'Policy considerations in Regional ICT Development'
a paper by

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Introduction

There are two aspects to current thinking about the policy framework for Information and Communications Technology (ICT) development in the Caribbean. [1] One is the common developmental vision for this region, signaled in the Caribbean Single Market promise of deeper integration, with the transition to a single Caribbean economy in the future. The other is the recognition of an imperative for policies dedicated to ICT development[2]: that these technologies have the potential as tools to drive economic prosperity, improve the delivery of services, and enhance democracy and political accountability. The following statement provides the relevant point of reference for this policy framework.

> "In a Region comprising mainly island states, Information and Communication Technology (ICT) is probably the single most important facilitator of the integration process namely, the CARICOM Single Market and Economy (CSME). The strong influence of Information and Communication Technology in shaping the process of globalization, particularly in the productive, commercial and financial spheres, is also widely recognised." [www.caricom.org/jsp/projects/projects_ict.jsp?menu=projects)

The policy considerations in ICT development will be those that will transform the foregoing statement into decisions and actions to facilitate the vision for

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[1] By 'information and communication technology' reference is being made to technologies associated with telecommunications, broadcasting and computing. The Caribbean is meant the English-speaking countries in the Caribbean.

[2] ICT development can be described as the application of information processing and transmission systems in society, including hardware, software, communication tools and networks, organizational and human aspects, and the industrial, commercial, governmental, political, social and cultural implications of these. [Markauskaite (2006)].

development in the region. This paper is concerned with the most pressing of these considerations, and it may be that these are raised mainly as questions of issues for further exploration. It will present some overarching considerations and in this context others that are more specific and which may be the basis for differentiation in national policy.

ICT development will be specific to the industries associated with information and communication services; telecommunications; and electronic media services. It's definition should nevertheless link the concept of "human development"[3] to create an understanding that captures the economic as well as non-economic elements of development (Todaro, 2000). Sustainable development, equality, equity, justice, empowerment, human rights are therefore ready references in the development discourse. The areas for ICT development that have been identified by the World Bank (2006) are financing infrastructure, the importance of public-private partnerships and effective competition to extending access, using ICT in doing business and formulating national e-strategies[4].   Even as there is the focus on policies for ICT development, the nexus with ICT's for development therefore has to be recognized as a core feature of the discussion. This offers a platform for a discussion of the policy considerations in ICT development in the Caribbean region.

The **first** overarching consideration in deciding on policy for ICT development in the region is the need to examine those factors that prevent a conceptual adjustment in appreciating the current ICT environment.   By now ICT development requires planners, policy-makers, and regulators to avoid, if not abandon, an artificial distinction between telecommunications and other ICT industries.   The premise has to be that ICT's are the basis of tele(i.e. distant)communication at the same time that ICT industries will only flourish on the basis of modern and robust telecommunications systems. The understanding and management of this duality – the belonging together/coming together (convergence) and the separateness can be a challenge in policy development and management.   The extent and quality of the response to this duality is influenced by maturity of telecoms/ICT markets; domestic and regional politics; supra-national policy directions and directives; and the market influence and power of respective stakeholders.

The **second** overarching consideration is the dynamics of the telecommunications/ICT markets. Some market issues requiring response are:

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[3] The UNDP's Human Development Index ranks countries at 'low', 'medium' or 'high' levels of human development based on **longevity** i.e. life expectancy at birth; **knowledge**, measured as adult literacy and **standard of living** measured by per capita income.

[4] World Bank publication **2006 'Information And Communications for Development: Global Trends and Policies'**

- those relating to deficits in the infrastructural capacity to enhance connectivity;
- the imperative to move consumers 'beyond talk' to more value-creating uses of the existing ICT infrastructure; and
- ensuring competition that encourages real business development in the face of trends towards consolidation in service provision as well as ownership, with a tendency to monopoly/duopoly presence that is driven by the substantial operational and infrastructural costs in this sector.

The appearance of multiple-service providers of carriage and content may mean the disappearance of some earlier entrants, and the consolidation may lead to the export of capital, as the rewards of foreign investment. Could it be that ICT's end up replacing the primary products of the past?

The **third** consideration is that the Caribbean region continues to be plagued by economic relations and market structures that have essentially defined the region's development history. There are high levels of poverty; the social and economic vulnerability persists, as exemplified by the spread of HIV/AIDS and the collapse of previously secure trade arrangements, e.g. in banana and sugar regimes, which may impact negatively on employment and social stability. Add to this the high cost of energy and the region's vulnerability to natural disasters.

The General policy context

Regional ICT development policy is unfolding in the context of global policy articulated most recently at the ITU/UNESCO World Summit on the Information Society (WSIS). Since the establishment of the World Trade Organisation in 1995 the General Agreement on Trade in Services and the Appendix Agreement on Basic Telecommunications Services this has been the most recent development in the supranational policy framework. A broad agenda for ICT development to achieve elevated levels of global connectivity by 2015 was put forward in the WSIS 2003 Plan of Action. The ten specific targets that were set by the Plan of Action to achieve this goal are to be translated into national targets "considering the different national circumstances". (WSIS Plan of Action, 2003)

The second WSIS conference in 2005 confirmed Information and communication technologies as the main drivers of productivity and competitiveness in all other economic sectors and the fact that application of ICT's can secure qualitative advance in social and economic development and the eradication of poverty.

The regional Connectivity Agenda was formulated in the framework of the broader hemispheric agenda set by the Summit of the Americas Agenda for Connectivity in the Americas held 2001 in Quebec, Canada.

Regional ICT/telecoms policy is also evolving in processes of sub-regionalism (ECTEL), regionalization in the CSM, relationships with other regionalization processes such as in the European Union, and globalization in the WTO framework.

Measuring ICT Development

ICT advances can now be measured with a number of indices. In 2001 the United Nations Development Fund Technology Achievement Index (TAI) [5] measured advances that countries were making in the maximising the potential of ICT's. The 2001 TAI grouped countries as Leaders, Potential Leaders, Dynamic Adopters[6], the Marginalised, and Others, where a majority of developing countries for which no index was calculated were placed. In addition to the TIA, there are the Digital Access Index (DAI) developed by the ITU in 2003 as a tool for measurement in the WSIS process; and the Networked Readiness Index (NRI) generated by the World Development Forum[7].

The ITU's Digital Access Index which covered 178 countries in 2003 is assessed using indicators. This index measures the overall ability of individuals in a country to access and use Information and Communication Technology using the eight variables organized into five categories shown in Figure 1.

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[5] The (TAI) was introduced as a measure of ICT development in the 2001 Human Development Report.

[6] Trinidad and Tobago and Jamaica were among the "Dynamic Adopters"

[7] Other indices include the ICT Opportunity Index, the Digital Opportunity Index (Partnership on Measuring ICT for Development) and the E - readiness Index of the Economist Intelligent Unit. The e-readiness index measures information infrastructure, internet availability, network availability, speed and quality. . The United Nations ICT Task Force notes however that still, **"**a common set of ICT for development (ICT 4D) indicators has not been developed"

Figure 1:   DAI Indicators
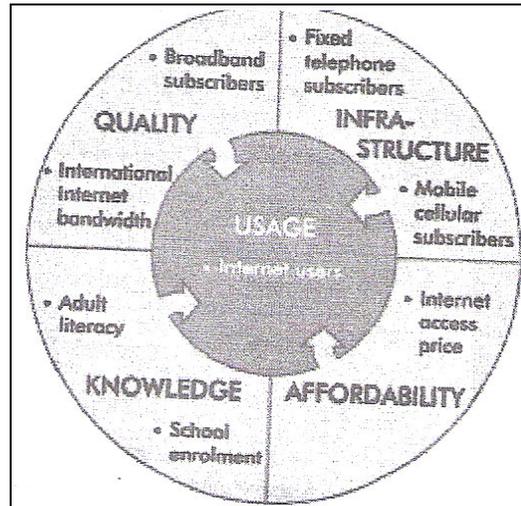
Source: International Telecommunications Union

These categories are availability of infrastructure, affordability of access, educational level, quality of ICT services, and Internet usage. From the DAI score it will be possible to monitor a country's progress in ICT development with the emphasis on access. Countries are classified into one of four digital access categories: high, upper, medium and low.   DAI ranking of selected Caribbean countries is presented in Table 1 below. Most Caribbean countries are in the Upper Level.

Table 1: Digital Access Index: Ranking of Caribbean Countries

Upper Level		
1	Bahamas	0.62
2	St. Kitts and Nevis	0.60
3	Antigua & Barbuda	0.57
4	Barbados	0.57
5	Dominica	0.54
6	Trinidad & Tobago	0.53
7	Jamaica	0.53
8	St. Lucia	0.52
9	Grenada	0.51
Medium Level		
10	Belize	0.47
11	Suriname	0.46
12	Guyana	0.43
13	Dominican Republic	0.42
14	(Cuba	0.38)
Low Level		
15	Haiti	0.15

Source:: Created from International Telecommunications Union DAI for 178 countries

Although there is still need for agreement on common measurement indicators, as noted by the UN ICT Task Force, the existing indices incorporate factors that do indicate achievement in ICT availability and use. Based on these, the World Bank (2006) generated data from assessments of ICT capacity in terms of performance, progress and opportunities of ICT sectors, in almost 150 countries. These data provide a basis for measurement and comparison.

The World Bank assessment found that while there was substantial progress in infrastructure roll-out in developing countries, there was less progress generally where advanced use of ICT's was concerned. The assessment of the Caribbean based on 2004 data is presented in Tables 2a and 2b (Appendix 1).

ICT development policy in the Caribbean.

The Third and most recent meeting of CARICOM Ministers responsible for ICT, held in October 2004[8] focused on the region's ICT agenda. The meeting reviewed agreements from the 2nd meeting in 2003 which set a framework for current ICT development policy in and for the region. The main agreements in 2004 were:

- That CARICOM States adopt a coordinated approach to conceptualisation and development of ICT policies... [to] promote broader access to and use of information and communication technology... and the transfer of technology;

- [Establishment of] a specialised Group charged with responsibility for ICT within the CARICOM Working Group on Services, established under the aegis of the Council for Trade and Economic Development (COTED);

- That the CARICOM Secretariat, in conjunction with partner institutions and agencies in the Region, including relevant tertiary institutions, provide technical support for the Working Group ... ;

- That the ICT specialised Group report to and advise the Council for Trade and Economic Development (COTED) of CARICOM, and the Conference of Heads of Government …;

- That over the next two years, commencing … February, 2003 the CARICOM ICT specialised Group shall work in collaboration with the appropriate regional and sub-regional agencies and organisations and consult with international

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[8] The 4th meeting is scheduled for the third quarter of 2006

bodies and organisations, to ensure the development and maintenance of a programme to support the CARICOM ICT/Connectivity[9] Agenda.

The Information and Communication Technology (ICT) Steering Committee[10] was set up in December 2004 to monitor implementation of these agreements and to lead the region's preparation for the 2005 WSIS.

From this decision the CARICOM Connectivity Agenda was developed and was accepted by the 2004 Heads of Government Conference. This Agenda expressed a new approach to regional policymaking for this sector. Instead of requiring member states to make inputs and agree to a central policy document as was the thrust in meetings of the CARICOM Information Ministers' in the 1990's the CARICOM collective would now set a framework and agenda for development. This was a shift in the policy on regional policy making for ICT development in the region.

- There would be co-ordination not conformity in regional ICT policy: member states of the Caribbean Community were being called upon "to formulate a vision statement of their own Agendas".
- ICT would be placed in the Trade and Economic Development portfolio; and the CARICOM Secretariat would focus on collaboration, consultation, oversight and support in ensuring ICT development.

- There would be the recognition that the ICT connectivity agenda is cross-sectoral and should be pursued in an institutional framework that would be independent of a single executive portfolio
- Connectivity should be of the "requisite interoperability to operationalise the CSME"

Some specific considerations

Against this background, some specific policy considerations arise. One presents itself as a question: Is the ICT Connectivity Agenda advanced in tandem with the role that the leadership of the regional integration process has defined for itself? Will individual country agendas with collaboration, consultation,

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[9] The CARICOM Agenda defined connectivity as "a society's internal capacity for communication with its global environment through the use of telecommunications, information technologies, and through the products of its content industries", and identified its purpose as being "to enable each country of the Community and the hemisphere to evolve towards the information and knowledge-based society."

[10] The Committee comprises Member States of the Caribbean Community (CARICOM), Regional organisations, representatives of the private sector and civil society, and CARICOM Secretariat staff.

oversight and support from the centre mobilise the region's best intellectual and technological capacities into service for the development of ICT's sectors and for ICT to drive national development and assist in operationalising the CSM (and E by 2008)? Can the institutional arrangements match the speed of change in ICT markets and manage "dynamic tension" among partners and stakeholders.

The second consideration is that the region's Connectivity Agenda, is not only a regional/national public policy agenda. It is an agenda also for the national and international private sector. This private sector is comprised of providers of information and communications goods services; infrastructure providers; content providers. It also includes new entrants spawned by liberalization and de-monopolisation of telecommunications markets in the region. It is also the agenda for the multilateral and domestic financial interests which will be associated with investments made in the sector.

The largest investments from telecommunications liberalization since 2003 in the region have come from foreign investors and this is not unlike the case of liberalization in other developing countries (Melody 2005). A more comprehensive view therefore has to be taken to ICT policy requirements and considerations in the region to ensure that there is congruence between private and public interests as well as between the supply side and the demand side in the market. Partnerships to which global, regional and national frameworks should therefore take into account the real relationships and not the declarations that underpin these partnerships.

Congruence between supply and demand can be translated into the need to bring access and utilization of ICT's to a level that maximizes infrastructure provisions and generate for the provider returns that are an incentive to further investment in upgrading and expanding the infrastructure.

This brings the third specific consideration to the agenda: Is there the readiness among the populations in the region to maximize the infrastructure? The explosion in the voice telephony market since liberalization and de-monopolisation in regional telecommunications markets, suggests that the answer yes, there is readiness. The growth in number and complexity of data networks in the financial sectors, exemplified by widespread presence and use of automatic banking machines also suggest readiness. The same response is not however evident in the availability and take-up of broadband internet services. Consider this: Compared with the United States with 129.1/1000 subscribers to a broadband internet service and that country's 3308 bits per person in 2004 the Caribbean performance was seriously lagging. In 2004 Guyana and Antigua had no subscribers and take-up for other countries in Table 2b (Appendix) ranged

between 11.5/1000 in Grenada and 0.1 in Trinidad and Tobago. Barbados was the highest with 101/1000.

Is 'the software' ready in regional ICT development? the ICT literacy (demand) for the infrastructure (hardware) that is to ensure the desired interoperability of systems and to provide a critical mass of ICT educated, trained and specialist human resources in the regional common market.   Even if bandwidth deficiencies are remedied, there has to be ICT literacy, one of the "new literacies", to create that new body of knowledge, a prerequisite for functionality in the culture of the new ICT's.

ICT literacy refers to the capacity to apply ICT in various areas of human life … to use digital technology, communication tools, and/or networks appropriately to solve information problems in order to function in an information society. This includes the ability to use technology as a tool to research, organize, evaluate, and communicate information and the possession of a fundamental understanding of the ethical/legal issues surrounding the access and use of information.'   (Markauskaite 2006)

One sentiment at the last meeting of CARICOM Ministers for ICT's was the expectation that trade arrangements under the regional FTAA and the WTO commitments heralded "unprecedented increase in access" to domestic markets and so required a more aggressive than defensive posture in trade relations with other countries[11].   Here can be found a fourth policy consideration relating to ICT development.   This unprecedented access to domestic markets is evident in the enthusiastic response to telecommunications liberalization in the region and the extensive infrastructure developments and exponential growth particularly mobile voice services in the English speaking Caribbean and in Haiti.   One example of the impact of the private sector development agenda is what is now being interpreted as a reverse liberalization: maybe not yet a return to the monopoly but a trend to watch. [12]

Another policy consideration relates to regional policy on trade in communications services: specifically trade in content – ICT products that inhere intellectual property rights.   The case of the cable operators in Jamaica comes to mind. A significant hindrance to full industry compliance with intellectual

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[11] Lynette Eastmond, Minister of Commerce, consumer Affairs and Business Development of Barbados, in opening speech the meeting.

[12] Note the chain of acquisitions through Digicel, AA&T and Cingular, causing a move backward from four to two players in the mobile market in Barbados or the emergence of Flow Communications in Jamaica, for many threatening meltdown in the cable services market and possibly in internet provision in a "triple play" business model.

property rights obligations in this sector is the distortion introduced into the market by the decision among some providers of premium channels in the USA not to supply the Jamaican market because it is too small!   This is a policy issue for COTED and the regional negotiating machinery.   Of course the policy would have to also provide for export of content from the Caribbean, for which ICT's present vast opportunities.

The representation of Caribbean countries in global statistics is another matter of interest in making and implementing policy for ICT development.   Often it is either no data or stale data for countries in the region.   The picture of the Caribbean is not always clear as these countries end up being included either in Latin America and the Caribbean or with North America.   Without current and reliable data policy making will not be "evidence based" (Scott 2005) and our measurement and appreciation for the quality and significance of the ICT "divide" may be off target.

The final policy consideration that will be mentioned here is that ICT's can facilitate integration and at the same time permit differentiated courses of development, allowing respective countries to maximize individual potential. The question in regional policy making would then be: where can and should there be policy convergence and where would it better be divergence in the Caribbean?

Conclusions and directions - Making the policy work

As a corollary to the foregoing policy considerations there has to be a cross-sectoral approach to ICT policy development and implementation.   This is required as the benefits from these tools will be effectively realized only in tandem with policy for other economic and social sectors.   This will not only allow countries to hedge against the opportunity costs that can come from delay in creating greater access to and use of ICT's. It will assure participation in the global infocommunications economy [Fransman 2002] on a truly competitive basis.   Such participation will be facilitated by an infrastructure of capacity and quality that allows production and use of a variety ICT goods and services that are affordably priced, and the presence of relevant human skills and competencies.   Two areas will suffice as examples.

In Education, ICT literacy has to be integrated to create a new body of knowledge to which reference was made above.   Without this literacy Caribbean countries will not be able to "move beyond talking" and to maximize infrastructure investment and development and cause economic the benefits to flow inward.

At the tertiary levels the cross-over in education is also imperative to bring policy studies and a policy consciousness into the technology curriculum in building capacities and skills in policy analysis, policy making and policy implementation. There is evidence of some of this taking place.   The Faculty of Computer Engineering at the UWI, St Augustine, in Trinidad did the pioneering thing of introducing postgraduate studies in policy and regulation for the telecommunications sector.   Through the UWI Mona School of Business, Telecommunications Policy and Management Programme in Jamaica this crossing over has also started.   And, there is the annual Humanities Symposium at the University of Technology. The humanistic aspects of policy have been traditionally received focus only in broadcasting due to the area of content and culture.   Telecommunications and ICT with their engineering and technical orientation has not had this tradition.   And our education policy must countenance and provide for this convergence; hence regional ICT policy as this affects education in ICT fields.

The second area is in Trade and foreign relations policy.   As the region seeks fair competition in the global market the discourse and the negotiations should seek to mobilise Caribbean assets outside of the region for investment in increasing capacity and access to ICT's in the region. The Caribbean Telecommunications Union, CARICOM/CSM and the Regional Negotiating Machinery are resources which the region has to facilitate the process in the wider global context.   The follow-up to the WSIS Tunis Commitment provides another opportunity to realize these goals.

This paper has raised some issues without necessarily offering the answers.   The objective really has been to insert these issues/considerations into the discourse to enrich and enhance the decision-making process.

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APPENDIX 1

Country/ Indicator	Antigua & Barbuda	Barbados	Dominica	Grenada	Guyana	Jamaica	St. Kitts & Nevis	T'dad & T'bago	U.S.A	Latin America & C'bbean Region
Economic and Social										
GDP Growth 2000-4 %	3.2	*-1.1*	-1.9	0.1	0.9	1.7	1.2	7.2	2.6	1.5
Primary, secondary, tertiary school enrollment (% gross)	n/a	n/a	*75*	96	*77*	*74*	89	*66*	*93*	*82*
ICT sector structure										
Gov't level of prioritasation (scale 1 – 7)	n/a	n/a	n/a	n/a	n/a	4.7	n/a	4.0	5.2	3.5

Table 2a: ICT development indicators for selected Caribbean countries, Latin America & Caribbean and the U.S.A (2004)

Source:World Bank ICT–at-a-Glance Tables from *Information and Communications for Development 2006: Global Trends and Policies*.

Table 2b: ICT development indicators for selected Caribbean countries, Latin America & Caribbean and the U.S.A (2004)

Country/ Indicator	Antigua & Barbuda	Barbados	Dominica	Grenada	Guyana	Jamaica	St. Kitts & Nevis	T'dad & T'bago	U.S.A	Latin America & C'bbean Region
ICT Sector Performance										
Access										
Telephone main lines (per 1000 pop.)	484	495	*334*	*312*	*121*	*174*	503	*249*	606	181
Mobile subscribers (per 1000 pop.)	500	*517*	*132*	*404*	196	*615*	*107*	*396*	615	324
Pop. covered by mobile telephony (per 1000 pop.)	85	n/a	n/a	n/a	n/a	*95*	n/a	n/a	95	76
Internet users (per 1000 pop.)	131	*370*	*176*	*182*	39	*265*	*214*	*114*	569	104
Personal computers (per 1000 pop.)	n/a	*104*	*112*	*135*	38	*54*	*193*	*79*	760	75
H/holds with TVs (per 1000 Pop.)	n/a	n/a	n/a	n/a	n/a	*70*	n/a	*88*	97	88
Quality Broadband subscribers (per 1000 pop.)	0.0	*101*	*4.5*	*11.5*	0.0	*9.5*	*10.7*	*0.1*	129.1	5.2
International bandwidth (bits per person)	366	n/a	n/a	n/a	n/a	*43*	*42*	67	3308	165

Source:World Bank ICT–at-a-Glance Tables from *Information and Communications for Development 2006: Global Trends and Policies*.