# Information Communication Technologies in CARIFORUM States
# An Assistance Roadmap

***Report on the Caribbean Export Working Group of ICT Experts***
***Fort De France, Martinique***
***June 18, 2007***

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***June 30, 2007***

CARIBBEAN EXPORT

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## 1.0 BACKGROUND

The potential for ICT to promote economic development is receiving increasing recognition and attention from CARIFORUM countries. As Transnational Corporations look towards building truly global networks and outsourcing information and processing services to lower cost, the Caribbean has emerged as a potential area for outsourced operations, possessing many of the key incentives for investment. The scope and application of ICTs however are very broad and much of the discussion so far has focused on the role of ICTs as an enabler to the competitiveness of other productive sectors, particularly the services sector, and as an instrument of social and economic change at all levels of society.

"The services for hire by the computer software and services market can be said to form a continuum, the exploitation of which depends significantly on skill level and access to technology. At the low end of the continuum are simple data entry functions e.g., processing magazine subscriptions or credit card applications. At the high end, significant judgment, knowledge and technology may be required as software customisation or package and product development may be the task at hand. In between, there are various tasks that require various levels of judgment, knowledge and technology. While the market for computer software and services can be segmented in several ways it is underscored by one key fact, all information processing services increase in value as incremental skills and technology are added to labour."[1]

Many of the countries in CARIFORUM have identified ICTs as a priority economic sector and given it prominence in their National Export Strategies. However there is very little indication of a strategic approach to the promotion of the export of ICT Services at either the national or regional levels. The region is yet to identify common areas of priority focus/or comparative advantage/s at the sub-sector level. Further, the inconsistencies in labor cost and telecommunications infrastructures throughout the region affect service delivery and make it difficult to position the Caribbean to strategically exploit the opportunities which exist in this export sector.

As the region's export promotion organization, a large part of its mandate is to strengthen local economies through increased trade, including trade in services. To this end the organization recently partnered with the Commonwealth Secretariat to develop Strategic Marketing Plans for four Caribbean countries[2] to promote professional service exports including ICTs. These plans are intended to perform as a template for other countries to develop their own strategic plans in areas relevant to them.

To further refine the development trajectory for ICTs, the organization wanted to identify the specific barriers to exports in order to design programs for technical assistance which are relevant and will positively impact the export ability across the entire ICT services continuum, but specifically at the higher levels of the services value chain. As a result in June of 2007, Caribbean Export through its Caribbean Trade Private Sector Development Program organized a working group of ICT leaders and experts from throughout the region to discuss the issue, establish the gaps and develop areas for technical interventions. To assist with this effort, the agency contracted Launchpad Consulting, a private services consulting firm located in Belize, to co-facilitate the meeting and develop the report for use by the agency.

## 2.0 OBJECTIVES

- Prepare an overview of the current state of the ICT Sector in the CARIFORUM region for presentation at a meeting based on the existing body of work on ICT.
- Co facilitate the meeting – guide and participate in discussions with a view towards gathering information on the ICT Sector;

[1] Cleland, Celene, Gomez, David, Prospects for Export of ICT from the Caribbean, Trade and Investment Issues, prepared or the Regional Negotiating Machinery, April 2003

[2] St. Lucia, Dominica, Trinidad and Tobago and Barbados

- Participate in the Novatech MadinTech international conference, representing the interests of Caribbean Export in terms of networking and information gathering;

- Prepare a report of the recommendations which comes out of the meeting in the form of a draft road map for decision makers in agencies like Caribbean Export who have interest in supporting the development of ICT businesses in the CARIFORUM region.

## 3.0 THE APPROACH

The gathering of the region's ICT experts for the occasion of the NovaTech/MadinTech Forum, 2007, held in Martinique in June 2007 provided the perfect opportunity for the experts, some of whom were participants or presenters at the Conference and seeking business opportunities, to discuss the common issues and challenges that affect the region. The MadinTech event is Martinique's spin on NovaTech, an international industry forum for (ICTs) and a trade fair to broker buyer/seller relationships and firm affiliations. The first two days of the session are structured to accommodate the exhibitors but are primarily focused on the forums and information sessions. The third day is arranged to facilitate business meetings and conclude partnership discussions. This year the event was held on June 19, 20 and 21.

Caribbean Export ensured that invitations were extended to participants who were considered regional or national leaders in the ICT sector and thus best suited to support the objectives of the meeting (for a complete listing of the working group participants please see Annex 1).

The meeting was held at the Chambre De Commerce in Fort de France, Martinique on Monday, June 18, 2007, from 10:30 am – 7:00pm. Each participant was asked to provide a broad overview of the main characteristics of the sector in their respective states, including but not limited to the structure and organizational context, policy and related issues, opportunities and challenges in the sector. To focus the discussion on the export context, the consultant provided an overview of the global ICT sector and based on prior research identified the challenges in the region generally and as it relates to investment and export, specifically. Thereafter the discussions were focused to respond to the following key questions:

1. The level of interest in and common challenges to the export of ICTs;
2. Specific areas of collaboration;
3. Specific areas where technical interventions were likely to be most impactful;
4. Specific commitments and action items in taking the process forward.

To ensure the report had the benefit of the most relevant and current information on the state of the sector (including the most recent innovation initiatives) and to exploit further opportunities for networking with the region's ICT experts, the consultant also attended the MadinTech Conference on behalf of Caribbean Export. Finally, other available studies and reports on the development of ICTs in the region were consulted to ensure the recommendations and proposed interventions had the benefit of the prevailing wisdom and were appropriately prioritized.

## 4.0 THE STATE OF ICTS IN THE REGION

As Khelladi pointed out in his presentation in Martinique[3] there are currently many studies on the subject of ICTs in the CARICOM/CARIFORUM context. ICTs in the region have been studied from several perspectives including trade and investment issues across the services continuum and telecommunications specifically. This section draws on the existing studies and in particular the papers by Cleland, Gomez and Stern and the presentation by Khelladi to construct a broad but relevant overview of the sector. A synopsis of the main points in this section, in the form of an overview matrix, can be harvested from Annex II.

In addition to the regional overview, the country presentations by the working group participants are provided in Annex III. These are intended to augment the regional assessment and to provide the

[3] Yacine Khelladi CDE Consultant and a respected expert in the subject, presented on the State of Play of ICTs in the region on June 19, 2007. Entitled "Building the Caribbean ICT Sector" it provided the most recent assessment of the region's activities in ICTs. Mr. Khelladi was kind enough to provide his presentation to this work.

most up to date information on the state of the local sectors. In digesting the country reports, it is important to note that the presenters were not provided with specific presentation parameters prior to the working group activity and thus the content of the presentations and discussion issues were not consistent across countries. In addition the information is reported as presented and in some instances the submissions do not represent a complete catalogue of the initiatives and movement in each issue area. However, the outcomes of the working group were not impacted to any great extent by these inconsistencies since the gaps, where relevant to the discussion on intervention strategies were either provided by the regional summary or by the participants in the discussion portion of the working group activities. Together these provide the context for the discussions in Martinique and the rationale for the outcomes from the session.

### 4.1. General Regional Characteristics

The geographic area typically referred to as the Caribbean is comprised of approximately twenty-five islands and mainland countries situated in and around the Caribbean Sea. However this work focuses mainly on the ICT sectors in the CARIFORUM (Caribbean Forum of ACP States) which include the countries in the Caribbean Community or CARICOM plus the Dominican Republic (DR)[4]. These countries together account for a market size of roughly twenty-four million, just over fifteen million from the countries of CARICOM as well as nine plus million from the DR.

Although the majority of these countries share a common history as former colonies of the British Empire[5], within the regional grouping these is significant diversity. The countries are at different levels on the development continuum. Within its own regional concentration, Barbados, Guyana, Jamaica, Suriname and Trinidad and Tobago are considered the more developed countries (MDCs) while Belize and the OECS countries are considered less developed or LDCs.[6] In terms of market size, Haiti and the DR account for the largest at just over seventeen million people while Montserrat and St. Kitts and Nevis together account for less than fifty thousand individuals. There are three main languages (French, Spanish and English), a number of dialects, different legal systems and different historical underpinnings. Although all the economies also possess highly concentrated production structures, their engine sectors are different. For example oil and natural gas drives Trinidad and Tobago's economy, Belize's economy is mostly dependent on agriculture sectors and in Barbados and some of the OECS countries, tourism services contribute significantly to Gross Domestic Product.

### 4.2. Legal Framework

According to all sources, there is a general need for a review if not an overhaul of the legislative framework pertaining to ICTs in the region. When compared to the enabling legislative framework in other regions more advanced in the use of ICTs, the Caribbean is shown to have significant gaps. According to Cleland, Gomez, the region is generally characterized by weak regulatory strategies and inconsistent policy approaches. According to Khelladi, there is only one jurisdiction which seems to have the complete set and a few have inhibiting, obsolete legislation. The gaps appear in areas such as:

- Telecoms standards
- E-commerce
- Enabling Tax Treatment for inputs
- Enabling investment legislation
- Intellectual Property
- Competition Policy
- Encryption
- Security of Payment
- Certification and authentication of buyers
- Digital Signatures
- Data Protection
- Privacy Protection
- Regulation of newer technologies (VOIP, WIFI, WIMAX);

### 4.3. Institutional Framework

To quote Peter Stern, "It must be said that the overall structure governing telecommunications and ICTs in the CARICOM region is, at best, dysfunctional. At worse, it seems to have been deliberately designed to

[4] The CARIFORUM grouping does not include Montserrat which is a part of the CARICOM grouping.
[5] The DR (Spanish) and Haiti (French) are the two countries in the grouping with divergent histories.
[6] Revised Treaty of Chaguaramas, Article 4. Outside the grouping, Haiti is the only country recognized as an LDC.

frustrate any effort to create a genuine regional telecommunications and ICT sector from its many disparate national and regional elements. In reality, there is a mix of national and regional departments, organs, bodies, groupings, committees, policies, agendas, strategies, laws and regulations that do little to help the cause of regional integration in these sectors so critical to economic growth and social development."[7] The main elements of the ICT institutional structure are discussed briefly below.

Information Society Initiatives

- The CARICOM/CARIFORUM Information Steering Committee – Inaugurated in May 2007 to support the development of the Caribbean Society (CARIB-IS) and is intended to serve as an advisory body to the CARICOM secretariat.

- CARICOM Connectivity Agenda and Platform for Action - A detailed framework for the process of ICT development in the Region in the short, medium and long term, coordinated by the CARICOM secretariat for the following outcomes:

    - Solidly support, to what extent possible, national, sub regional and regional ICT efforts to strengthen connectivity and minimize the digital divide;

    - Work with relevant indigenous institutions and agencies that are engaged in the various strands of ICT Policy development in the Region to ensure viable positions in the area and the roll out of implementation;

    - Participate in regional and international activities on behalf of the Caribbean Community, e.g. in the hemispheric process under CITEL, the EU-LAC programme under @lis and the WSIS Task Force as set up by the United Nations Secretary General and where appropriate, coordinate regional positions in external fora;

    - In the name of the Secretary General, prepare submissions and report on major ICT developments, impacting on the Community, to the appropriate organs of the Caribbean Community and ultimately to the CARICOM Conference of Heads of Government;

    - Work with other countries, regional and international institutions and agencies for effective implementation of the regional policy on ICT and facilitate appropriate channels for feedback to guide further decision making and action

- Plan of Action for the Information Society in Latin America and the Caribbean (eLAC 2007) – An agreement among the countries in the Latin America and Caribbean region to encourage and use ICTs to promote growth, equity and democracy. The agreement was inspired by the World Summit for the Information Society and involves thirty goals and seventy concrete initiatives captured under several key areas including: access and digital inclusion, capacity building and knowledge creation, public transparency and efficiency and policy instruments.

Telecoms

- Caribbean Association of Telecoms Organizations (CANTO) – a regional association for telecoms operators

[7] Stern, Peter, Assessment of The Telecommunication Services Sector in CARICOM: Convergence Issues at the Regional and International Level, CRN, June 2006, pg. 55

whose mandate is to provide leadership in influencing policy, expertise in all aspects of the industry and to encourage dialogue and meaningful collaborative enterprise among its members.

Regulation, Standards, Quality

- Organization of Caribbean Utility Regulators (OCCUR) – Established to assist in the improvement of utility regulation through research, training and development and institutional strengthening of member organizations;

- Caribbean Telecommunication Union – Established by the heads of government of CARICOM to oversee issues related to institutional strengthening, harmonization of laws and regulations, quality and standards recognition and to encourage technology transfer;

- Eastern Caribbean Telecommunications Authority – Created to promote open competition in telecoms, harmonized policies, universal service and fair pricing among the OECS countries; Though ECTEL exists, there still are individual National Telecommunications Regulatory Commissions (NTRCs) in each of the five states who retain ultimate authority for final decision making on matters related to telecommunications administration.

- CARICOM Regional Organization for Standards and Quality – Established to promote efficiency and competitive production in trade and services (including telecommunications) through the process of standardization and the verification of quality.

Despite the institutional support at the regional level, it is important to note that telecommunications are not yet part of the formal liberalization process under the CSME. This is significant, especially since most CARICOM member states have unilaterally opened, and are continuing to open their markets to foreign suppliers. Liberalisation here could positively impact the region's attempt at harmonization of policies and standards as well as the adaptability and compatibility of telecommunications systems.

Internet Network Governance

- Internet Cooperation for Assigned Names and Numbers (ICANN) – The international organization responsible for the management and oversight of the coordination of the internet domain name system and its identifiers.

- Latin America and Caribbean Internet Address Registry (LACNIC) – administrates the Internet numbering resources in the region and supports its constituent community in quality and standards issues, capacity building and cooperation.

- Working Group on Internet Governance (WGIG) - Supports an ongoing dialogue at the multilateral level about internet related issues such as management of Internet resources, network security, cyber-crime, spam and the like.

National Initiatives

At the national level the situation is not encouraging. Although many jurisdictions have declared ICTs to be a priority, seeking to use it to connect its citizens for education, commerce, health and cultural development, across the region, states with National ICT strategies, action plans and organized, active implementation units are in the minority[8]. In addition only the more developed jurisdictions have an organized private sector, although in many cases these are considered to be capacity and resource deficient (see working group reports – annex III).

The result is that the robust public/private partnership that is considered critical to the adoption and promotion of ICTs, is by all accounts lacking in the Caribbean. For the region this means that there is generally a high degree of inconsistency between the plans and commitments made by governments at the regional level, and industry practices on the ground in member states. For the private sector the result is less involvement in regional and multilateral

[8] Trinidad and Tobago presented its Strategy in 2003, Barbados completed its plan in 2005, and a few OECS countries have strategies.

conversations (whether trade or specific to ICT such as internet management) and diminished capacity to promote its collective interests within and outside the region.

### 4.4. Access Characteristics and Technologies

According to Stern, "the Caribbean possesses relatively sound infrastructure, but it is unevenly distributed and expensive to use. In the 15 CARICOM member states, main line telephone penetration, an index often used to measure the state of development of telecommunications infrastructures, varies between about 60% in St. Kitts & Nevis and 1.7 % in Haiti. Similarly, there is a wide disparity in the penetration rates for cellular mobile and Internet usage."[9] At the end of 2005, average main line penetration rates for the region were recorded at just over 10%, compared to 60% in the North. Table 1 is a reproduction of the table originally created by Peter Stern in his 2006 RNM report and represents the penetration rates by country at the end of 2005 (see pg. 9).

Exacerbating the infrastructure issues are those problems associated with "defacto" monopolies and regulatory capacity. In spite of market liberalization in most CARICOM member states, one operator continues to dominate the local fixed access market. This leads to a number of supply distortions and anti-competitive practices which Stern points out are hardly unique to the region. These include:

- Subsidising competitive services such as Internet access and other value added services with revenues from services not subject to competition;
- Overcharging for capacity on domestic and international fibre optic cable and satellite systems where it continues to control access;
- Refusing to allow access to facilities such as cable landing stations, gateways and towers even though this may be required by law;
- Refusing to negotiate and otherwise delaying decisions and actions preventing new entrants from interconnecting and beginning to offer a competitive service.
- Overcharging for telephone lines and 1-800 numbers which competing ISPs need to offer dial-up internet access services.

According to Stern "these and other similar practices are especially challenging for the newly established and under resourced regulators in the Caribbean who must confront incumbents such as Cable & Wireless and large new entrants such as Digicel who have resources and can draw upon experts from across the world."[10]

[9] Stern, Peter, Assessment of the Telecommunication Services Sector in CARICOM: Convergence issues at the Regional and International Levels, CRNM, Pg. 9

[10] Stern, pg. 46.

**Table 1:** *Mobile Telephone Penetration and Internet Access in CARICOM (2005 unless otherwise indicated)*

* 2002    ** 2003    *** 2004

| CARICOM Member State | Population | per capita GDP | Main Lines/100 | Mobile phones/100 | Internet Users/100 |
|---|---|---|---|---|---|
| Antigua and Barbuda | 81,479 | $9,028 * | 47.2 *** | 67.1 *** | 35.6 |
| Bahamas | 323,063 | $15,535 * | 43.9 *** | 58.4 *** | 31.9 |
| Barbados | 269,000 | $9,659 * | 50.1 | 76.7 | 59.5 |
| Belize | 270,000 | $3,968 *** | 12.3 | 34.5 | 14.1 |
| Dominica | 71,300 | $3,669 ** | 29.4 *** | 58.7 *** | 28.8 *** |
| Grenada | 102,924 | $4,310 ** | 32.0 *** | 42.4 *** | 18.6 ** |
| Guyana | 751,218 | $1,051 *** | 14.7 | 37.5 | 21.3 |
| Haiti | 8,528,000 | $445 *** | 1.7 *** | 4.9 *** | 7.0 |
| Jamaica | 2,651,000 | $3,084 ** | 12.9 | 101.8 | 39.9 *** |
| Montserrat | 42,696 | $3,400 * | | | .. |
| Saint Kitts and Nevis | 42,696 | $9,574 *** | 59.3 *** | 23.7 *** | 24.3 * |
| Saint Lucia | 160,765 | $4,719 *** | 33.0 *** | 58.3 *** | 34.5 *** |
| St. Vincent and the Grenadines | 119,000 | $3,162 ** | 18.9 | 59.3 | 8.4 |
| Suriname | 449,238 | $2,228 ** | 18.0 | 51.8 | 7.1 |
| Trinidad and Tobago | 1,306,000 | $8,729 *** | 24.8 | 61.3 | 12.2 |
| **Total** | **15,168,379** | | | | |
| **Average** | | | **10.1** | **35.0** | |

Source: ITU WTI 2006

*Courtesy Peter Stern*

As the platform for the delivery of voice, data and video communications, the access issues associated with the telecoms infrastructure coupled with the high costs of related equipment (hardware and software) significantly impact technology adoption rates, and the creation of new services in the sector. For example Khelladi asserts that although telecenters and cyber cafes are growing there are still large areas that are not served and generally the region continues to lag behind other regions in technology adoption rates, innovation and new product development. "ICTs have had little impact on the majority of the region's population and use is reserved mostly for chat, purchases and email transactions. E-governance use is "embryonic", e-health is "experimental" and e-commerce is "insignificant", due mostly to little adoption and use by SMEs. E-education is growing due mostly to efforts by the University of the West Indies but the education system itself is in need of an entire overhaul."[11]

### 4.5. Industry Characteristics

The region's ICT industry is currently charaterised by a prevalence of services at the lower end of the ICT services continuum. The industry is dominated by call centers and business process outsourcing operations (BPOs), installation and maintenance activities, and some software resellers. Higher end services such as solution services and innovations, while they do exist, are less frequent.

One reason for this is that at the private sector level there is more of a focus on delivering what sells right now. Khelladi terms this the "we need to eat" voices, meaning practitioners prefer to focus on delivery of services that will provide them with an acceptable yield in the shorter term, as opposed to a concentration on the more risky and longer term returns associated with innovation and new product development.

The lack of sufficient capacity to provide services across the entire services continuum but especially at the higher end is also a contributing factor.

[11] Khelladi presentation Martinique, June 19th.

Indeed Khelladi asserts that there is generally not enough capacity across the region to develop, design and implement ICT4D[12]. The experts agree that this is because training initiatives and formal education systems are either incompatible with ICT development policies and/or offer skill training that is more suitable to deployment at the lower end of the continuum. Exacerbating the situation is that those who have skills to supply the higher end services are usually lost to larger, more progressive markets.

### 4.6. International Trade and Investment Issues

An exhaustive review of the trading environment which impacts the ICT sector is beyond the scope of this exercise and is commonly available from other sources (see Cleland, Gomez, Stern RNM papers). This section assumes a familiarity with the trading context and discusses the gaps as it relates to the General Agreement on Services (GATS) which establishes a multilateral framework of principles and rules for trade in services with a view to the expansion of such trade under conditions of transparency and progressive liberalization, the Basic telecommunication Agreement (BTA) and the Information Technology Agreement (ITA), which encourage progressive levels of liberalization of telecommunication and computer markets, which in turn significantly influences the ability to effectively engage ICTs and finally the ongoing Economic Partnership Agreement negotiations between the European Union and the regions of the ACP (EPAs)

GATS Related Issues

- Less than half (six) of the fourteen member states made commitments under the Business Services Sector, for a total of 15 Computer and Related Services sub-sector commitments;
- ½ of the fourteen member states made commitments under the Communication services sector for a total of eight telecommunication sub-sector commitments;
- Financial Sector commitments are limited and apply mostly to reinsurance;
- ½ of CARICOM member states have not scheduled any commitments in sectors critical to ICT, including the delivery of services;

The BTA and CARICOM[13]

- Extremely cautious approach to market access;
- Little or no access to fixed line markets;
- Majority of offers were phased in, some as far as 2013;
- Barriers to trade in telecoms exist in all jurisdictions;

ITA Issues

- No CARICOM member party to the ITA
- Duties and Tax policies contrary to the principles of the ITA in some member states;
- High internal taxes on personal computers, software and parts (VAT, Sales Tax, GST, GCT
- Environmental tax attached in some jurisdictions;

EPA's

- The offers under computer and related equipment are still relatively conservative, although most jurisdictions are willing to liberalize sub-sectors (consultancy hardware and software installation and implementation, data processing services) under mode 3 (commercial presence);
- Despite autonomous liberalization in

[12] ICT for Development – Infrastructure, Capacity Building, digital content and services used either directly or indirectly in the development agenda for a nation state.

[13] It has to be mentioned that although the majority of the CARICOM countries were conservative at the signing of the BTA, by 2005 the majority had undertaken some form of autonomous liberalisation of the sector.

some jurisdictions telecoms market access offers, voice telephone services specifically, are similar to WTO levels (Jamaica/St. Lucia only jurisdictions to liberalize in mode 3). This despite the EC's position to bind in actual market access conditions.

In sum, the region's engagement in the international trade environment in areas related to ICTs have been tentative and conservative, even though there continues to be the view that this sector is central to the region's development. One of the key reasons may be that for many countries the telecoms sector is so central to their control of the national development process that they have been slow in allowing liberalization to proceed and even when they do liberalise, they continue to try to maintain a measure of control[14]. Nevertheless success in ICT services exports will depend to a large extent on the ability of the region to address its considerable supply side constraints including skilled labour and investment (particularly in telecoms). International trade has the potential to positively impact this issue if the region is able to accurately define its priorities, and willing to strategically open its markets to reputable suppliers.

### *4.7. State of ICTs in the Region - Summary and Conclusions*

Experiences in the growth and development of the ICT sector in developed and emerging economies have provided for a widely accepted catalogue of key characteristics and conditions or "Must Haves" for the creation and proliferation of both supply and demand of ICTs. It is useful and instructive to consider the information provided by the regional and national state of play reports within the context of these "must haves", to establish the gaps in building out the region's ICT sector (below).

[14] Stern, pg. 55

**Table 2:** *Summary of the State of ICTs in the Region*

| ***Must Have*** | ***CARIFORUM Conditions*** |
|---|---|
| ***Infrastructure/Connectivity*** *- (Communications and technology network infrastructure with ubiquity of access, capacity and "low" cost)* | • Inconsistent throughout the region<br>• Cost still an issue for most jurisdictions<br>• Ubiquity of access still an issue for most jurisdictions<br>• Cost of hardware and related software high in some jurisdictions due to duties and other internal taxes |
| ***Human Capacity*** *– (A critical mass of knowledge workers (technical, managerial, policy, legal)* | • No jurisdiction reports the critical mass necessary in either the technical, managerial, policy or legal areas necessary for the development of ICTs;<br>• Few jurisdictions making use of Diaspora |
| ***Attendant Policies*** *- (Support of a transparent and inclusive policy process and strengthening institutional capacity to implement and enforce policies)* | • Only the most progressive jurisdictions have strategy and action plans;<br>• Most jurisdictions have not designed a comprehensive, inclusive, institutional structure for policy and administration of ICT related issues;<br>• Institutional Strengthening initiatives required for those with emerging and evolving structures (e.g. in telecoms regulatory agencies, nascent ICT Associations ) |
| ***Attendant Legal/Enterprise Framework*** *(access to financial capital, & access to global and local markets, appropriate tax and IPR regimes, consumer protection, privacy protection. Transparency and predictability of regulatory implementation and rule of law)* | • All jurisdictions lacking in one or more areas here (competition policies, consumer protection, data protection, Intellectual Property, encryption and coding and related policies and legislation)<br>• Very little coordination between investment, tax and fiscal policies and ICT development policies<br>• Access to financial capital an issue in all jurisdictions<br>• No reliable market intelligence on the local market and potential global markets<br>• Not enough of an understanding of the international trade and market access issues |
| ***Culture*** *– Forward looking progressive culture at the level of the policy makers, SME's, educators, citizens and media in opening up access to ICTs;* | • Abundance of rhetoric, everybody's talking about it but few countries know how to and have managed to mainstream ICTs and to design and implement adoption processes and strategies;<br>• Limited citizens use mostly for chat, purchases and email;<br>• Little social/economic impact on the majority of the population. |
| ***Cooperation*** *– Adequate cooperation between citizens, SME's, academics, NGOs and policy makers to create a favourable climate for using ICTs* | • Given the gaps, no jurisdiction can claim the level of cooperation necessary for a meaningful national ICT development effort |

## 5.0 SHOULD THE CARIBBEAN EXPORT ICTS[15]?

The background presentation and the country reports indicate clearly that there is a significant amount of work to be done to build the region to compete in ICT services exports at an international level. That being the case, the discussion sequence of the Working group began with a fundamental question . . .

"*is international export the ambition of the region's private sector?"*

The response from the participants indicated that there is some measure of disconnect between the ambitions of the private sector generally and those of the policy makers in the respective countries.

Those participants who represented or are involved with national or regional government institutions responded positively to the question and pointed out that the importance of ICTs and the Caribbean's advantages in ICT exports are well established. Indeed the region and the majority of states represented have declared the development of ICTs to be among their priorities. The Dominican Republic in particular indicated that they had successfully positioned themselves to exploit the export of services at the lower end of the continuum (call centers) and their strategy was to move up the value chain to attract the export of services at the higher end.

The private sector representatives to varying degrees, responded cautiously and with decidedly less enthusiasm for the notion. Although a few of the participants engaged in exports to other states within the region[16], none were currently exporting outside the region and all indicated that at the private sector level, the focus was not necessarily on exports of services. The ensuing discussion indicated the participants were not well acquainted with the trading context of either the exports or imports of ICT services, lacking familiarity with the multilateral and regional trade in services issues as well as the economic intelligence needed to explore and target potential export markets.

Interestingly, all understood the potential impact of successful trade in ICT products and services and were interested in pursuing partnerships and alliances to gain access and expand their businesses to other states within the region.

Indeed there was enthusiasm for regional exports of current sector services and the consensus among private sector representatives was that exploiting the synergies and opportunities in the region first was the way to go. Exports further a field they said would require more resources and better regional cooperation initiatives to address the region's deficiencies.

This perspective is in fact validated by the Marketing Strategies developed through a joint project between Caribbean Export and the Commonwealth Secretariat for the Promotion of Professional Services Exports for four CARICOM countries. In essence the project elaborated on a specific marketing strategy and the attendant action plans for the development of exports in Health and Wellness, Education, Business Development Services, ICTs, Construction Related Services and Production Services for the Entertainment Industry.

In ICTs, all jurisdictions studied were found to have potential for exports in ICTs, although some had more work to do than others to get there. All jurisdictions were encouraged to concentrate on Knowledge Process Outsourcing (call centers) in the financial industry where they were considered to have specific expertise. Medical services were also recommended for Dominica. The main thrust of the strategy however was that although the long term aspirations for exports in ICTs should be to sell them to the US and other developed country markets further a field, in the immediate future jurisdictions like Barbados and Trinidad and Tobago could focus on successfully organizing to export regionally (within the CSME) because their better trained workforce and distributorships for international companies provided them with a competitive advantage. If the countries were to

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15 ICTs in this context is referent of ICT based products and services across the services continuum (data entry and BPOs to new product development and innovation).

16 Business Tech Research Inc of St. Lucia is an example with roughly 15% of the company's revenue derived from regional exports. Information courtesy Stephen Louis, working group participant and Managing Director Business Research Tech Inc.

embrace the strategy and action plans devised for them, the authors project export values of US $25M, $15M, $5M and $3M for Trinidad, Barbados, St. Lucia and Dominica respectively, over the next five years.

The good news for the region and its ICT export ambitions is that *there are* pockets of innovation in the region. Haiti's work in the development of a coffee and mango tagging system and the creation of the only virtual reality lab in the region, is such an example (see Box right). The tagging system will be used to easily identify the origin of the product to the end user and will be especially useful in ensuring the authenticity of premium products branded and traded under the geographic indications (GI)[17] regime. Thus beyond the exports of BPOs and KPO's, Haiti's experiences suggest that the region has the potential and is preparing to export ICT services at the higher end of the continuum.

In sum the working group participants agreed that the region should focus on and organize to export but that the lack of readily available market information at the individual firm level and insufficient and inconsistent levels of private sector cooperation at the national and regional levels were clear obstacles to that objective. Specific gaps were identified in the following areas:

- Economic Intelligence
    - quantifying the size and identifying the specific location of the markets
    - Identifying and specifying the market demands,
    - Identifying the competition and the barriers to trade in specific markets
    - Identify the specific standards for export by service type;
- More support at the firm and national level within the sector for a culture of innovation
- The development of a regional entity

### *Haiti – Bringing Virtual Reality to the Caribbean*

*The "Institut des Sciences et Techniques de l'Ingénieur d'Angers ISTIA, France and the Ecole Supérieure d'Infotronique d'Haiti ESIH, Haiti, have collaborated to bring to Haiti the capability to develop Virtual Reality applications in a time frame no longer than two years. The aims and objectives of the program include: to develop a business model where Virtual Reality applications, suitable for high volume sales will be created and promoted on the international markets, and to use the application to help to solve some of Haiti's problems by an appropriate use of this technology.*

*According to Ruth Bazelais of ESIH who presented at MadinTech 2007, the collaboration has resulted in the only VR lab in the region. In addition the lab has produced or is in the process of producing several applications aimed at helping to improve the conditions associated with some of Haiti's biggest development challenges. For example, the lab's work is currently used to create a high tech virtual experience for soldiers on peace keeping missions in Haiti that mimics the conditions on the ground and educates the soldiers about the culture. Also one proposal currently being explored is to develop an application that will simulate the experiences of an AIDS or HIV positive individual. The purpose is to allow the healthy individual to experience the stigma and discrimination that accompanies the disease in an attempt to change behaviours and treatment of those inflicted with the disease in Haiti.*

[17] The TRIPS agreement defines GIs as terms used to "identify goods as originating in a particular geographical region, where a certain quality, reputation or characteristic is attributable to its geographical origin".

## 6.0 TOWARD MEANINGFUL INTERVENTIONS

### 6.1. Institutional Strengthening

The identification of the gaps precipitated a rich discussion by the working group participants on the nature of interventions by aid agencies. The participants agreed that a priority for the sector was to establish some form of a regional alliance that would provide at the very least the following benefits to the sector:

- That will be a respected voice of the sector in the region;
- That will promote the expansion of ICTs generally but also member firms through strategic alliances and partnerships across the region;
- That will develop regional ICT policies and influence the trade negotiating process, through strategic and active lobbying and watchdog activities;
- That will encourage and empower private sector leadership in shaping development policies and integration initiatives not only within the sector but across sectors and stakeholders (including Academia)
- That will educate the membership on relevant regional issues.

It was agreed that the entity needed to be strong enough and relevant enough to speak on behalf of its constituents in the regional and international discourse on ICTs and in particular trade in ICTs. As well there is an urgent need to inform and assist private sector groups to build capacity at the national level, to allow these institutions to contribute effectively on behalf of their countries at the regional level. A concurrent initiative to establish a regional entity with at the very least a centralized virtual structure (if not a physical one) was thought to provide the best option.

**Proposed Intervention:** Develop a technical assistance program which will provide assistance for the development of or capacity building for national ICT private sector associations in addition to concurrent assistance to build a viable coalition at the regional level. Assistance should include but not be limited to: (1) development of its governance structure, (2) funding and financial sustainability strategies, (3) operational procedures, (4) development of annual programs and budget.

***Elaboration on Strategy and Action Plans***

Few jurisdictions within the region have been successful at elaborating and/or meaningfully implementing their national ICT strategies and action plans. This is imperative since the region's ICT aspirations depend significantly on the ability of national jurisdictions to embrace ICTs and reflect its priority in their national development policies, laws, regulatory frameworks, and attendant work programs.

**Proposed Intervention:** Provide technical assistance for the elaboration of a National ICT strategy and action plan to those countries most in need of a national ICT compass. The strategy should include a specific implementation schedule, measures of success and should highlight critical success factors and possible technology adoption processes and strategies.

In addition to those identified by the working group, based on the identified gaps there are several intervention initiatives which could significantly contribute to the development of the sector and which would complement the regional cooperation initiatives embraced by the working group as well as provide for informed decision and policy making across the region. Some of the more pressing are discussed below:

### 6.2. Infrastructure and Connectivity

The fragmented nature of the Telecoms industry contributes significantly to the issues associated with infrastructure and connectivity (discussed above). The lack of harmonized standards and common legal and regulatory frameworks that deal with licensing, interconnection, universal service and spectrum allocation and monitoring among others, is essential to the build out of a robust, reliable, accessible and appropriately regulated telecoms platform that is attendant to the ICT aspirations of the region. However the issues and challenges associated with the political, legal, social, economic and technological adjustments that would be required to achieve harmonization have not to date been objectively studied and analyzed. Such a study would allow policymakers and telecoms operators to better understand the issues and focus their strategic agendas and should facilitate recommendations for a pragmatic approach to transition at the national level toward a harmonised sector at the regional level.

**Proposed Intervention:** Provide funding to conduct a study on the Challenges and Issues associated with the creation of a harmonised telecoms sector in CARICOM. The rationale and modalities for creating a common policy and regulatory framework and technical and related quality standards should receive particular attention.

### 6.3. Human Capacity

Most states in the region admit they have not cultivated a critical mass of knowledge workers generally but specifically in the technical, managerial, policy and legal areas related to the development of ICTs. However what exists and what needs to exist to support the region's ICT aspirations have not been objectively established.

**Proposed Intervention:** Provide funding to conduct a Skill Survey among CARIFORUM states that uses the region's ICT aspirations as the starting point and which seeks to address the following (1) quantify the levels of existing capacity, (2) establish the gaps in specific terms and develops a catalogue of required skill sets and measures, and (3) provides pragmatic recommendations, given the region's constraints, for addressing the deficiencies in Human Capacity in the ICT Sector.

### 6.4. Awareness Building – Cultivating a Culture for ICTs

It is established that most CARIFORUM countries do not have a forward looking culture that supports the adoption of technology in every day activities or which even understands the value of ICTs personally or to the development of business. As such it is important to start or in some cases expand the discussion on ICTs and its value among the constituents that traditionally have been the least responsive. This is especially true for individuals in the rural communities, and entrepreneurs in small and micro enterprises.

**Proposed Intervention:** Provide funding to conduct a study on the barriers to information and adoption by the least responsive within the region and which provides an inclusive strategy (using the region's resources i.e. UWI, private sector organizations) and pragmatic recommendations for building awareness, encouraging adoption, and ultimately movement toward a culture that embraces ICTs.

***Market Intelligence***

A key issue for the working group was a lack of relevant market intelligence that would identify the key characteristics of potential markets both regionally and globally including the type of ICT services that are demanded, size and specific location of these markets, market access issues, standards, industry size, competitors, potential for joint ventures and the like.

**Proposed Intervention**: Provide funding to conduct an Economic (Market) Intelligence study that would identify the key characteristics of markets identified as pivotal to the region's ICT export aspirations, beyond BPOs.

### 6.5. Recommendations for CEDA Support

In selecting and designing its intervention strategies, it is important for CEDA to appreciate the scale and scope of Technical Assistance and other types of support programs that are currently operational in the sector. For example, Khelladi in his compilation identifies ten ICT related project areas served by more than thirty five regional and international agencies (see reproduction of Khelladi Matrix, Annex IV). In this labyrinthine support environment, it is increasingly difficult for organizations to identify needs and place support where it would have the best chances of success. Perhaps a more thorough scan of the ICT support landscape is necessary and should be concluded in the second phase of CEDA's Caribbean Regional Trade and Private Sector Development program.

In terms of the gaps identified here, Khelladi recommends channelling CEDA support in the following areas: (1) technical assistance programs which will provide assistance for the development of or capacity building for national ICT private sector associations, (2) market intelligence studies, (3) ICT skills study and (4) building awareness among the business community. He also includes support for regional B2B ICT market place/match making mechanisms and advocacy initiatives, among his recommendations.

Finally, while there is a significant amount of information available on the supply of ICT services from the Caribbean at the lower end of the services continuum (outsourcing), there is a relative dearth on the role of service providers at the higher end, and particularly services provided by small and medium enterprises. SMEs play a leading role in creating employment, income and value added, and in providing the platform for developing and testing entrepreneurial talent. The development of global value chains offers new opportunities to SMEs by enabling them to expand their business opportunities across borders, although reaching international markets is often a difficult step for these enterprises.

To better understand the role and opportunities for SMEs in the export of ICTs, CEDA should also consider support for a study that identifies the barriers and constraints[18] in the supply of ICT services from CARIFORUM Small and Micro enterprises. The study should build out the ICT services export supply chains particularly in those areas with opportunities for SMEs, and consider pragmatic approaches and actions for addressing the barriers and bringing SMEs into the ICT export value chain.

### *6.6. Working Group Interventions*

The participants made the following specific interventions prior to the conclusion of the meeting.

- Each participant commits to conveying the information to their national associations and other relevant stakeholders about the decision to create a regional entity, to be a champion for its creation and to assist in determining the needs on the ground;
- As the jurisdiction with the only WITSA affiliation, the delegate from Trinidad and Tobago commits to liaise with the organization and to facilitate the establishment of alliances between WITSA and other ICT associations in the region;
- Caribbean Export commits to circulating the working group report by June 30, 2007;
- Caribbean Export commits to circulating the contact information of all participants by June 19, 2007;
- CARISNET2 Consortium (Devnet, Guyana, AHTIC Haiti, Taiguey (Dom. Rep. and JSDN – Jamaica) will facilitate continued discussions on the issues highlighted at the meeting through invitations to all the participants to its online discussion forum. All participants will be invited to attend by June 30, 2007; Guyana will take the lead.

At the very least the working group was successful in highlighting the need for a less insular approach to the development of ICTs in the region and for brokering the relationships and associations that, most likely, will lead the charge toward a better organized, harmonized approach to the development of ICTs in the region. In addition the discussions highlighted common issues (national treatment, disadvantages in government procurement of ICTs) which affect all practitioners regardless of nationality or domicile. This in turn highlighted the need for a consistent, informed dialogue between the region's ICT practitioners and the region's policymakers, which it was realized can be most effectively achieved through a regional entity that has the ear of the policymakers and speaks with authority on behalf of the region's ICT practitioners.

At best the working group session would have provided the impetus for action by the private sector to establish and drive an agenda for ICT development that uses the resources[19] available to it to build a culture of innovation and cooperation among the region's practitioners with a view to establishing the Caribbean as a viable ICT services provider.

[18] E.g. access to affordable financing, protecting intellectual property and technologies, standards, market access

[19] Technical assistance, funding for intermediary associations

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*Annex 1 – List of Participants – ICT Working Group*

| Country | Name | Position/Role | Name of Company/Organisation | Telephone | Fax | Email |
|---|---|---|---|---|---|---|
| **Barbados** | **Tonika Sealy** | Technical Advisor, New Sectors | Caribbean Export Development Agency | 1 246 436 0578 | | tsealy@carib-export.com |
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| **Dominican Republic** | **Laura Guerrero** | Advisor/Specialist on ICT and Innovation | National Competitiveness Council | 1 809 476 7262 | | laura.guerrero@cnc.gov.do |
| **Dominican Republic** | **Yacine Khelladi** | Consultant | Centre for the Development of Enterprise CDE | | | yacine@yacine.net |
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| **Haiti** | **Mathias Pierre** | | ICT Association for Haiti / Gama Consulting S. A. | 1 509 464 4262 | 1 509 257 0157 | mpierre@gama.ht |
| **Haiti** | **Solide Jean Gregory** | | Solutions, S. A. | 1 509 510 4346 | 1 509 245 3489 | gsolide@solutions.ht |
| **Jamaica** | **Nigel Henry** | President | Pres. Jamaica ICT Association | 1 876 906 5620 | 1 876 929 5468 | nhenry@cwjamaica.com |
| **St Lucia** | **Stephen Louis** | Former Director | St Lucia Computer Society | 1 758 451 9694 | 1 758 453 1289 | stephen@btr-inc.com |
| **St Vincent & the Grenadines** | **Lennox Lampkin** | Executive Director | Chamber of Commerce of St Vincent and the Grenadines | 1 784 533 6333 | | lennox.lampkin@svg-cic.com |
| **St. Vincent & the Grenadines** | **Joyliyn Dennis - Lampkin** | | SVG National Investment Promotion Inc. | 1 784 457 2159 | | joyden12@yahoo.co.uk |
| **Trinidad & Tobago** | ***Rabindra Jaggernauth*** | President | Trinidad and Tobago ICT Association | 1 868 680 2479 | 1 868 627 9038 | ***rabindra.jaggernauth@esprit.co.tt*** |

*Annex II – Overview Matrix of State of ICT in the CARIFORUM*

| General Characteristics | Information Society /ICT Institutional Context | Regional Institutional Frameworks | (Technology Adoption Characteristics[20] | Access Characteristics and Technologies[21] |
|---|---|---|---|---|
| ▪ Twenty five plus Islands and mainland countries (although this paper is focused on the islands and mainland countries of CARICOM/CARIFORUM)<br><br>▪ Much variety in the size of the markets (approx. 40K St. Kitts and Nevis, 8+ million - Dominican Republic);<br><br>▪ Dependencies and non-diversification of economies (many economies still agriculture, Oil (in the case of T&T, based);<br><br>▪ Diverse and heterogeneous languages (French, Spanish, English, local dialects);<br><br>▪ Different levels of Development; | Regional Agendas<br>▪ CARICOM/FORUM Information Steering Committee (CISC) inaugurated – April 2007;<br><br>▪ CARICOM Connectivity Agenda and Platform for Action;<br><br>▪ Plan of Action for the Information Society in Latin America and the Caribbean eLAC 2007 (post WSIS)<br><br>Telecommunications (institutional strengthening, harmonization issues, standards)<br>▪ Caribbean Association of Telecoms. Operators<br><br>Regulation (institutional | ▪ Few National ICT Plans/Strategies and action plans (Barbados, Jamaica, Trinidad and some OECS countries have strategies)<br><br>▪ Few countries have implementation units;<br><br>▪ No regional mechanism for communication and action;<br><br>▪ Generally fragmented management at the national and regional level and thus little voice in multilateral Trade (WTO, EPAS) and IS Governance Forums (ICANN, | ▪ Embryonic e-governance;<br><br>▪ Experimental e-Health;<br><br>▪ Little SME Adoption (left to the bigger firms);<br><br>▪ Insignificant e-commerce;<br><br>▪ Growing e-education (UWI taking lead but revamping of entire education systems needed);<br><br>▪ Limited citizens use (chat, purchases and email);<br><br>▪ Little social/economic impact on the majority of the population. | ▪ Sound Telecoms infrastructure but expensive and unevenly distributed;<br><br>▪ Wide disparity in cellular mobile and internet usage;<br><br>▪ Average penetration rates of 10% at the end of 2005, compared to 60% in the North (Stern);<br><br>▪ Competition mostly in Cellular;<br><br>Problems with de facto monopolies and regulatory capacity. These include:<br><br>▪ Subsidising competitive services such as Internet access and |

[20] Khelladi's conclusions from "Building the Caribbean ICT Sector"
[21] Stern, "Assessment of the Telecoms Services Sector in CARICOM – Convergence Issues at the Regional and International Level" and Khelladi

| | | | | |
|---|---|---|---|---|
| ▪ Different Legal systems (English Common Law, European Civil Law system);<br><br>▪ Different History | strengthening, harmonization issues, quality, standards, recognition)<br>▪ Caribbean Telecommunication union<br>▪ Eastern Caribbean Telecommunication Authority<br>▪ CARICOM Regional Organization for Standards and Quality;<br><br>Internet Network Governance<br>▪ Internet Cooperation for Assigned Names and Numbers (domain names and internet addresses)<br>▪ Latin America and Caribbean Internet Address Registry;<br>▪ Working Group on Internet Governance (ongoing dialogue at UN level) | WSIS, ITU); | | other value added services with revenues from services not subject to competition;<br>▪ Overcharging for capacity on domestic and international fibre optic cable and satellite systems where it continues to control access;<br>▪ Refusing to allow access to facilities such as cable landing stations, gateways and towers even though this may be required by law; |
| | | | | ▪ Refusing to negotiate and otherwise delaying decisions and actions preventing new entrants from interconnecting and beginning to |

| | | | | |
|---|---|---|---|---|
| | | | | offer a competitive service.<br>▪ Telecenters and cyber cafes growing but still large uncovered areas;<br>▪ High cost of hard and software;<br>▪ Little innovation in software development; |

| Legal Framework | Skills[22] | ICT Industry Characteristics and Propensity for Innovation[23] | ICT Culture[24] | Trade and Investment Issues[25] |
|---|---|---|---|---|
| General Need for frameworks and laws that address:<br>▪ Intellectual Property<br>▪ Competition Policy<br>▪ Encryption<br>▪ Security of Payment<br>▪ Certification and authentication of buyers<br>▪ Digital Signatures<br>▪ Data Protection<br>▪ Privacy Protection<br><br>▪ Regulation of new technologies (VOIP, WIFI, WIMAX);General overhaul of technology legislation; | • Training mostly in the low end of the continuum;<br><br>• Little capacity to develop, design and implement ICT4D;<br><br>• Those with higher end skills are lost to larger, more progressive markets; | • Mostly call centers and BPOs);<br><br>• Installation and Maintenance activities mostly;<br><br>• Software resellers;<br><br>• Some small local solutions and innovations;<br><br>• Few states have advanced know-how;<br><br>• Problems to pay proprietary licenses;<br><br>• Few open source initiatives; | • Significant amount of discussion and interest;<br><br>• Few countries know how to and have managed to mainstream ICTs and to design and implement adoption processes and strategies;<br><br>• At the private sector level "stronger we need to eat first voices". More of a focus on what sells right now. | GATS Related Issues<br><br>▪ Less than half (six) of the fourteen member states made commitments under the Business Services Sector, for a total of 15 Computer and Related Services sub-sector commitments;<br><br>▪ ½ of the fourteen member states made commitments under the Communication services sector for a total of eight telecommunication sub-sector commitments;<br><br>▪ Financial Sector commitments are limited and apply mostly to reinsurance;<br><br>▪ ½ of CARICOM member states have not scheduled any commitments in sectors critical to ICT, including the delivery of services;<br>The BTA and CARICOM |

22 Khelladi Conclusions from "Building the Caribbean ICt Sector"
23 same
24 same
25 Cleland-Gomez, Prospects for Export of ICTs from the Caribbean – Trade and Investment Issues

| | | | | |
|---|---|---|---|---|
| | | | | ▪ Extremely cautious approach to market access;<br><br>▪ Little or no access to fixed line markets;<br><br>▪ Majority of offers were phased in, some as far as 2013;<br><br>▪ Barriers to trade in telecoms exist in all jurisdictions;<br><br>ITA Issues<br>▪ No CARICOM member party to the ITA<br><br>▪ Duties and Tax policies contrary to the principles of the ITA in some member states;<br><br>▪ High internal taxes on personal computers, software and parts (VAT, Sales Tax, GST, GCT<br><br>▪ Environmental tax attached in some jurisdictions;<br><br>EPA's<br>▪ Offers under computer and related equipment still relatively conservative; |

| Country | Legal Framework | Institutional Framework | Structure and Size | Challenges | Opportunities |
|---|---|---|---|---|---|
| **Barbados**<br><br>Steven Williams<br>CEO<br>SunIsle Technology Solutions<br>President Barbados ICT Association | • National Strategy and Action Plan<br>• E-Commerce Act<br>• Computer's Misuse Act<br><br>Pending<br>• Data Protection Act<br>• Freedom of Information Act | • National ICT Advisory Committee;<br>• Barbados Information and Communications Professionals Association (BIPA) | Telecoms<br>• Cable and Wireless<br>• Sun Beach<br>• TeleBarbados<br>• Blue Communications | • Government as opposed to Private Sector leading the ICT charge;<br>• Private sector a weak link;<br>• Lack of awareness about the value of ICTs; | Not discussed |
| **Belize**<br><br>Celene Cleland-Gomez<br>Services Consultant – Belize<br>Belize Chamber of Commerce and Industry | ▪ Telecommunications Act, 2002<br><br>▪ Patents Act (CAP. 253)<br><br>▪ Copyright Act (CAP. 252)<br><br>▪ Computer Wagering and Licensing Act;<br><br>▪ International Business Companies Act (CAP 270 and 270S), | ▪ No articulated Strategy or Action Plan;<br><br>▪ Reference to ICT in GoB's political Manifesto<br><br>▪ Public Utilities Commission, regulation of Telecoms<br><br>▪ Identified as priority sector in National | ▪ No responsibility assigned at the Ministerial Level;<br>▪ No regulation outside of telecoms activity;<br>▪ No ICT association or other related intermediary association outside the Belize Chamber of Commerce and the Belize | ▪ Extremely Fragmented Industry;<br>▪ No attempt at organization;<br>▪ No clear country positioning and strategy for ICTs;<br>▪ No supporting structures (education, financial and investment, data collection and reporting) or legislation;<br>▪ Far from the | ▪ Can learn from the others and do it right;<br>▪ Bilingual, literate, wage attractive work force;<br>▪ Proximity and cultural affinity with North American Markets;<br>▪ Call centers and BPO's in the short to medium term;<br>▪ Enabling, |

| Country | Legal Framework | Institutional Framework | Structure and Size | Challenges | Opportunities |
|---|---|---|---|---|---|
| | | Export Strategy, draft completed Nov. 2006 | Business Bureau<br><br><u>Private Sector Players</u><br>Call Centers – (1)<br>Computer Sales, Service, Repair, Parts and Supplies – (17)<br>Computer System Designers and Consultants –(1)<br>E-Park – (1)<br>Internet Marketing – (3)<br>Online Gaming – (1)<br>Software Developers – (3)<br>Telecoms and Internet Providers – (36) | required critical mass of trained HR;<br>▪ Limited Competition in Cellular and Internet but access and interconnectivity are challenges;<br>▪ No national accreditation or standards;<br>▪ High costs of bandwidth and electricity<br>▪ Low SME adoption rates;<br>▪ Little effort to cultivate synergies with Diaspora, | interested Diaspora |
| **Dominican Republic**<br><br>Laura Guerrero Advisor/Specialist on ICT and Innovation National Competitiveness Council | • Strategy and Action Plan geared toward moving from the Call Center industry up to BPO, up to Software Development. Institutional Strengthening and creating capacity to support the growing ICT market as well | • Software Development Chamber<br>• Call Center Association<br>• Indotel- (Telecommunications regulator)<br>• Asonaimco- (Retail – Resale) | No specific information on structure and size provided but initiatives in the sector include:<br><br>• Offshore attractiveness strategy<br>• CyberPark of Santo Domingo | • Government has the drive in the DR.<br>• Private sector is the weakest link;<br>• Achieving a critical mass of trained ICT professionals; | • Offshore attractiveness strategy;<br>• Increasing attraction of BPOs and call centers; |

| Country | Legal Framework | Institutional Framework | Structure and Size | Challenges | Opportunities |
|---|---|---|---|---|---|
| | as policy and strategy of Scientific and Technological Development and innovation<br>• Competition Policy<br><br>More recent legislation<br>• E-Commerce Law<br>• Computer Crimes and Felonies Law | | (technology hub ecosystem) | | |
| **Guyana**<br><br>Vidyaratha Kissoon DevNet Executive Member – Guyana ICT Association | • ICT4D Strategy to ensure that "all Guyanese have the opportunity to fully participate in the information society in order to accelerate national development and achieve prosperity." | • Information Technology Association of Guyana, Bandwidth Resellers Group, Information Technology Providers Association of Guyana<br>• Guyana Linux Users Group<br>• Need recognised in national ICT4D strategy for ICT Professionals Association,<br>• DevNet as a hub and facilitator. | • Telecoms providers<br>• Hardware services , assemblers & vendors,<br>• Internet service providers,<br>• Call centres,<br>• Training institutions,<br>• Website developers,<br>• Software developers,<br>• Pirates? | • Unstable and expensive electricity<br>• Unreliable and expensive bandwidth<br>• High Migration of ICT skills<br>• Gap between training opportunities and industry/sector needs<br>• Nascent entrepreneurial culture (mostly young men)<br>• Slow movement from rhetoric to action | • Eastern US Timezone<br>• Incentives for investors<br>• Interested Diaspora;<br>• Geographic advantages – generally disaster free,<br>• Space for server farms,<br>• Bridge with South America |
| **Haiti** | Not discussed | • AHTIC – | • 12 ISPs, | • Basic | • Strategic |

| Country | Legal Framework | Institutional Framework | Structure and Size | Challenges | Opportunities |
|---|---|---|---|---|---|
| Stephane Bruno<br>President, Haitian Association for the Development of ICTs (AHTIC) | | Association of IP Professionals<br><br>Education and Training<br>• MBDS<br>• Linux training<br>• CISCO Academy<br>• Licence in Computer Science<br>• Soon a master's programme in Virtual Reality | • Two gateways through the fiberoptic network in the DR,<br>• One 10Gbits/s submarine Cable to Bahamas,<br>• Three Carriers, three ISPs offering Wi-MAX, some remaining satellite Connections and radio spectrum communications | infrastructure and energy and cost,<br>• Government lagging, inefficient public administration,<br>• Bad perception because of political instability | geographic position (US, Caribbean)<br>• Multilingual population (French, English, Spanish),<br>• Creative workforce (graphics, software),<br>• .ht managed locally,<br>• The first Caribbean country to deploy Wi-MAX widely,<br>• The only virtual reality lab in the Caribbean,<br>• A pilot RFID tag project in the Mango industry in association with Alcatel, Université Sophia Antipolis, MBDS |
| **Jamaica**<br><br>Nigel Henry<br>President, Jamaica | • Strategy and Action Plan, Strategic Thrusts Include:<br>• Education and Training | • Jamaica Computer Society<br>• Jamaica Computer | Hardware suppliers and integrators (11)<br>Software Developers (15)<br>Telecoms and ISPs | Not discussed | Not discussed |

| Country | Legal Framework | Institutional Framework | Structure and Size | Challenges | Opportunities |
|---|---|---|---|---|---|
| Computer Society | • Network Readiness and Infrastructure Development, E-Government, E-business and ICT Industry Development, Research and Innovation, Cultural Content and Creativity,<br>• Legislative and Policy Framework | Society Education Foundation | (20)<br>Network and Communications (6)<br>Consultants and VARS (8)<br>PC Assembly (size not known but estimated to be the largest sector, several hundred individuals),<br>Computer Wholesalers (1) | | |
| **Martinique Didier Largange**[26]<br><br>Manager/CEO XTRALOG<br>Secretary OPEN IT | Not discussed | • Steering Committee for the Development of the Information Society in Martinique<br>• ICT department within the CCIM;<br>• OPEN IT ICT professional association with branches in Antigua and | • 450 Kilometre Fibre-optic network;<br>• Three land-line telephone operators;<br>• Four cell phone operators;<br>• Two local radio loop operators;<br>• One public broadcast network; | Not discussed | • Multilingual population (French, English,<br>• Creative workforce<br>• Robust telecommunications;<br>• Martinique ICT Business directory;<br>• Regional Council Grants for business start-ups |

[26] Martinique was not represented at the working group session but a representative from the country's ICT Association was later contacted and interviewed by the consultant on Wednesday, June 20th at the MadinTech Exposition.

| Country | Legal Framework | Institutional Framework | Structure and Size | Challenges | Opportunities |
|---|---|---|---|---|---|
| | | Barbuda, Dominica, Haiti, St. Vincent, Guadaloupe, and Trinidad and Tobago | • One cable operator;<br>• One satellite television station; | | |
| **St. Vincent and the Grenadines**<br><br>Lennox Lambkin Executive Director St. Vincent and the Grenadines Chamber of Commerce and Industry | • No Strategy or action plan yet but current work on a draft policy framework which is now supposed to review among other things:<br>- Internet Governance<br>- Ownership of an internet exchange (IXP)<br>• Two important bills have recently been passed namely: The ICT fiscal incentive bill and the e-transaction bill.<br>• The ICT National project supported by the EU should include computerization of all secondary schools and the establishment of | • No ICT association, although attempts were made;<br>• ICT sector identified as a key priority sector for export competitiveness<br>• A sector advisory body was formed to analyze the situation of the sector and prepare a draft strategic plan. This body came together to form the Open IT group. | Not discussed | • lack of available and affordable bandwidth;<br>• There is little or no local software development;<br>• No focus on open source;<br>• No independent ISP's as C&W has kept the reseller prices restrictively high;<br>• Though there is a second licensed provider only one is operational;<br>• Lack of an accreditation body (locally or regionally},<br>• Lack of providers for ICT training;<br>• Low involvement of the banking sector in the development of | • Has successfully lobbied Gov to remove import duties and VAT on PC's and PC parts;<br>• South Caribbean submarine fiber will extend the regional communication to reach Antigua, St. Lucia, St. Kitts, St. Vincent, Barbados, Grenada and Trinidad;<br>• WEB radio which now can reach the Diaspora;<br>• M-commerce options that will allow use mobile phones for micro payments;<br>• I-security |

| Country | Legal Framework | Institutional Framework | Structure and Size | Challenges | Opportunities |
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| | rural learning resource centres.<br>• ECTEL responsible for regulating activity and deregulating telecoms sector in OECS | | | the ICT sector;<br>• Lack of regional merchant accounts. | options like camera monitoring and regional alarm center. |
| **St. Lucia**<br><br>Stephen Louis Managing Director Business Tech Research, Inc. | | • The National Economic Commission (NEC) report of 2005 made several specific recommendations for development of ICT but no specific strategy and action plan;<br>• Attempts at association but no sustained effort<br>• National Development Corporation (NDC) promotes investment in ICT sector but focus on call centers;<br>• ICT related assistance through office | Composition not known and nebulous<br><br>• Call centers (2) | • No significant initiatives by either gov't or private sector,<br>• Composition of local ICT industry nebulous,<br>• Gov't policy towards development of local ICT industry not clearly articulated,<br>• No common objective upon which to rally various interests,<br>• No obvious focal point in public or private sector for leading such an initiative,<br>• Discomfort among private sector business about collaboration with | • Possible to use multiple models;<br>• Niche opportunities available based on knowledge of specific products, applications and industries,<br>• Requires skill and certification in specific product or market areas as opposed to generic skills<br>• Requires greater focus on the competence and needs of individual firms as opposed to "macro-level" approaches<br>• Liberalization has led to |

| Country | Legal Framework | Institutional Framework | Structure and Size | Challenges | Opportunities |
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| | | of Private Sector Relations but this operates on EU funding,<br>• Ministry of Commerce has an officer who is responsible for liaison with sector | | competitors. | development of voice, and more recently, data infrastructure |
| **Trinidad and Tobago**<br><br>Rabindra Jaggernauth<br>The ICT Society of Trinidad and Tobago | Not discussed | • Information and Communications Technology Society of Trinidad and Tobago<br>• Extremely active in driving the ICT agenda in Trinidad and Tobago<br>• Member of WITSA (09/2004) | Not discussed | Not discussed | Not discussed |

Annex IV – Regional Projects with Public and International Support compiled by Yacine Khelladi and extracted from his presentation entitled: "Building the Caribbean ICT Sector", presented in Martinique, June 19, 2007.