreditation standards in ICT training is facilitated through:

a. CXC curriculum and examinations in information technology. The CXC system of accreditation (syllabus and examination) is used for secondary level students across the English-speaking Caribbean

b. University of the West Indies (UWI) IT degrees

Outside of such subregional institutional frameworks at the national level institutions, such as the Accreditation Council of Trinidad and Tobago, are set up to address accreditation standards generally. The HEART Trust in Jamaica (which has about 27 training institutions across the island) offers a range of ICT specific vocational certification. Additionally two fairly new initiatives, National Qualifications Register (NQR) and Learning Management System (LMS) have been implemented to support its accreditation process. NQR provides competency assessments based on specific skill sets "unit competency assessment". As students accumulate competencies over time, the information is logged into a database. The register provides information to trainees, trainers and employees on certification and also provides other training resources. The LMS provides training information to the public. The combination of theses initiatives is expected to help to ensure consistent training and certification standards.

In some cases, institutions in the Caribbean use international certification standards such as CISCO Certified training.

[13] http://www.symsure.com

VII. Policy instruments and strategies

1. National and regional ICT policy agenda (eLAC2010, 60, 61, 62, 63, 69 and70)

The development of information societies requires pervasive access to and use of ICTs to deliver government services more effectively and efficiently and to enhance the competitiveness of the productive sector. To facilitate this kind of transformation, it is necessary to develop and implement appropriate policies and strategies to streamline and drive the process forward.

Caribbean governments participated in the WSIS process through national representation. Additionally, the subregion was represented by CARICOM at both the Geneva and Tunis rounds. It is, therefore, safe to say that they are on board with principles and the broad plan of action of WSIS. As part of the WSIS Plan of Action, countries are encouraged to formulate national ICT policies and strategies. Using the WSIS framework as a starting point, Caribbean governments are taking steps to develop National ICT plans and strategies. The approach to developing plans and strategies is varied and so is the level of development from country to country.

Table 10 gives the status of the National ICT plans of some of the countries that are included as part of this report.

TABLE 10
SUMMARY OF NATIONAL ICT PLANS AND STRATEGIES

Countries	Plan Formulated and Published	Coordinating Agency	Budget in Place	Implementation
Antigua and Barbuda	Partial[a]	The Government Information and Technology Center[b]		Various aspects of Connect Antigua and Barbuda Project are being implemented.
Bahamas	Partial[c]	Office of the Prime Minister		
Barbados	Partial[d]	Several		ICT Programmes e.g. Edutech being progressed by the various responsible agencies.
Belize	Initiated[e]			
Dominica	Initiated[f]			
Grenada	Yes[g]	The Central Information Management Agency (CIMA)		

(continues)

Table 10 (concluded)

Guyana	Yes[h]	Office of the President ICT Unit (ICTU)		
Jamaica	Yes[i]	Central Information Technology Office (CITO)	Yes	The plan is being implemented through a number of programmes e.g. Jamaica Elearning and egovernment projects.
Saint Kitts/Nevis	Yes[j]	Information and Communication Technology Unit (ICTU)		
Saint Lucia	Initiated[k]			
St Vincent and the Grenadines				
Suriname				
Trinidad & Tobago	Yes[l]	Ministry of Public Administration http://www.mpa.gov.tt/cms/	Yes	Implementation progressing through the fastforward programme.

Source: Compiled by Researcher, March 2009.

[a] Based on information provided on the government's official website, a national Information Technology Strategic Plan has been articulated.

[b] Source: http://www.ab.gov.ag/gov_v2/government/egov/

[c] The government has issued policy statement on Electronic Commerce and the Bahamian Digital Agenda. This outlines a vision to transform the country into a regional centre of excellence for ecommerce. http://www.bahamas.gov.bs/ bahamasweb2/home.nsf/v Content W/GOV--Business+and+Finance--Business+&+Finance+ PDFS/$FILE/ecommerce%20 Policy%20VIi%5B1%5D.pdf

[d] Draft National ICT Strategic Plan was done in 2005. Included was a proposal to appoint a single agency to coordinate, implement and monitor the plan. This would replace the fragmented approach where different agencies have responsibility for different aspects of ICT development.

[e] In 2007 the government of Belize with support from the Commonwealth Secretariat has commenced the process to develop a National ICT Strategic Plan. The areas identified for focus are infrastructure, legal & regulatory framework, human resource development, industry and government.

[f] In 2004 the Ministry of Education, Human Resource Development, Sports and Youth Affairs put out a draft document "Strategy for Implementing the National ICT Education Policy in The Common Wealth of Dominica - http://planipolis.iiep.unesco.org /upload/Dominica/Dominica-Strategy-Implementing-National-ICT-Policy.pdf".

[g] An Information Technology Strategic Plan was drafted in 2005 http://unpan1.un.org/intradoc/groups/public/documents/tasf/ unpan024895.pdf

[h] The Grenada National ICT Plan was published in 2002. http://portal.unesco.org/ci/en/files/12295/10603534751CIMA_ Project.doc/CIMA%2BProject.doc

[i] ICT4D National Strategy Final Draft published in April 2006, http://www.ict4d.gov.gy/ictstrategy/ICT4D_Strategy_FinalDraft.pdf

[j] Plan dates back to 2000, with reviews in 2002/3 and 2006/7.

[k] Government of St. Kitts and Nevis National Information and Communication Technology (ICT) Strategic Plan was done in 2006.

[l] A consulting firm was recently hired to work in collaboration with the Public Sector and e-government Unit to develop national ICT policy and strategies.

In addition to the work at the national governmental level, in February 2003 the ministers with responsibility for ICT within CARICOM[14] signed The Georgetown Declaration on Information and Technology Development. This agreement provided that "CARICOM States adopt a coordinated approach to conceptualization and development of ICT policies, and development of structural, legal and regulatory frameworks, to stimulate and promote broader access to and use of information and communication technology by the populations of the Subregion, and the transfer of technology". The declaration provided for the formation of a working group to collaborate with regional and subregional agencies and organizations and consult with international organizations "to ensure the development and maintenance of a programme to support the CARICOM ICT/Connectivity Agenda 2003, and adherence to the principles of universal access, for the benefit of the Region, with a mid-term review to assess progress and guide further action".

[14] The Caribbean Community was established by the Treaty of Chaguaramas in 1973. The Treaty was to increase economic development through the coordination of national development policies. The Treaty has been revised several times (1989, 1992, 1993-2000) and now includes the CARICOM Single Market and Economy. The members of CARICOM are Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Lucia, St. Kitts and Nevis, and St. Vincent and the Grenadines, Suriname and Trinidad and Tobago. There are also five associate members, Anguilla, Bermuda, and British Virgin Islands, Cayman Islands and Turks and Caicos Islands.

The CARICOM ICT Connectivity Agenda 2003 led to the development of a Draft Plan of Action, which was approved at a meeting of CARICOM ICT Ministers in 2004. This plan of action addressed, among other things:

a. E-government (the need for development of national e–strategies)

b. Capacity-building (strengthening of secretariat

c. Policy formulation and implementation process

d. E-Commerce (private sector development)

e. E-Learning

f. Poverty reduction efforts

CARICOM has commissioned the development of a Regional ICT Plan and has stated that in this effort attention must be given to decisions taken by CARICOM and/or member States in:

a. Georgetown Declaration

b. Declaration of Functional Cooperation

c. The WSIS Plan of Action

d. Tunis Commitment

e. eLAC 2007 and 2010

The CARICOM ICT Steering Committee (the group tasked with the development of the plan) convened in May 2007. At this meeting the Secretary-General of CARICOM indicated that "the goal of CARICOM was to embrace ICT in the human and socio-economic enhancement of the Subregion, applying it in the conduct of daily living, in human resource development and in efforts of poverty alleviation". The steering committee operates as a think-tank and serves as an advisory body to the CARICOM Secretariat on ICT issues. To date, the committee has had three subsequent meetings, Guyana, May 2008; Barbados, October 2008; and Grenada, March 2009.

The work of the group is conducted in sub-committees. The current subcommittees are:

a. Access Connectivity and Internet Governance

b. Regional Partnership

c. Capacity Building

d. Legal and Regulatory

e. Business Trade Culture and Disaster Management

f. Statistics

The output from the work of the committee (draft Regional ICT Policy and Action Plan) is expected to be tabled at a Heads of Government Meeting with ministers responsible for ICT in May 2009.

At the March 2009 Heads of Government Meeting, the national representatives agreed to re-examine the management and coordination of the various aspects of ICT4D. A commitment was given to establish national committees to guide these reviews.

Agencies of CARICOM, such as Caribbean Telecommunications Union (CTU) and CARICAD, are also involved in various initiatives aimed at enhancing ICT development in the subregion. A number of other subregional institutions, non-governmental and civic organizations are involved in initiatives related to ICT development. Private sector agencies, such as the Caribbean Association of National Telecommunications Organizations (CANTO), non-governmental organizations and civic organizations are also playing a role in this process. Table 11 summarizes some of these initiatives.

TABLE 11
ICT INITIATIVES BY REGIONAL AGENCIES AND OTHER ORGANIZATIONS

Organization	Role	Project(s)	Website
CTU	A Caribbean inter-governmental organization whose mandate is to facilitate the development of the telecommunications sector regionally.	-Caribbean Spectrum Management and Policy Reform -Internet Governance -Harmonization of Caribbean ICT Policies	http://www.ctu.int/ctu/
CARICAD	A CARICOM agency that has the responsibility for the modernizing the public sector of Caribbean states.	-Caribbean Child Support Initiative -Caribbean Single Market and Economy -E-Government	http://www.caricad.net/
CKLN	A regional mechanism established by CARICOM to encourage the use of ICT in education towards enhancing the global competitiveness of countries in the region	C@ribNET	http://www.ckln.org/
CANTO	A Caribbean trade association of telecommunications organizations. The full members are telecommunications companies operating in the Caribbean. Its affiliate membership is global.	Connect the Caribbean	http://www.canto.co.cu/
CARDICIS	Provide a forum for civil society to consider the role and impact of ICTs on issues of cultural and linguistic diversity		http://www.cardicis.org/index.php?lan=en
CARISNET and Caribbean ICT Virtual community (CIVIC)	A virtual forum of ICT stakeholders and enthusiast. Part of its goal is to help to build a common vision for ICT in the region and promote the region agenda and strategy.		http://carisnet.org/civic/

Source: Compiled by researcher, March 2009.

2. Research and development (eLAC2010, 64 and 76)

Research and development is one critical element in efforts to build capacity in ICT. Currently there are no research-based networks in the Caribbean. The Caribbean Knowledge Learning Network (CKLN), through its C@ribNET project, plans to implement a subregional network. When completed it is expected that it will provide access to research networks. The current plan envisions a phased implementation process.

ICT policy research on specific themes has been facilitated by various international, subregional and national agencies and institutions. Some of these institutions and initiatives include:

a. ECLAC

b. Regional Dialogue on the Information Society (DIRSI)

c. Caribbean Communications Policy Forum (CCPF)

d. Caribbean Institute of Mass Communications (CARIMAC)

e. Caribbean Development Bank (CDB)

f. UWI Masters in Regulations Programme (MRP) and Telecommunications Reform Programme (TRP)

g. National regulatory agencies

3. ICT indicators (eLAC2010, 66 and 67)

Within the Caribbean, there is generally very limited availability of statistics on the performance of the ICT sector. In particular, measurements on usage and impact are very scarce. In the subregion, statistical expertise is primarily found in the Central Statistical Offices (CSOs) of individual countries. Traditionally, their role has been more focused on providing data for national censuses and economic and financial indicators for the traditional economic sectors. Generally, the monitoring of the development of the ICT sector (traditionally telecommunications sector) is the purview of either the ministry with responsibility for ICT issues or the National Regulatory Agencies (NRAs). Generally, there is little or no formal mechanism in place to facilitate ongoing coordination between the CSOs and the agencies responsible for the development and implementation of ICT policies.[15]

ECLAC, in collaboration with ITU and the United Nations Conference on Trade and Development (UNCTAD), with support from the Government of Trinidad and Tobago held a training course on Measuring ICT Access and Use in Households and Businesses, in Port of Spain, Trinidad and Tobago, 26 to 30 January 2009. There were a total of 29 delegates from 13 Caribbean countries. Sixty eight per cent of the delegates were from the CSOs of the countries represented and 32% were primarily from agencies involved in ICT policy implementation. The main objective was to build capacity in measuring and monitoring ICT access, use and impact. The focus was on the core list of ICT indicators that comes out of the work of UNCTAD.

The course participants provided some insights into what respective countries are doing and plan to do to measure the development of the information society.

Anguilla - Currently a few ICT-related questions are included on existing survey questionnaires such as the population census. A 2010/2011 population census will be done. Efforts will be made to include more questions to collect household ICT statistics. A business survey is also done annually.

Antigua and Barbuda - In 2008 the Antigua and Barbuda Household ICT survey and Antigua and Barbuda E-Readiness Business survey were completed. Both surveys were informed by the work of the Partnership[16] on Measuring ICT for Development. The results from these surveys were referenced in earlier sections of this report.

Barbados – In 2004, an ICT Indicators Study was conducted to provide baseline measurements of ICT access and usage. The results are documented in the report "Barbados Information and Technology Indicators Survey".

Dominica – Two household surveys, Household Budget Survey and Survey of Living Conditions, will be done in 2009. Business surveys are planned for 2009 and 2010. The Population and Housing Census is scheduled for 2010. The Central Statistical Office is looking forward to including ICT-related questions in upcoming surveys. This timely training will provide some guidelines in future efforts to measure access to and use of ICTs.

Curacao – The statistical office plans to include questions to cover the core ICT indicators on an existing survey instrument. This will likely be done through add-on questions in the Business and Labour Force surveys in 2009. ICT-related questions will also be included in a future population census.

Grenada – A labour force survey is planned for 2009 and a population census for 2010. There are plans to include questions on ICT in these surveys.

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[15] For example, of the 13 countries (Antigua and Barbuda, Anguilla, Barbados, Cayman Islands, Curacao, Dominica, Grenada, Guyana, Jamaica, St Kitts and Nevis, St. Vincent and the Grenadines, Trinidad and Tobago, Suriname) that participated in the Statistics Training Course put on by UN ECLAC, in Trinidad and Tobago in January 2009, none indicated the existence of institutional mechanisms to allow for coordination between ICT policy units and the statistical offices.

[16] This is a consortium of United Nations and other development agencies. Agencies included are International Telecommunication Union (ITU), Organization for Economic Co-Operation and Development (OECD), United Nations Conference on Trade and Development (UNCTAD), United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics, UN ICT Task Force, The World Bank, UN Economic Commission for Africa (ECA), UN Economic Commission for Latin America and the Caribbean (ECLAC), UN Economic and Social Commission for Asia and the Pacific (ESCAP), UN Economic and Social Commission for Western Asia (ESCWA), and EUROSTAT.

Guyana – In previous surveys (Population and Housing Census 2002, Household Budget Survey 2005/6) questions were included to measure household access to some ICTs. Going forward, Guyana plans to do a stand-alone survey to focus on measuring ICTs. This will be informed by the work of CARICOM ICT Sub-Committee on Statistics.

Jamaica – The Statistical Institute of Jamaica (STATIN) currently collects data on access to selected ICTs as part of the annual Survey of Living Conditions. Questions to capture information for selected core indicators have been incorporated into the STATIN 2009/2010 work plan.

Saint Kitts and Nevis - In 2010 Saint Kitts and Nevis will conduct a population census and plans to conduct a stand-alone survey to collect ICT statistics, sometime after the census.

Saint Vincent and the Grenadines - In 2010 Saint Vincent and the Grenadines will conduct a population census and plans to include questions of household ICT statistics in that survey.

Suriname – The statistical agency conducts household surveys quarterly. Some ICT questions relating to access to ICTs (fixed phone, mobile phone, transmitter[17] phone, radio, television, computer, internet and cable TV) are included. An establishment census was conducted in 2007. Respondents were asked to include information on telephone numbers, fax numbers, email addresses and website information. The agency will be exploring the possibility of including other questions on ICT in future surveys.

Trinidad and Tobago - The 2000 Census had some basic questions on access to ICTs. Some questions on basic ICT access measurements were also included in previous surveys e.g. Labour Force Survey and Survey of Living Conditions. In 2007, the Telecommunications Authority of Trinidad and Tobago (TATT) conducted a digital divide survey to inform the implementation of its universal access plan. There is very little collaboration among the agencies dealing with ICT statistics. There is some commitment to improve the level of collaboration and to take on board the lessons from the course.

In addition to the national activities at the regional level a CARICOM ICT Sub-Committee on Statistics was established in October 2007. The sub-committee has issued a document "Themes and Issues / Concerns, and Indicators Relative to ICT Data Collection."

Out of the training session there was consensus that the subregion needs to make significant improvements to get to the stage of effectively measuring not only ICT access, but usage and impact. A number of challenges were identified:

a. The need for training and capacity-building

b. More structured coordination between policy units and statistical offices. (This could assist with capacity-building capacity, allow for more reliability and continuity in ICT measurements.)

c. Outsourcing of ICT statistical measurements to private consultants have sometimes led to issues of quality control, lack of continuity in measurements. Results are sometimes unreliable. Outsourcing also does not promote capacity-building.

There was general agreement that at the national and subregional levels, institutional frameworks should be put in place to facilitate the cooperation and collaboration between policy makers and statisticians to facilitate more effective and sustainable measuring of the access, use and impact of ICTs on Caribbean economies. Countries should also consider using the core list of ICT indicators which are developed by the Partnership on Measuring ICT for Development. This would shorten the learning curve. Countries would also have access to resources, such as sample survey questionnaires. This would also increase the international comparability of the measures from Caribbean countries.

[17] This is the service provided for the people who live in the interior of the country.

4. Spectrum management (eLAC2010, 71)

The Caribbean Spectrum Management Project was initiated in 2004. The project is coordinated by CTU. One of the primary objectives of the project is to develop harmonized policies for the management and administration of radio spectrum in the Caribbean. Achieve to date include:

a. Training - between 2005 and 2007 there were six training events offering training to over 280 individuals

b. Field audits were conducted between September to October 2006

c. Data collection and analysis completed in September 2006

d. Meetings and consultations – from 2007 to 2008 a total of eight meetings were convened. This included task force and steering committee meetings plus an online forum

e. A policy document was completed and subsequently adopted by the CTU General Conference of Ministers in October 2007

f. For spectrum allocation agreement has been reached to use the ITU Region 2 Table of Allocations. This approach minimizes the deviations for all concerned.

An implementation plan for the policy framework is being documented to achieve the short-term targets of the policy framework, such as harmonized approaches to spectrum management for wireless broadband and digital broadcasting services. The continuing development of an indicative table of spectrum allocations for the Caribbean will take account of amendments made at the World Radiocommunication Conference in November 2007 (WRC-07).

The work will continue through perpetuation of the Caribbean Spectrum Management Task Force.

5. eCommerce (eLAC2010, 75)

Caribbean governments embrace the view that wide availability of electronic commerce in all sectors of the economy will improve competitiveness and spur economic growth. In this regard, it is fair to say that governments see their role as ensuring that the appropriate legislative framework is in place to support this thrust. As indicated earlier, the Bahamas, Barbados, Belize and Jamaica have enacted electronic transactions laws.

Several Caribbean countries have or are looking to institute other laws (Electronic Evidence and Computer Crimes) that will facilitate the growth of electronic commerce. In 2003 the government issued an ecommerce policy document and has been a leader in this area.

6. Regulatory harmonisation (eLAC2010, 78)

Harmonized ICT policies in the Caribbean subregion are necessary if the subregion is to reap the benefits of social cohesion and subregional competitiveness that ICTs can deliver. The subregion is set to benefit from the ITU/European Commission (EC) project which is aimed at harmonizing ICT policies, legislations and regulatory procedures throughout the region.

The project is expected to take place in two phases:

a. Phase 1 - The Regional Development Phase involves the preparation of proposals for guidelines on regional policies, legislations and regulatory best practices

b. Phase 2 – The Implementation Phase, where individual countries are expected to include/adapt the policies, legislations and regulatory practices to their respective jurisdictions.

The project is currently at the Regional Development Phase. Two planning meetings have been convened to date. The first was convened in December 2008 and the second in March 2009. The plan of action coming out of the second meeting, outlining activities planned for the next several months is annexed to this report.

7. Follow up on summits (eLAC2010, 72, 80 and 81)

This report forms part of the activities being undertaken by ECLAC through its Subregional Headquarters in Port of Spain, Trinidad and Tobago, to follow up on the strides the countries in this subregion are making in taking forward the WSIS Plan of Action.

In developing ICT plans and strategies, several Caribbean governments and CARICOM have made specific reference to the WSIS principles and plan of action. as being consistent with their egovernment strategies. Additionally, there are other public private partnerships initiatives that are undertaking ICT development projects in support of the WSIS 2015 global connectivity target. Table 12 lists some of these initiatives.

TABLE 12
ICT PUBLIC PRIVATE PARTNERSHIP INITIATIVES

Agency	Initiative	Goal
Caribbean Association of National Telecommunications Organizations (CANTO)	Connect the Caribbean[a]	To mobilize resources in support of ICT development towards achieving regional connectivity targets in 2015.
Commonwealth Secretariat	Commonwealth Connects[b]	To tap into available resources in an attempt to bring about change and mitigate trends in digital fragmentation.

Source: Compiled by Researcher, March 2009.
[a] http://www.canto.org/24agm/ctc/index.html
[b] http://www.commonwealthconnects.net/comcon/Default.aspx?tabid=36

While a number of initiatives seek to take forward the WSIS principles and Plan of Action they encounter various challenges in moving from dialogue to implementation.

TABLE 13
LIST CARIBBEAN COUNTRIES THAT HAVE RATIFIED THE TAMPERE CONVENTION:

Country	Date of Signature	Status
Barbados	July 2003	Ratification / accession
Dominica	December 2000	Ratification / accession
Haiti	February 1999	Signatory
St. Lucia	January 2000	Signatory
St. Vincent and the Grenadines	August 2003	Ratification / accession

Source: http://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&id=482&chapter=25&lang=en

No Caribbean country has ratified or acceded to the Council of Europe Cybercrime Convention and its Additional Protocol.

8. eWaste (eLAC2010, 82)

eWaste is not one of the dominant themes in the ICT policy discussions in the Caribbean. In 2006 there was a meeting in Trinidad and Tobago to discuss the e-waste problem in the Caribbean Subregion. There was a proposal

to form an eWaste Association of the Caribbean. The Trinidad and Tobago Solid Waste Management Company Limited (SWMCOL)[18] was tasked with coming up with some guiding principles for ewaste management.

9. Access to public information and the development of digital content (eLAC2010, 83 and 77)

Providing the public with online access to public information is a very direct way of improving government transparency. To facilitate this, appropriate legislative framework needs to be in place. Several Caribbean countries have laws in place relating to freedom of information.

TABLE 14
FREEDOM OF INFORMATION

Country	Freedom of Information Legislation[a]	Year Enacted
Antigua and Barbuda	Freedom of Information Act	2004
Belize	Freedom of Information Act	1994
Jamaica	Access To Information Act	2002
Trinidad and Tobago	Freedom of Information Act	2001

Source: Compiled by Researcher, March 2009.
[a] http://www.freedominfo.org/ and government websites.

Copies of the laws are available online. The Jamaican Act provides for requests for access to information to be made "in writing or transmitted by telephone or some other electronic means".

A number of other countries (Guyana and Cayman Islands) are taking steps to enact freedom of information legislation. The steps to create the enabling environment are moving in the right direction. However more needs to be done to transition from legislation to meaningful access to information in order to impact governance. The challenges to expanding online access to information by citizens are multi-faceted:

a. Access to internet and computers
b. Literacy skills
c. ICT literacy skills
d. Citizens awareness of the legal provisions

In terms of digital content, this target seeks to stimulate the development of digital content using various media and promoting interoperability across the subregion. Content could cover a variety of disciplines and/or areas of human interests, for example, educational, research and development, and cultural. Across the subregion libraries tend to be at the forefront in using digital media to provide access to information.

[18] http://www.swmcol.co.tt/documents/eWasteThu.htm

TABLE 15
EXAMPLES OF DIGITAL CONTENT IN LIBRARIES IN THE CARIBBEAN

Library	Digital Content
Trinidad and Tobago, National Library and Information Systems Authority http://www2.nalis.gov.tt/	Online exhibition Digital library of historical and cultural events Special collections
Jamaica, National Library of Jamaica http://www.nlj.org.jm/	Digital collection (digital images of people places and products of Jamaica. Digitized collection of books, newspapers and other documents on historical events in Jamaica
Digital Library of the Caribbean (dLOC) http://www.dloc.com/	A cooperative digital library of Caribbean resources. dLOC provides access to digitized information on cultural and historic material on the Caribbean, held in libraries and other collections.

Source: Compiled by Researcher, March 2009.

Most of the national libraries in the Caribbean have websites. The sites are primarily used to provide information. However, it is recognized that this resource provides a significant opportunity to create and preserve local content (e.g. information on historical and cultural events) and making this available to the global community. Some challenges in this endeavour include:

a. Insufficient ICT infrastructure

b. Financial constraints

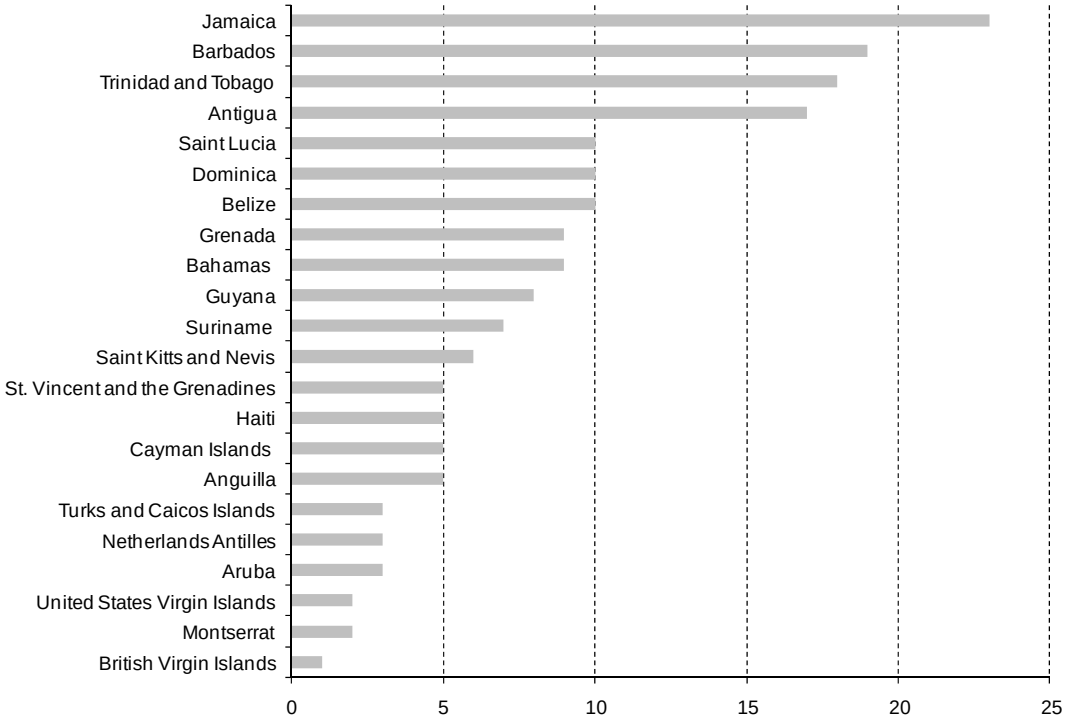
c. Technical expertise

d. Willingness to embrace the new paradigm

VIII. Concluding comments

Figure 18 shows the number of quantitative and qualitative measures that have been identified for each of the countries covered in this report.

FIGURE 18
NUMBER OF QUANTITATIVE AND QUALITATIVE MEASURES BY COUNTRY



Source: Compiled by researcher, April 2009.

This is not an exhaustive inventory of Caribbean ICT measurements and initiatives. It merely reflects an aggregate view at the country level, of the number of measurements and initiatives included in this report. Information was included based solely on availability and accessibility. Nevertheless, even the disparity in the availability of the information is indicative of the fact that the pace of ICT development varies from country to country.

In general, the availability of ICT measurements to effectively monitor the progress of development in the subregion is a major challenge. To address this, governments need to ensure that systems for monitoring and measuring are included as part their national ICT plans and strategies.

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X. Annex

Annex 1

Short-term Actions for HIPCAR Project

(Extracted from: Meeting Report First Steering Committee Meeting for the HIPCAR Project)

TABLE A-1
BY ITU

Action	Estimated completion date
1. Modification of the Project's macro plan, including budget allocations, timelines and deliverables	23.03.2009
2. Information sharing with the Steering Committee on additional details on the project budget	23.03.2009
3. Finalization and dispatch of the first Steering Committee Meeting Report and related documentation	16.03.2009
4. Preparation of terms of reference for working groups and related experts, if necessary	23.03.2009
5. Invitation to beneficiary countries to designate a country focal point	23.03.2009

TABLE A-2
BY STEERING COMMITTEE MEMBERS

Organization(s) / Action	Estimated completion date
1. CARICOM: Information sharing with HIPCAR Steering Committee on the results of the CARICOM Regional ICT Steering Committee Meeting (Grenada, 3-4 March 2009)	03.04.2009
2. CARICOM: Information sharing with HIPCAR Steering Committee on the results of the 4th CARICOM Ministerial Meeting (Guyana, 17-21 May 2009)	12.06.2009
3. CARICOM: Information sharing with HIPCAR Steering Committee on the desk review of action plans of regional initiatives related to climate change, Impacts, CARICAD, etc.	Sept. 2009
4. CARICOM: Identification of a youth ambassador for the Steering Committee	31.03.2009
5. CTU: Advice and guidance to the HIPCAR Project Team	Ongoing
6. ECTEL: Proposal of terms of reference related to Universal Service Framework	13.03.2009
7. CIVIC: Proposal of terms of reference related to Licensing	13.03.2009
8. RMO EU SFA 2005: Proposal of terms of reference related to eGovernment and ICT Legislative Framework - Information Society Issues	13.03.2009
9. Situational Assessment	01.04.2009