



Caribbean
Telecommunications
Union



Evidence for Caribbean ICT Policy Development

*Caribbean ICT Policy Rapid Response Initiative
Policy Briefs*



Contents

A MESSAGE FROM THE SECRETARY GENERAL OF THE CARIBBEAN TELECOMMUNICATIONS UNION	3
EXECUTIVE SUMMARY	4
WHAT IS THE RAPID RESPONSE INITIATIVE?	7
OVERVIEW	7
POLICY BRIEF 1:IMPLICATIONS OF TECHNOLOGY AND SERVICE CONVERGENCE ON THE OPERATIONAL AND ORGANISATIONAL ASPECTS OF REGULATION.....	11
POLICY BRIEF 2:GLOBALLY COMPARABLE CARIBBEAN ICT SURVEY INSTRUMENTS AND BASELINE STATUS OF NATIONAL ICT DATA ACQUISITION.....	17
POLICY BRIEF 3: ANALYSIS OF THE POLICIES DESIGNED TO ENCOURAGE DEVELOPMENT OF BUSINESS IN THE ICT-SERVICES SECTOR	21
POLICY BRIEF 4:COLLABORATION POLICY FOR FUNCTIONAL COOPERATION THROUGH ICT, IN THE AREA OF CRIME AND SECURITY	26
POLICY BRIEF 5:THE EXAMINATION OF PREVAILING MODELS FOR THE EVALUATION OF THE IMPACT OF ICT ON DEVELOPMENT WITHIN THE CARIBBEAN	34
REGIONAL ICT POLICY DEVELOPMENT –LONG-TERM, STRATEGIC CONSIDERATIONS.....	40
CONCLUDING REMARKS ON THE EVIDENCE FOR CARIBBEAN ICT POLICY DEVELOPMENT.....	42
MEET THE RESEARCHERS	43



The Caribbean Telecommunications Union is a regional intergovernmental organisation dedicated to facilitating the development of the Caribbean ICT sector.



This work was carried out with the aid of a grant from the Canadian International Development Agency and the International Development Research Centre, Ottawa, Canada

© 2011 Caribbean Telecommunications Union

A Message from the Secretary General of the Caribbean Telecommunications Union

In 2009, the International Development Research Centre (IDRC) invited the Caribbean Telecommunications Union (CTU) to conduct policy research designed to provide evidence to support the formulation of sound policy for Caribbean ICT development. Funded by the IDRC, the Caribbean ICT Policy Rapid Response Initiative (RRI) was the first project of its kind for the CTU. It represented a new phase of widened activity and an increased thrust by the CTU to advance its mandate of helping the region foster ICT development.

The Caribbean faces many threats and challenges to its social and economic stability. Exposure to the effects of climate change, increasing criminal activity, contracting agricultural sectors and the effects of global economic crises are eroding the region's global competitiveness and threatening social and economic viability.

Fully cognisant of these threats, Caribbean Governments have committed to building competitive advantage on the basis of knowledge and information. They have acknowledged that the ability to create, share and use knowledge must become the driving force in shaping future development. Most have espoused the need to move their countries to knowledge societies and economies, but, in spite of the large expenditures on ICT in the post-liberalisation period of telecommunications markets, the region has not been able to make significant progress in advancing its ICT-based development agenda.

It has been agreed by many that a fundamental component in addressing this issue is the need for evidence-based policy development. This in turn requires the execution of relevant regional research. The Caribbean ICT Policy Rapid Response Initiative (RRI) is a cogent response. The CTU envisions that the RRI will form a part of a greater regional thrust towards evidence-based policy development in the Caribbean ICT sector. As such, it is our hope that the results of this Initiative, whether adopted in their entirety or in part, will serve to inform the process of policy development in the subject areas addressed.

The CTU recognises that this Initiative would not have been possible without the gracious support of our many partners and stakeholders. I would like to express my deep gratitude to the IDRC for the opportunity to conduct the project, by giving their substantial financial and other support. I would also like to extend our appreciation to the regional stakeholder community for their input and my sincere gratitude and appreciation to the members of the Review Committee, whose efforts were pivotal in ensuring that this Initiative was of the highest standard. Finally, I extend my heartfelt thanks to the Project Coordinator, Mr. Renique Murray, and to the members of the CTU staff, whose tireless efforts have brought this stage of the Initiative to a successful conclusion.

The current global climate necessitates a regional response that moves beyond discussion, one that takes us to meaningful action. The CTU therefore urges members to earnestly consider these findings and strongly advocates for action to be taken. We look forward to seeing the results used to formulate and implement sound policies that advance the region's ICT-based development agenda. The CTU stands ready to assist its members in implementing the recommendations of each project.

Bernadette Lewis
Secretary General,
Caribbean Telecommunications Union

Executive Summary

The Rapid Response Initiative is a research effort that was spearheaded by The Caribbean Telecommunications Union (CTU) in conjunction with the International Development Research Centre (IDRC), and it forms part of the IDRC's wider Caribbean ICT Research Program. The Initiative was designed to provide quick, expert advice to regional policy makers, regulators and other groups in relation to specific areas of interest. In particular, the Initiative sought to target areas in which the absence, or lack of properly formulated policies, was at the time resulting in significant challenges to the implementation, adoption and/or operation of ICTs and ICT-related development.

The Initiative spawned a number of research projects directed toward the target areas, which were identified by polling the opinions of members of the CTU's regional stakeholder community. The projects were designed to be short and precise, and to unearth information that would be critical in informing the policy development processes of various regional bodies.

At the inception of this Initiative, the CTU's intent was to develop a quantum of resources for the regional members that would assist in their policy development processes. It was therefore considered that critical to this undertaking would be the solicitation of input from members in its development, the apprising of the members at regular intervals as to its progress, and ultimately the availability of its findings and outcomes upon completion. In keeping with this, the CTU has developed this Research Summary publication as a means of disseminating the outcomes of this work. This publication presents a summary of the final project report for each of the research projects done under the Initiative. It outlines the major objectives of the projects, the methodologies used in their execution, the main findings and outcomes of each project, and recommendations as to how to begin the process of addressing some of the more critical issues arising from the work.

In soliciting the input from the stakeholder community, one of the areas deemed to be of significant interest was the issue of the relevance of the region's current regulatory frameworks, in light of the phenomenon of convergence. Most of the regional regulatory frameworks emerged in the era of the liberalisation of the telecommunications sector. However, aside from minor amendments made in most of the regional territories, the sectors have not kept pace with developments in technology, and currently, the regulatory and legal framework is lagging the convergence phenomenon. As such, a project was envisioned that sought to determine the nature of the changes necessary in order to adapt to the new technological environment, while fostering sustainable development. The findings of this work support the belief of growing sector inadequacy despite rapid technological advancements. The research has identified that a critical factor leading to the current reality is the lack of implementation of laws and orders under the current regimes and structures. Furthermore, it asserts the position that much of the action necessary to facilitate proper regulation of the evolving sectors and markets within the region is in fact already catered for under the current frameworks. This is discussed in Chapter 1.

Key Caribbean policy and regulatory stakeholders have for years pointed to a lack of reliable data as a major impediment to their operations. The region by and large still lacks the basic indicators that would facilitate the design and monitoring of policies related to the information society. It is this pressing need for accurate, comprehensive and current statistical data on ICT indicators that has formed the basis for one of the projects conducted under this Initiative. Chapter 2, entitled "Globally Comparable Caribbean ICT Survey Instruments and Baseline Status of National ICT Data Acquisition", presents the major outcomes of this project. It details an assessment of the current status of ICT indicator collection in the CARICOM countries, and examines the various efforts directed towards identifying a set of globally-comparable, regionally-relevant core ICT indicators for the Caribbean. This research has found, however, that the region is still lagging in this regard and that there is still much work to be done. It highlights the key efforts that are being made and advocates for greater regional collaboration in addressing the issue. It also presents a template for the development of a standard ICT survey instrument that can be adopted for use in the regional territories.

Within the region, there have been a number of ICT-related businesses that have developed successfully in recent times. This is indicative of a developing ICT services sub-sector. In keeping with this, Chapter 3 presents the findings of one of the projects that sought to assess this regional development, with the intent of identifying key policies that were critical to fostering the growth of this sub-sector. Such identification could then be proliferated and implemented in other regional territories. Unfortunately, the research done for this project found that the majority of successful businesses in the region do not ascribe their success to any policies in the sector. The research identified that the key factors that have led to the current state of affairs include a general lack of understanding of the sub-sector, as well as poor implementation of stated objectives by many governing bodies. This points to a need for a more structured approach to the development of the services sub-sectors across the region.

Chapter 4 presents a project with the distinct focus on the issue of regional crime and security, and the role of ICT in a collaborative effort to improve regional security. ICT has been, and is increasingly being considered, a significant tool to be used in the regional response to increasing cross-border and international criminal activities. This project sought to examine the types of policies that need to be developed and implemented regionally to facilitate strategies and approaches to addressing these problems. The work done under this project indicates that any such policies must consider the fact that there already exist a number of regional institutions that can serve as a skeletal structure for such regional strategies. It also asserts that a key issue in addressing crime is knowledge management, and thus policies geared towards such approaches would be significantly beneficial if a knowledge management systems approach is taken.

The last of the projects, presented in Chapter 5, addresses the issue of evaluating the impact of ICTs on regional development. A recent trend has been observed where regional governments have been investing significant resources into ICT initiatives, with the general intent of facilitating economic and social development. However, it is believed that little of this investment has been assessed to determine its success in achieving the stated objectives. The findings of this research verify this belief, confirming that at most only 50% of the projects implemented regionally are assessed or evaluated to some minimal extent. The work further asserts that none of the evaluative methods that are currently in use have been developed for the regional context. In keeping with this, an evaluative approach for the Caribbean context is presented and discussed.

The final section of this publication, chapter 6, presents a macro overview of the findings of the projects presented. It examines these findings to identify underlying issues and considers some critical factors that must be addressed in any approach that seeks the sustainable development of the regional ICT sectors.

A key emphasis in the execution of this project was to ensure that the results and findings are both relevant and readily applicable. As such, for the projects presented, an implementation plan is proposed wherever possible. These plans serve the primary purpose of advocating for the need for actual treatment of the issues presented here, while also seeking to capture the more critical issues that must be considered in seeking to implement potential strategies. However, they are not exhaustive and are by no means prescriptive, bearing in mind an appreciation of the uniqueness of the Caribbean construct. It is the sincerest hope that the findings of this work find relevance in the reader's context, and that they promote further consideration and ultimately action, on some of the more critical issues facing ICT development in the countries of the region.

This Policy Briefs document is supported by three other documents as follows:

1. An Executive Summary, which provides the main findings of each project in a quick reference manner ;
2. A Research Summary, which provides a greater level of detail by expanding on the information contained in this Policy Briefs document ; and
3. The detailed reports arising from each project, which provide the results of each project in its entirety.

All of the documents may be accessed through the CTU's main website at www.ctu.int. Should you require further information regarding the Rapid Response Initiative, please contact the CTU directly at emily.fitzpatrick@ctu.int

What is the Rapid Response Initiative?

Overview

The countries of the Caribbean are presently faced with the challenge of responding effectively to the emergence of the knowledge era. In years past, much of the region invested heavily in the implementation of voice telephony systems and sought to make universal access possible. With the passage of time, this was made a reality, but the recent rapid development and advances in Information and Communication Technologies (ICTs) quickly began to outstrip previously conceived objectives and traditional regulatory frameworks. At the same time, globalisation and more recently the contagion of the global financial crisis have eroded the viability and sustainability of the region's economies, and are impelling the countries of the region to the consideration of movement towards becoming knowledge societies. At this point, the region is at a significant juncture where decisive action is critical and unavoidable if its countries are to be positioned appropriately in the evolving global environment.

The capacity of the region to respond to these changes hinges upon the existence of an enabling regulatory and policy environment within the countries of the Caribbean. Unfortunately, the policy frameworks of most countries have not kept pace with the development of ICTs. Consequently, this lag is presently posing challenges to the implementation of ICTs and the related development in many countries of the region.

In light of this, the Caribbean Telecommunications Union (CTU), in conjunction with the International Development Research Centre (IDRC), spearheaded a regional Rapid Response Initiative. The Initiative forms part of the wider Caribbean ICT Research Program that is being conducted by the IDRC. This Initiative was designed to provide quick, expert advice to regional policy makers, regulators and other groups in relation to specific areas of interest. In particular, the Initiative sought to target areas in which the absence, or lack of properly formulated policies, currently result in significant challenges to the implementation, adoption and/or operation of ICTs and ICT-related development.

Structure and Progression Path of the RRI

The mandate of the Rapid Response Initiative came under the charge of the CTU in the latter half of 2009; however, the Initiative effectively commenced in April 2010 with the engaging of the services of a Research Coordinator. The Research Coordinator's primary responsibility involved developing various aspects of the project, coordinating their implementation, and managing the project's progression towards completion. In addition to the Research Coordinator, A Review Committee was set up as a body to oversee the progression of the work done under the Initiative so as to ensure that it was of the highest standard. The Review Committee consisted of key ICT personnel from across the Caribbean region, the Research Coordinator, and members of the CTU Secretariat. The Committee was officially convened and commissioned in September 2010.

The RRI was conducted in four main phases. The soliciting of information from the regional community was the focus of the first phase of the Initiative. This commenced in April 2010 and was conducted in two steps: the issuing of a Call for Expressions of Interest, and the execution of a number of telephone interviews. The Call for Expressions of Interest was forwarded to CTU member representatives, operators and regulators across the region. The subsequent feedback was recorded by the CTU. This was followed by a series of telephone interviews conducted by the Research Coordinator of the Initiative. These two steps were foundational in identifying some of the more critical areas that are currently challenging regional ICT development.

The second phase of the Initiative began in September 2010. This phase sought to refine the rudimentary data received from the first phase into more defined research project areas. The primary

tool utilised in the execution of this was the issuing of a Prioritisation Questionnaire. This questionnaire, which was forwarded to CTU member representatives, regulators and other stakeholders, sought to have the regional community identify the priority levels of the areas of challenge previously identified.

The third phase of the RRI involved the initiation, execution and completion of five research projects based on the input received in the first two phases. This phase began in November 2010, with the acquisition of five Project Researchers to conduct research on each of the projects. The projects were conducted over a period of six months.

The fourth and final phase of the Initiative comprised of two components. The first component involved the Review Committee's review and assessment of the work done by the project researchers. This was an iterative process, as the researchers worked towards the standards set by the Committee. The second component of this phase concerned the dissemination of the Initiative's findings and outcomes to the CTU's regional stakeholder community. As stated previously, this Policy Briefs publication forms a critical part of this thrust. However, in addition to this publication, the CTU has planned a number of activities as part of its dissemination efforts. The Executive Summary publication is available via the Caribbean Telecommunications Union website and a limited number of copies were printed and disseminated. Additionally, each Project Report is only available in soft copy and will be made available to interested parties, upon request.

Identification of Research Areas and Determination of Projects

The six main areas of challenge identified by the regional ICT community at this point were as follows:

- Topic 1: The development of a Caribbean regulatory model/framework
- Topic 2: ICT data collection
- Topic 3: Public awareness and education
- Topic 4: Policies that promote success in ICT-enabled businesses
- Topic 5: Further functional regional integration and collaboration
- Topic 6: Deepening of the liberalisation process

It should be noted that the responses to questionnaires and interviews conducted in Phase One revealed that cybercrime is an area of critical concern in a number of territories. However, to prevent repetition of similar work being conducted by other regional entities, it was decided that the issue of cybercrime should not be addressed under this Initiative.

The second phase of the Initiative sought to refine the data and information received from the questionnaires conducted in the first phase, into defined research project areas. The primary tool utilised in executing this was the issuing of the Prioritisation Questionnaire. This questionnaire, which was forwarded to various Caribbean stakeholders, sought to have the regional community prioritise the areas of challenge previously identified. The results of this questionnaire were as follows:

- Level 1 (Highest priority) – Area 2: ICT data collection
- Level 2 – Area 1: The development of a Caribbean regulatory model/framework
- Level 2 – Area 6: Deepening of the liberalisation process
- Level 3 – Area 3: Public awareness and education
- Level 3 – Area 4: Policies that promote success in ICT-enabled businesses
- Level 4 (Lowest level) – Area 5: Further functional regional integration and collaboration

This served as a platform for the development of four key research projects. The first of these sought to target the issue of the relevance of the region's current regulatory frameworks. It is well known that the liberalisation of the telecommunications sector in the Caribbean region began in the 1990s. As such, most of the governing regulatory frameworks across the region were amended or developed during this time. Since then, there have been rapid developments in the sector, a critical aspect of which has been the convergence of technologies. Unfortunately, most of the regulatory regimes in the region have not kept pace with these developments, and are now rather inadequate. As

such, this project sought to examine the changes that must be made in order to have a regulatory regime, which can support the further advancement of ICT in the countries of the region. The project was given the title: Implications of Technology and Service Convergence on the Operational and Organisational Aspects of Regulation.

Key Caribbean policy and regulatory stakeholders have for years pointed to a lack of reliable statistical data on ICT, as a major impediment to the further development of regional policy, regulation and service provision. The region by and large still lacks the basic indicators that would facilitate the design and monitoring of policies related to the information society. It is well known that jurisdictions which have ready, reliable data are better able to assess the impact of ICT's on their economies, benchmark their progress against other countries and calculate the level of investment required to provide households and businesses with access to different types of ICTs. In light of this pressing need, a project was envisioned that sought to assess and document the status of ICT indicators collection in CARICOM countries. The project also sought to advocate for the benefits of adopting standard Caribbean survey instruments to acquire national ICT indicators that are regionally relevant and on par with global standards. This project was given the title: Globally Comparable Caribbean ICT Survey Instruments and Baseline Status of National ICT Data Acquisition.

The past few years have witnessed the growth and increased complexity of the sector. Within the region, there have recently been a number of businesses that have developed successfully in the ICT-services sector. However, the pace of development has been uneven across the different countries. In order to facilitate the further regional development of these business ventures, a research project was directed towards the examination of the types of policies that are necessary to facilitate this development. The project was entitled: Analysis of the Policies Designed to Encourage Development of Businesses in the ICT-Services Sector.

Additionally, within recent times, crime and security have become very critical regional issues. Furthermore, many of the issues require a regional response in order for them to be effectively addressed. ICT has been, and is increasingly being considered, a significant tool to be used in the treatment of some of these matters. As such, a project was envisioned with the objective of examining the type of policies that need to be developed to facilitate the further implementation of ICT in collaborative cross-border strategies for the regional territories. The project title was: Collaboration Policy for Functional Cooperation through ICT, in the Area of Crime and Security.

Another recent trend observed was that regional governments have been investing significant amounts of resources in developing and implementing ICT initiatives, with the aim of achieving greater operational effectiveness. These investments are still increasing, and are expected to continue. Accordingly, it is important to be able to assess and to implement assessment structures, in order to validate and evaluate the nature of the impact of ICT. As such, though not identified as a key concern in the initial analysis, it was subsequently identified as a critical underlying component to the regional sector's advance. Consequently, a research project was developed to examine methods for applying this within the regional context. This project was entitled: The Examination of Prevailing Models for the Evaluation of the Impact of ICT on Development within the Caribbean.

Purpose and Structure of Publication

As highlighted earlier, there were five research projects conducted under this Initiative. Each project was effected as a standalone entity, with a dedicated Project Researcher executing the main investigation into the subject. As expected, there were differing findings and outcomes, as well as supporting reports and other documents associated with each of the projects under the Initiative. However, in keeping with the CTU's intention to make the outcomes of the work done under this Initiative readily available to its regional stakeholder community, it was necessary to find a way to effectively communicate the various elements. As such, the CTU has developed this publication to present the main thrust of each of the research projects. The publication therefore presents a collection of policy briefs that were developed based on the outcomes of each research project.

It should be noted, however, that this publication does not present the entirety of the work conducted under the Initiative. Further information can be found in the Research Summary, which provides a greater level of detail by expanding on the information contained in this Policy Briefs document and in the detailed reports arising from each project, which provide the results of each project in its entirety. This Policy briefs publication as well as other related *Rapid Response Initiative* Publications, such as the Executive Summary, may be accessed through the CTU's main website.

Project Personnel

Review Committee		
Mr. Selby Wilson, Committee Chairman	Telecommunications Strategist, Caribbean Telecommunications Union	
Mr. Julian Wilkins, Committee Vice-Chairman	Director, Telecommunications and Public Policy, Digicel Group	
Dr. Kim Mallalieu	Senior Lecturer and Leader, Communications Systems Group, University of the West Indies	
Mr. Apollo Knights	Secretary/Director, National Telecommunications Regulatory Commission, St. Vincent and the Grenadines	
Mr. Pierre Bowrin	ICT Policy Advisor, Government of St. Kitts and Nevis	
Mr. Renique Murray, Research Coordinator	Researcher and Instructor, University of Trinidad and Tobago	
Project Researchers		
Mr. Kwesi Prescod	Project 1	ICT Professional, Prescod and Associates
Mr. Lancelot Busby	Project 2	International Consultant in Strategic Planning
Mr. Wayne Butcher	Project 3	Engineer
Mrs. Michele Thomas	Project 4	ICT Policy Analyst and Research Associate, University of the West Indies, Mona
Mr. Pierre Bowrin	Project 5	ICT Policy Advisor, Government of St. Kitts and Nevis

Policy Brief 1:

Implications of Technology and Service Convergence on the Operational and Organisational aspects of Regulation

1. The CTU initiated a research project with the broad aims of: (i) Highlighting areas of regulatory imbalance in current regulatory practices throughout the region; and (ii) Identifying areas of new regulatory development to address emerging market issues related to the trend of convergence in technologies, networks and services that have evolved in the sector.

With regard to the first objective, it was noted that, while there are instances of regulatory imbalance in the implementation of the regulatory frameworks established by the relevant Telecommunications Acts passed throughout the region in the early 2000s, many of the existing instances of regulatory imbalance within the telecommunications sub-sector are due to subsidiary regulations, orders or operational mores that can be modified and addressed within the rubric of existing regulatory frameworks. Critically, however, the research found that the broadcasting sector is widely unmanaged across the region; and noted that without the appropriate oversight of this sector, there is a significant gap in information to guide the development of policies and systems geared to manage the sector in the context of both (a) Infrastructure roll out; and (b) Issues related to management of content broadcast to the general public.

2. Key initiatives have been identified to facilitate the timely evolution of regulatory frameworks to support the management of issues that are emerging due to convergence in the electronic communications sector. The areas identified for consideration to adequately address convergence included:

- (i) Revised governance to allow ease of application of authorisation across service categories
- (ii) Managing competition, anti-competitive behaviour and Net Neutrality
- (iii) Flexibility in telecommunications resource (spectrum and numbering) administration
- (iv) Addressing schema administration, and the management of address scheme migration
- (v) Addressing issues relating to local content, intellectual property and broadcast rights management

3. With regard to the key question of the model of governance, it is recommended that consolidated regulatory authorities may be the best fit for jurisdictions throughout the region. Evidence suggests that the additional cost of administration associated with multiple regulators that have oversight of the sector impresses a burden on smaller economies that characterise the region. Furthermore, due to the strong interdependencies associated with regulators of telecommunications and broadcasting service providers, as well as spectrum and numbering administrators, it is recommended that there should be a consolidation of these functions in one statutory, sector-specific regulatory entity, as this will facilitate better coordination of such interdependencies.

4. In further developing the discussion of revised governance approach, it is recommended that the sector regulators consider other human resource management models to augment the staff complement of the agency. The short term engagement of specialised resources (e.g. consultants) in the completion of specific, one-off activities, or the use of the outsourced approach to some aspect of on-going, personnel intensive operations may facilitate the sharing of risks and overall costs of effecting key aspects of the mix of functions required for comprehensive regulatory oversight.

5. From the perspective of regulatory philosophy, it is also recommended that there must be a move to change the regulatory focus from licensing and *ex post* reactionary regulation, to a market supportive mix of *ex ante* and *ex post* frameworks that support innovation in service delivery. Key to this approach would be to make adjustments in the authorisation regime from licensing to one that is based on registration for all networks and/or services under consideration. This will require the entrenchment of licence conditions in defined regulations instead of licensing instruments.

6. In further review of the operations of regional regulatory agencies, it is recommended that there should be the inclusion of more analytics and market assessment within the operations of these bodies. Earlier detection of deleterious trends and practices may allow for earlier intervention by the regulatory agency, reducing the need for lengthy enforcement or dispute procedures. This approach would require the strengthening of information reporting obligations within the regulatory framework, and making it applicable to all similarly-situated service providers in the sector, including telecommunications and broadcasting. The broad application of this principle, across a given layer of network or service providers, can facilitate the ready application of common tools to deal with emerging issues such as Net Neutrality, and Internet-based content piracy. The collection of metrics will also form the basis of a more customer-centric approach to regulating markets, and operator service level requirements. However, this thrust should be pursued with care, so that the metrics required are neither overly cumbersome nor cost ineffective for the operators to produce; as attractiveness to the market also involves limiting regulatory costs to only that which is absolutely necessary. In embracing this paradigm of facilitating an approach that is more market-sensitive, there is a further recommendation for the development of more flexible approaches to spectrum and numbering resource management. This could include the facilitation of secondary markets for these resources, which can be co-administered by the users in accordance with guidelines to militate against anti-competitive practices.

7. Critically, there needs to be considerable work done across the region to establish the necessary processes, systems, key indicators and metrics that can be applied to allow the effective monitoring of the broadcasting sector. This should include at a minimum:

- (i) Some form of co-regulatory code of conduct with relation to broadcast practices and propriety of content, via Broadcast Codes and the associated establishment of programming “watersheds”; and
- (ii) Reporting requirements which provide sufficient information related to trends in economic activity associated with intellectual property rights, and broadcast rights management.

The analysis of the impact of Internet penetration, concomitant consumer browsing habits and the viewership (thus economic viability) of copyright-protected broadcast content will provide key insight into appropriate policy remedies with respect to the question of content piracy, especially as it pertains to new media channels.

8. With respect to Internet issues, the recommendations support the consideration of sector regulators as an appropriate locus for the coordination of Top Level Domain Names. However, with respect to Internet governance issues related specifically to IP address scheme migration, it is recommended that the regional administrators desist from statutory action to address this concern. Instead, it is recommended that an encouragement approach be applied to prod the wider market to move in the preferred direction.

In this regard, key opportunities that can be leveraged include:

- (i) The government, as a major participant in the onshore economy of these small-island developing states, acting as a model adopter of IPv4 to IPv6 address scheme migration strategies; and
- (ii) The coordination of industry initiatives where relevant service providers collaborate to provide coordinated Network Address Translation services, as well as encourage the establishment of further facilities such as domestic IXPs in the core Internet infrastructure of the jurisdictions.

9. An overview of the key activities that should be undertaken to modernise the regulatory regime in any CARICOM member state is outlined in Appendix A.

10. In light of the above, the Minister with responsibility for ICT is asked to:

(a) Note the findings of the CTU Rapid Response Initiative Project 1;

(b) Agree in principle to:

- (i) The harmonising of authorisation approaches to telecommunications, broadcasting and data (Internet) services;
- (ii) The strengthening of regulatory practices as it relates to competition management, spectrum and address scheme management, non-discrimination and customer protection associated with these services;
- (iii) The strengthening of the regulatory framework associated with broadcasting content, and the protection of intellectual property rights;
- (iv) The inclusion within the policy framework of the administration issues of Top Level Domain administration and Internet address scheme migration; and
- (iv) Endorsement and encouragement of the implementation of the programme of activities (attached at Appendix A) to facilitate the rationalisation of the regulatory regime, [of the particular jurisdiction] in readiness to treat with areas of convergence

Appendix A

Objectives	Initiative	Outputs	Comments
1. Enhancing governance and institutional capacity	(a) Revising the governance frameworks	(i) Establish autonomous authority with oversight of telecoms and broadcasting regulation	<ul style="list-style-type: none"> Cabinet approval required for both outputs (i) and (ii)
		(ii) Streamline governance framework to consolidate telecoms and broadcasting regulation under a single body	<ul style="list-style-type: none"> Competition regulation may be retained in autonomous, cross-sector authority Objective to reduce additional administrative and regulatory burden
	(b) Augmenting internal capacity	(i) Training programmes for staff	<ul style="list-style-type: none"> At the discretion of administrative authority of the regulatory body
		(ii) Recruitment drives for staff	<ul style="list-style-type: none"> Objective to enable staff to undertake new functions of oversight
		(iii) Identify operational functions to be outsourced	<ul style="list-style-type: none"> Objective to reduce average cost of identified personnel-intensive functions
	2. Amendment to parent laws to provide for harmonised oversight of telecoms and broadcasting sector	(a) Adjusting the authorisation and management approach	(i) Identify registration as preferred approach for the authorisation of networks and services
(ii) Affirm that regulatory authority administers telecoms resources (spectrum, numbers, ccTLD) autonomously			<ul style="list-style-type: none"> Objective to streamline coordination of addressing functions Administration of all or part of these functions may be outsourced to third parties
(iii) Introduce powers to levy administrative fines			<ul style="list-style-type: none"> Introduces greater flexibility of the regulatory authority's approach to enforcement
(iv) Harmonising obligations of network operators and service providers			<ul style="list-style-type: none"> Elimination of areas of arbitrage between segments that have developed due to market evolution
(b) Strengthening competition regulatory powers in the market		(i) Strengthening information collection and analytical frameworks and systems	<ul style="list-style-type: none"> Powers may be shared between sector regulator and cross-sector competition body <p>(contents of this section continued on next page)</p>

Objectives	Initiative	Outputs	Comments
		(ii) Strengthen powers of regulatory authority to determine SMP/ dominance/ co-dominance	Reinforces the need for action to manage the hyper-competitive nature of the various duopolies in the majority of competitive markets
		(iii) Introduce powers for authority to direct parties to desist anti-competitive practices with suppliers, partners or against consumers	
	(c) Recognition of Broadcasting content and Internet piracy	(i) Introduction of co-regulatory code of conduct with relation to broadcast practices on content issues	<ul style="list-style-type: none"> Introduction of general, soft-touch oversight of content, including watersheds, rules of parity, etc.
		(ii) Introduce information collection and analytical framework associated with determining value and trends of broadcast rights market	
		(iii) Introduction of obligation to monitor Internet usage/ trends through reporting requirements	<ul style="list-style-type: none"> To be introduced in conjunction with more stringent measures to ensure adherence to IPR limitations on use of protected content products
3. Enhanced relevance of regulatory operations to the public	(a) Customer-centric service regulation	(i) Assessment of revised QoS metrics that are customer-oriented in nature	<ul style="list-style-type: none"> Initiative at the discretion of the leadership of the regulatory body.
		(ii) Use of survey information in relevant information gathering techniques	<ul style="list-style-type: none"> Education of the consumer to be utilised as a strong mechanism of encouragement regulation
		(iii) Publication and communication of customer-related metrics to the public	

Objectives	Initiative	Outputs	Comments
4. Leading the transformation of the ICT eco-system	(a) Capacity building of supporting governance systems	(i) Training of Judiciary personnel on e-commerce, cybercrime, etc.	Initiatives to be pursued through collaborative partnership of the government, regulatory authority and relevant industry stakeholders
	(b) Champion initiatives to develop the domestic telecommunications grid	(i) Government becomes model user of IPv4/ IPv6 address dichotomy in e-Gov IT systems	
		(ii) Regulatory authority mediates industry-led strategy to introduce NAT in domestic Internet access management	
		(iii) Regulatory authority mediates industry-led strategy to introduce domestic IXPs	

Policy Brief 2:

Globally Comparable Caribbean ICT Survey Instruments and Baseline Status of National ICT Data Acquisition

“Information technology is not a magic formula that is going to solve all our problems. But it is a powerful force that can and must be harnessed to our global mission of peace and development. This is a matter of both ethics and economics; over the long term, the new economy can only be productive and sustainable if it spreads worldwide and responds to the needs and demands of all people. I urge everyone in a position to make a difference to add his or her energies to this effort.”

Kofi Annan, Secretary-General, United Nations

Kofi Annan’s IT Challenge to Silicon Valley, 5 November 2002

Introduction

From as early as 2002, the potential of Information and Communication Technology as a tool for enabling global peace and development has been recognised and this sentiment is reflected in, the above quote. Since that time, much activity has taken place and many fora have discussed the Digital Divide that looked at the disparity in the access and use of the new technologies between the more developed economies and societies and the lesser developed. Today the thinking has evolved beyond that debate, as the gap has been acknowledged to be real.

Countries have come to the realisation that, since the successful and advantageous use of the new technologies is not merely technology-dependent, people can make the difference in redressing some of the imbalance between the countries that produce ICT products and those who merely consume ICT outputs. However, in order to reap the benefits of ICT in the region, appropriate action is required to address existing fragmentation and current and future developments in a liberated and converged environment. The researcher proposes the development of a National survey instrument which will provide information on the current status of Caribbean ICT usage, regulation and development.

It is well known that a lack of information is a major cause of imperfection in the market that leads to monopolies and other forms of restricted competition. A commitment to high standards of data collection and efforts to gather and analyse such data is required. Access to information will contribute to a levelling of the playing field and can create an environment where population size is not a determinant of a country’s ability to contribute to world development. The findings of this research project suggest the need for a mechanism or instrument that will provide timely and accurate data on households and individuals, as well as information on service providers and regulatory bodies. This survey will bring together information that will benchmark the Caribbean countries in relation to their position in the array of access to and use of ICTs; and indicate the actions needed to increase access across all strata of society.

A summary of some of the policies being addressed in the Caribbean, without being country-specific so as to turn the focus to one country to the exclusion of the others, would serve to review the tenor of thought on the addressing of the digital divide, or more aptly put, the opportunity to achieve greater inclusion in the ICT activity worldwide.

The Caribbean countries have recognised the strategic importance of creating knowledge-based societies nationally as well as a knowledge-based Caribbean society. To an increasing extent, since the turn of the present century, governments in the Caribbean have recognised the new environment and are strategising to achieve shared value through enabling legislation and the creation of an environment that promotes inventiveness on the part of the highly-skilled Caribbean human resource.

One policy that has gained currency throughout the Caribbean is the integration of information technology into the economy and society as a high priority and a strategic imperative.

This is reflected in all policy enunciations of the Caribbean governments. It has been backed by the creation of enabling legislation and the pursuit of the goal of all-inclusiveness by ensuring the even distribution of access to the ICTs geographically throughout the countries. This means that every attempt is being made to ensure that people in the less affluent segments of society are not being marginalised by lack of access to the technologies or by lack of infrastructure in some areas.

To this extent, the regulatory framework is being examined with a view to improving access at affordable rates. The acknowledgement that “Development is people” as made some thirty years ago by Bradford Morse, former Head of the United Nations Development Programme (UNDP); has been espoused and has become the basis for empowering the Caribbean countries. These countries have internalised the vision that they will become **inclusive, development-oriented, knowledge-based societies** that achieve economic and social growth through the active integration of ICTs into all aspects of life.

At varying levels of formality, the Caribbean governments are developing National Development Policy ICT Sector Plans to support their policy goals of achieving a higher development status by a determined date. Central to this objective is the assertion that Information and Communications Technologies have become engines for social and economic growth globally. The appropriate application of ICT can create improved quality of life for the Caribbean people as they experience a higher level of thinking, and experience improved feelings of self-worth as a result of their intensified and targeted use of these new technologies in their daily lives and in their areas of endeavour. Ingenuity knows no social boundaries and all are included in the opportunity to be inventive and produce value-added products to maximise and customise the software that can be applied to the hardware to develop solutions which are applicable to the Caribbean context and by extension, the global context.

Legal Frameworks

A number of policy issues come to the fore, as follows:

The harmonisation, standardisation and strengthening of the existing legal framework is required to address current and emerging technology realities while promoting and supporting competitiveness and the long-term development of the ICT sector.

With regard to the regulatory and institutional framework, an enabling and cohesive environment is needed to attract investment and facilitate competition. As mentioned previously, a lack of knowledge can severely hinder the development and growth of markets in the Caribbean and as such the survey proposed by the researcher has the potential to aid in the diminishing and eventual

elimination of the fragmentation which is being experienced in the region with regards ICT and access to such tools.

In the area of general administration, as a matter of policy, provision is being made for administering the licensing regime to facilitate procedural efficiency, transparency and responsiveness to technological changes. This will have sustained positive effects on the ability of regional governments to make informed decisions and leverage the power of ICT to promote growth and improved quality of life for citizens.

Benefits

The policies as discussed above are made with a view to deriving benefits for the Government and people of the Caribbean. The espousing of the identity of the Caribbean countries as being knowledge-based societies removes the negativity of being considered as being information-poor, and promotes a positive weighting in favour of inventiveness and entrepreneurship, and the creation of an economic space that would work to the benefit of the people of the Caribbean. Strategically, this can lead to a shared value between the originators of the technologies, and those who use and can adapt the vendor-provided solutions to provide increased value that can be used by many countries in the world.

The creation of the regulatory environment is seen as a major enabler of entrepreneurship, innovation and the creation of niche markets at minimum cost; as compared to the traditional road-shows that, because of high costs, have been beyond the reach of small and medium-sized entrepreneurs. An altered regulatory environment may well be the key to improved competitiveness.

Actions

Actions being taken in the Caribbean countries include the following:

- Drafting new legislation and establishing protocols to minimise fragmentation and overlap between jurisdictions;
- Rationalising several regulatory functions
- Creating an institutional and regulatory framework that can enable the goals of universal access to service provision at affordable rates.
- Getting it right as to where the retraining process should start.

The collaborative partnership between all major stakeholders will find expression in the elaboration of National Development Plans. Staying ahead in the area of maximised use of the ICTs will require a level of investment that should properly begin with the child who will grow up and accept the mantle for shaping the future.

To this extent, at least four Caribbean governments have embarked on an E-connect and Learn programme that provides all students entering secondary schools with laptop computers to facilitate their work and to encourage research.

E-democracy brings the citizens closer to the Government. Televised airings of sessions of Parliament literally bring these sessions into the living room of the citizens. The objective of this action is to build a more informed society through greater transparency of the work of the Government. Greater transparency may lead to greater debate and feedback which will lead to the fine-tuning of policies and actions to the benefit of the state.

Partnership on Measuring ICT for Development

There are areas that require vigilance on the part of the governments. It is too easily assumed that data collection is a simple task whereby a Statistical Office can collect data at any time. Governments should ensure that their Statistical Offices are adequately outfitted with the human resource and with the necessary hardware to embark on relevant fact-finding that will be used to form policies. The Caribbean Telecommunications Union, acting in furtherance to the work of ECLAC and IDRC, and with the assistance of the University of the West Indies in Jamaica and STATIN; has researched the production of one household survey instrument that would collect comparable data on the access to and use of ICTs in the Caribbean countries. Emerging from that body of data collected, as well as the identification of ICT indicators by the CARICOM Secretariat, will be statistics and data that will guide the governments to the policy actions that they should adopt to ensure that access to the ICTs is available to all segments and strata of society, so that all may have the opportunity to make their endeavours more productive and increase the chances of the Caribbean making a significant contribution to the development of ICTs worldwide. This will enable policy enactment on matters such as the distribution of lines to all areas of the countries, as well as the provision of more and wider broadband access to compensate for the lack of lines in certain areas. It will also enable a study on the current rate structures and some lowering of rates to accommodate those whose lack of use is at present accounted for by high rates for the provision of the service.

A Proposal to the Ministers

The survey instrument proposed by CTU in association with ECLAC, IDRC and the University of the West Indies should find acceptance among governments and be supported through the allocation of the required funding to collect ICT related data at intervals of two or three years. The surveys will enable the calculation of a number of indicators that can locate the Caribbean countries in the ICT world. They will also assist in the process of planning thereby ensuring more effective use of the technology to the benefit of the people of the Caribbean.

CTU is mindful that in most of the countries, budgetary constraints pose a challenge to conducting the survey. For this reason, the Ministers, whose mandate it is to promote ICT development, are requested to champion the cause of ICT through support to the collection of the appropriate data as discussed. The Ministers should agree to seek project funding in the first instance to conduct the initial survey in the countries, after which their respective governments will sustain the data collection activity by conducting the national surveys out of their respective government's regular budget.

The proposed intervention by the international and regional organisations may take the form of the planning and financing of the survey. This would involve training a group of persons, who in turn will become the trainers of the field interviewers that will collect the data. The project will ensure that the processing of the returned data is done with excellence, and that tables are produced in the quickest time possible while maintaining high quality of the results. The results of the survey will be presented at a meeting of Ministers of participating countries, who will have the opportunity of understanding the shape of the distribution of access and barriers to access that exist in the countries. One major desired outcome would be for the ministers to ensure that those barriers be removed. The Ministers are asked to intensify their efforts to ensure cross-jurisdictional collaboration aimed at empowering the people of the region to make meaningful and profitable contributions to the development and appropriate use of ICTs for national economic and social development.

Policy Brief 3:

Analysis of the Policies Designed to Encourage Development of Business in the ICT-Services Sector

Introduction

ICT services play an important dual role in national development; they act as enablers of economic, governance, social and cultural activities; while forming a productive economic sector in its own right, providing employment, revenue generation and hard currency earnings. As CTU member states seek to diversify their economies and deliver to their populations the quality of life they desire and deserve, they must incorporate plans for the ICT services sector into their overall development agenda.

Almost all CTU members have developed ICT strategies. However, apart from the telecommunications sub-sector, these have not yet stimulated the development of vibrant ICT services sectors. A thoughtful, structured approach is needed for the ICT services sector to thrive. The role of the sector must be clearly defined and policies, programmes and incentives must be developed to motivate and support the key stakeholders, the private sector, academia and the public sector to play their roles.

This paper proposes approaches to developing the ICT services sector for national development. These proposals arise out of a research project which reviewed existing ICT strategies and policies and interviewed key stakeholders throughout the region.

The ICT Services Sector

The ICT Services Sector is comprised of those businesses which:

- Produce and market ICT and ICT-based products and services
- Use ICT to support and enhance the effectiveness of other organisations in the economy
- Develop significant ICT components and incorporate them into their product and service offerings.

It excludes those businesses which principally resell or consume ICT products and services. It includes such activities as software development, Web development, telecommunications, network design and management, ICT consultancy, application hosting and data processing.

ICT Services: the Opportunity

CTU member states recognise the substantial contribution ICT must make to national development as a critical determinant of the effectiveness of activities throughout a society, and as an important economic sector in its own right. Policies must address the challenges and opportunities of both of these roles through coordinated contributions from government, the private sector and educational institutions.

ICT as an Enabler

As a consumer of technology, the region is familiar with ICT as an enabler of organisational effectiveness. In this role, ICT provides:

- Vital infrastructure, such as telecommunications and networking
- Operational and tactical support for the organisation's business processes
- Strategic support for innovation and competitive differentiation

If these benefits are to be secured, a vibrant ICT services sector is critical to providing the necessary products, services and ICT-driven innovations. This is the first strategic opportunity of the ICT services sector.

ICT as an Economic Sector

A less familiar perspective of ICT is as an economic sector in its own right. Among the opportunities for this sector in member states are:

-Provision of technical services. Including ICT system design, implementation, operation and maintenance; outsourcing; hosting; system development; training and consultancy services.

-Development and marketing of information-based services. Collection, management, processing, presentation and communication of information provide a range of opportunities limited only by the ingenuity of the entrepreneur.

-Development and marketing of content. ICT can be used to commercialise content, including that drawn from the region's cultural riches and diversity.

-Development and marketing of ICT and ICT-related products and devices. The design, development and commercialisation of software and of devices that incorporate ICT represent potentially attractive opportunities.

All of these opportunities can be pursued in local, regional and international markets.

Caribbean societies must strive to play a larger role in the Knowledge Economy and move away from simply being consumers of technology outputs. ICT services must be harnessed to develop and commercialise innovations in all the sectors of the economies and the region's own ICT products and services. This project seeks to provide some pointers to the way forward.

Project Findings

ICT Services for Development

Member states need to identify desired development roles for ICT services and design implementation programmes to realise the vision. Existing ICT policies and strategies focus on telecommunications and affordable access to ICT, computer literacy and e-Government. However, the success of these initiatives requires an effective ICT services sector, and this was identified as a gap in several of the national ICT policies and strategies. Interviewees also cited a need for clarity on which area of the State was responsible for the development of the sector.

Governance is Critical

The example of Cayman Islands suggests the importance of governance and executive leadership to the success of ICT policy and strategy initiatives. Interviewees identified delays caused by changes in ministerial portfolios and redistribution of responsibilities. This further reinforces the importance of governance.

Fiscal Services Ltd.

With over 150 software developers and other ICT professionals, Fiscal Services Ltd. (FSL) in Jamaica is the largest software development and application hosting company in the region. It develops, deploys, hosts and maintains applications supporting a range of business processes for the Ministry of Finance in Jamaica, including customs and excise, tax collections and motor vehicle registration.

As a supplier of commercial quality software and services that deliver real business value, FSL provides proof positive that, despite the region's small size, its people can develop and operate innovative, world-scale ICT services companies which produce ICT products and services of international standard.

Cayman Islands – Successful Policy Implementation

Cayman Islands offers an example of success in the implementation of ICT strategy. "Vision 2008: The Cayman Islands Nation Strategic Plan 1999 – 2008" was developed in 1998 and was largely implemented by the target date of 2008. It must be acknowledged that based on its size, topography, and economy is not typical of the CTU member states. Nevertheless its success offers pointers for others. One of the most significant contributors to their success was governance, with a single minister of government responsible for implementing the ICT elements of the plan.

ICT Services Sector

Interviewees characterised the ICT services sector as small and fragmented. They identified a need to organise the sector so it can develop and make its contribution in the national community in guiding issues on policies in the sphere of ICT.

Minimal Policy Impacting

Some businesses in the ICT Services sector stated that developments such as the liberalisation of telecommunications and the removal of customs duties and value added taxes on computer equipment had assisted the development of the sector. However they consistently identified minimal positive impact of government policy on the development of their businesses. Some cited negative impacts such as government procurement practices that disadvantage MSMEs and that appeared to favour foreign suppliers over local ones.

Access to funding was identified as a particular difficulty for start-up and MSME firms in the ICT services sector.

Proposals

Based on the project findings, the following proposals have been prepared, which seek to address the issues identified.

Plan for the ICT Services Sector

Securing the benefits of ICT services requires a development programme for the sector. The programme must define economic targets for the sector, the resources required and the governance structures to manage delivery on objectives.

The ICT services sector development programme will depend on the committed participation of the state, private sector, education and civil society if it is to succeed.

Support for MSME Businesses

MSME support programmes and organisations must place emphasis on the development of ICT services sector businesses. They must also develop an appreciation for the needs of the sector and provide appropriate funding instruments.

Bringing the Sector Together

Member states must support the development of vibrant organisations that can represent the interests of the ICT services sector and contribute to the national discourse on ICT issues.

Adopting a Regional Approach

A regional approach to the ICT services sector can address the challenges of scale and scope, faced by member states and avoid the risk of dissipative intra-regional competition. Such an approach would take advantage of common interests in tourism, agriculture and cultural products, health care, education and other service needs. It would also produce common systems throughout the region which would facilitate higher levels of regional collaboration and integration of the respective sectors. At the same time, it would provide for healthy competition where it would be effective.

This approach is extremely challenging, given the different capabilities and capacities of member states, the different stages of development, the different developmental needs and the competing interests of member states. Furthermore, efforts at regional collaboration have not always yielded success. However, these challenges do not invalidate the underlying logic of the argument. Rather, they define the parameters within which a solution must be found. This will not be achieved overnight, but the benefits offered and the risks of doing otherwise make this approach imperative. The CARICOM Draft Regional Digital Development Strategy provides a framework within which ICT strategies across the region can be harmonised, and this may well represent an initial component of the collaboration.

Projects

The following projects are proposed to give effect to the proposals above:

Project	Duration	Prime
Develop ICT Services Sector Plan	6 months	Minister responsible for ICT
Implement ICT Services Sector Plan	Multi-phase plan with key annual deliverables	Minister responsible for ICT

Project	Duration	Prime
Develop Financing Plan ICT Services Sector MSMEs	6 months	Minister responsible for ICT
Establish Regional ICT Services Task Force	6 months	Ministers responsible for ICT
Develop Regional ICT Services Plan	12 months	Chair – Regional ICT Services Task Force
Develop Regional ICT Services Standards	12 months	Chair – Regional ICT Services Task Force

Policy Brief 4:

Collaboration Policy for Functional Cooperation through ICT, in the Area of Crime and Security

Introduction

With the increasing globalisation of many systems such as trade and communication, this century is marked by the openness of economies that foster free and fast flow of information and goods and services. These developments are underpinned by the development of various networks, some constructive and some destructive in nature. On the one hand, constructive networks enable positive social and economic development of the economies of the world; while on the other, destructive networks seek to undermine these developments. It is within this global context that one must view the developments of both the innovative network of Information and Communication Technologies and the potentially damaging network of drugs, violence and corruption that threatens international, regional and national security. Any response to global, regional and national crime and security threats will require a similar level of knowledge-based, organisational efficiency.

This policy brief shows that while there is an existing framework for cooperation in Crime and Security in the region, the use of ICTs within the context of a knowledge management framework holds the key to effective functional cooperation. This is applicable in areas such as Policy Formulation, Intelligence Gathering and Sharing, Operations, and Capacity Building. Such an approach has the potential to transform the operations of national and regional crime and security organisations, leading to better governance systems and more efficiency.

Effective functional cooperation through ICTs requires the development of a knowledge management framework, operating at the national and regional levels.

Statement of Problem

With crime rates competing for top spots in global statistical reports and spreading to previously untouched places across the region, the need for a harmonised regional approach to Crime and Security has been recognised and actively pursued over the years. To this extent, in keeping with its mandate regarding functional collaboration, the CARICOM has put in place a number of institutions, programmes and projects.

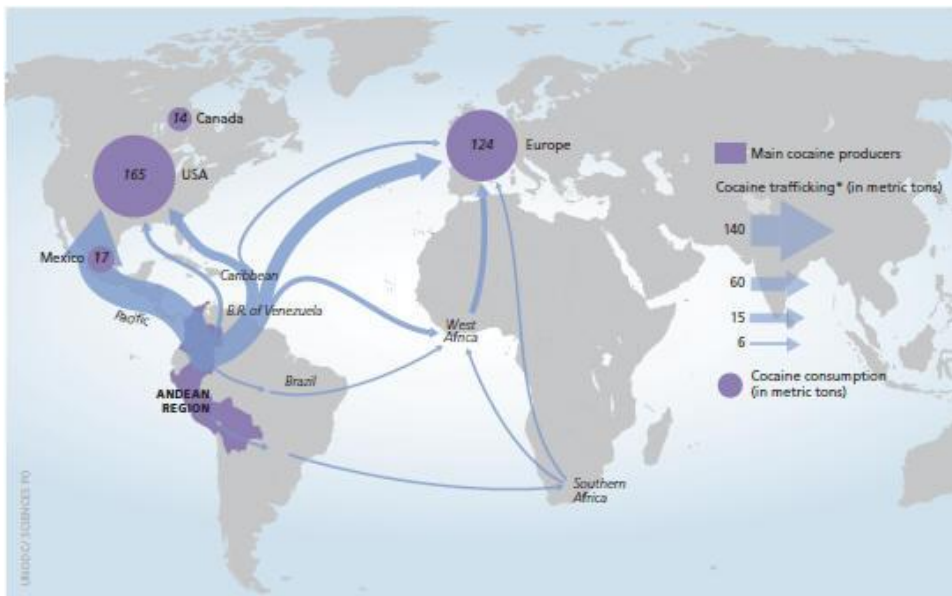
The questions which arise, however, relate to:

- The impact and effectiveness of these institutional and operational frameworks from a regional perspective; and
- The role of ICT as an enabler in enhancing the effectiveness of crime management across the region through functional collaboration.

Background

International and Regional Context

There are a number of common characteristics among Caribbean countries that make them particularly vulnerable to threats from crime and security, including: small size, openness, geographic location and reliance on transnational flows. Among the main threats to the Caribbean region are the following types of crime: Organised crime, Homicide, Drugs and Guns, Electronic Crimes and Kidnappings.



World Drug Report 2010: Main Global Cocaine Flows

A UNODC 2011 report shows that 11% of transatlantic cocaine flows between 2006 and 2008 originated in the Caribbean. This trade in narcotics has been cited as one of the underlying causes of the increase in other crimes in the Caribbean. Reports over the years show alarming increases in levels of crime. Countries like Jamaica and more recently Trinidad and Tobago have notably been listed among the top countries in terms of homicide rates. The serious, societal and economic impact of increased crime and insecurity, both at the country and regional levels, must not be underemphasised. In 2010, the head of Interpol reported that “recent estimates put the costs of insecurity in the Caribbean between 5-10 per cent of the aggregate regional GDP”.

Functional Cooperation in Crime and Security

Crime and security is the fourth pillar of the CARICOM functional cooperation framework. To this extent, a regional governance structure for cooperation has been in operation to, among other things, engage in

capacity building through institutional strengthening and other forms of mutual cooperation. Within this framework for cooperation, a number of regional institutions have been established. Some of the main ones are as follows:

- CARICOM Implementation Agency for Crime and Security (IMPACS)
- Regional Security System
- Caribbean Customs Law Enforcement Council
- Association of Caribbean Commissioners of Police
- Caribbean Financial Action Task Force

The use of ICTs in Crime and Security in the Caribbean

The multi-dimensional nature and scope of crime in the Caribbean has led to the recognition that there is a need to expand the traditional ways to tackle ever emerging non-traditional threats. The use of ICT is emerging as one response to critical issues faced in this area.

At a national level, the crime and security forces have been moving toward the implementation and use of ICT technology to assist in their efforts. However, many of these ICT initiatives/projects are based on external financing and done on a country basis. There is a concern with regard to the sustainability of these ICT interventions/projects at the end of the funding arrangement, as national governments are often not in a position to provide continued funding. It was also reported that access to funding seemed to be an issue for the smaller Caribbean states.

This was seen as an avenue for exploration of possible economies of scale to be achieved through regional collaboration in ensuring sustainability of ICT interventions/solutions for crime and security problems.

Trinidad and Tobago and Jamaica have been identified as leaders in the use of ICTs for policing. The use of ICTs forms an important part of the Strategic Plan of the Jamaica Constabulary Force. In Jamaica, as a part of the thrust to modernise the force, the ICT-based systems which have been developed and are in use include:

- Automated Fingerprinting Information Systems (AFIS)
- Integrated Ballistics Information Systems (IBIS)
- Traffic Ticketing System (TTIS)
- Crime and Information Management System (CIMS)
- Geographic Information Systems

Some of these are also in use or are being planned for in other countries. Barbados has the capacity for DNA and Forensic Testing and there is country-to-country collaboration in this area.

At a regional level, ICTs have been successfully used collaboratively to develop, inter alia, a CARICOM Intelligence network, the Integrated Regional Border Control System and the Advanced Passenger Information System, developed in relation to the World Cup Cricket in 2007. These success stories corroborate the need for continued and improved collaboration in the effective use of ICTs. It has been agreed at the regional level that these systems would be used as platforms for greater collaboration. Identification of success factors and challenges experienced should lay the basis for improved collaboration.

The challenge is to take the success and lessons learnt from the regional experiences with the use of ICTs, incorporate the activities going on at the local levels, and expand the initiatives to meet the needs of the wider Caribbean in an organised and sustainable manner.

Building a Knowledge Management Framework for Functional Cooperation in the use of ICTs

A knowledge management framework refers to the systematic use of ICTs to “capture, transform, and distribute high structured knowledge that can change rapidly... in order to improve decision making, resource allocation and access to information”. Knowledge management models have been proven to be effective in more modern police organisations across the world. One such model is the Gottshalk ‘four growth-stage model’ (Stewart and Mansingh) which maps technologies to the various knowledge requirements in a police organisation.

- Officer to Technology: Use of end-user tools such as PCs, mobile phones to improve individual and organisational efficiency.
- Officer to Officer: Use of ICTs to map knowledge/experts throughout the organisation and externally.
- Officer to Information: Extracting and sharing knowledge from stored information.
- Officer to Application: Using the knowledge to solve problems.

While this model has been primarily applied to individual police organisations, its components are applicable to a harmonised functional approach to applying ICTs in regional crime and security management.

ICTs do not represent a panacea to the crime and security issues facing the Caribbean, but they do provide a knowledge management tool which can be used to enhance collaborative efforts already in existence in order to effectively tackle the regional concerns. Therefore in building a framework, it should be recognised that:

1. Crime Management is knowledge-intensive work requiring a knowledge-based organisation. Traditionally, crime and security establishments throughout the region have operated largely bureaucratic, paper-based institutions. This has stifled the process of information sharing. It was noted that while there was some level of bilateral sharing of information, this was pre-dominantly with external partners and among larger countries.
2. Work done on the incorporation of ICT systems at the national level (Mansingh and Stewart Case Study of Jamaica) shows that the systems themselves, while necessary, are not sufficient to foster the efficiencies that would be required to effectively tackle crime and security issues. Translating this upward to a regional level, it must therefore be noted that functional cooperation though the use of ICTs will require much more than the implementation of ICT systems. It requires the fostering of a culture of knowledge and learning organisations through the effective implementation of knowledge management processes at the local and regional levels.
3. Functional cooperation as envisaged by CARICOM encompasses the notion of benefits to all; however, while it was reported that there is information sharing with respect to new technologies and efforts to use best practices, this was mostly among the larger Caribbean islands.
4. ICTs for application to Crime and Security must also extend to the Justice System and to address issues such as prevention. The UNODC Annual Report 2008 states that “Crime thrives in institutional vacuums, flourishing where justice is weak and lawlessness and instability prevail. When countries lack strong institutions of justice — such as forceful criminal legislation, reliable law enforcement, a fair judiciary and a humane prison system — criminals find opportunities to profit.”

Other key issues to be considered in fostering a framework for cooperation through ICTs in the area of crime and security include:

1. The Caribbean has a very good communications network which can be leveraged to improve the functional collaboration between regional crime and security interests.
2. ICTs are not an end in themselves but tools to create the type of network capable of dealing with the globalized criminal network.
3. The need for the creation of /enhancement of the current organizations structures and processes within CARICOM towards knowledge based organizations with the capacity for efficient management and application of knowledge based systems.
4. Structured approaches to financing are required so that the mandate of functional cooperation (to benefit all people) can be realized.
5. Evidence based research is required to promote efficiency in operations and policy making
6. The region should be prepared to learn lessons from other jurisdictions as well as coordinate in the utilization of international resources such as those which exists in bodies such as UNODC.

Toward the use of knowledge-based systems to create a framework for effective functional cooperation

The viability of the use of ICTs within a knowledge management framework in the area of crime and security can be looked at within the context of a brief SWOT analysis.

Strengths

- CARICOM has a working institutional framework
- The Crime and Security establishment has institutional frameworks for cooperation.
- Region is well connected fibre-optic networks and advanced communication systems.
- Success story in functional cooperation using ICTs.

Weaknesses

- The ICT base for functional cooperation is generally weak within the institutions at the national levels.
- Persistence of bureaucracies
- Change management issues among leadership

Opportunities

- Approach will increase efficiency and response to the challenges of the international arena
- Distribution of the benefits of integration
- Economies of scale and scope

Threats

- Financial challenges
- Culture
- Change management

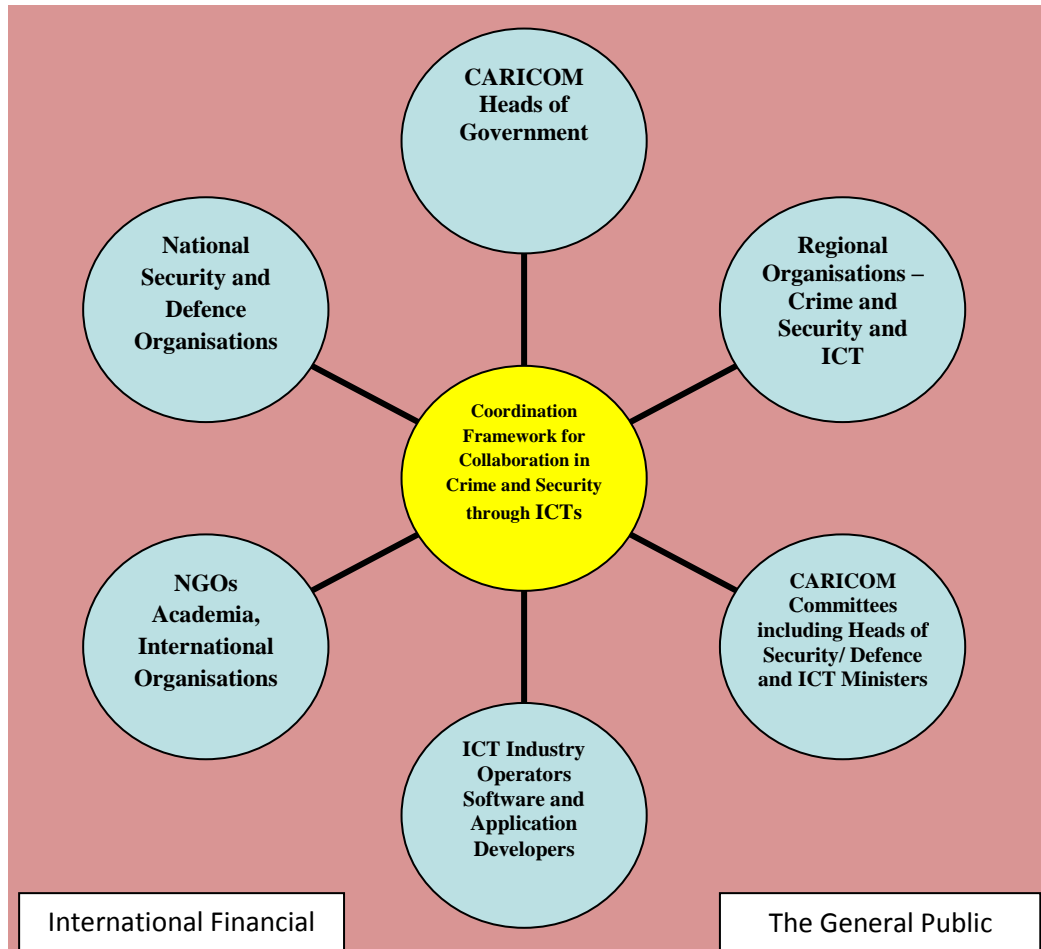
Bearing in mind the above, four strategic areas for application of ICTs as a knowledge management system to strengthen functional collaboration can be identified:

- **Policy Coordination and Implementation**
- **Intelligence Gathering and Sharing**
- **Training and Capacity Building**
- **Operational Efficiencies**

These areas address all four stages of the Knowledge Management Systems Model.

Policy Coordination and Implementation (Officer to Application)

The underlying policy objective of achieving functional cooperation through ICT is to make effective use of knowledge management systems to transform the crime and security management framework into that which is necessary to deal with the issues of the 21st century.



Collaboration can be accomplished through the basic structures, which currently exist; and enhanced through capacity building and incorporating relevant non-industry players. It should be noted however, that co-ordination will not be accomplished through the typical top-down approach to policy and project development and implementation, but will require an open consultative approach with all relevant stakeholders, including the general public. As such, the co-ordination strategy recognises several stakeholders.

The structures required for functional cooperation at the policy level could therefore be envisaged as illustrated above.

Basic form of functional collaboration, e.g. meetings and consultations and sharing of databases can be enhanced through ICTs for timely evidence-based decision making.

The maintenance of constant high level contact among policy makers is essential to exchange views and information about changes across jurisdictions and to explore matters for synchronisation.

Crime and security are real-time phenomena that require real-time responses. ICTs used in a knowledge management framework can enable real-time dialogue, decision-making and action.

Intelligence Gathering and Sharing (Officer to Information)

The implementation of knowledge management processes using ICTs will enhance the level of functional collaboration in crime and security. These processes and systems are particularly essential in intelligence gathering and sharing as they can address key questions of Who, What, How, When and Where.

ICT tools facilitate the creation of centralised databases at the local and regional levels, which can be linked to international databases. This will allow for timely information sharing and interrogation of data at all levels and is especially important given the “mobile” nature of criminal activities.

Some of these systems are already in use in countries across the Caribbean. These include Geographic Information Systems, Automated Fingerprint Systems and Ballistic Information Systems. However, greater collaboration can be achieved by using ICTs to create access by a wider group of countries to these knowledge management systems, and also in linking into the knowledge base of judicial frameworks.

Training and Capacity Building (Officer to Officer)

Within the context of building knowledge-based learning organisations required to effectively tackle crime and security issues, ICTs can support the building of a network of expertise. Quite a lot of knowledge within crime fighting agencies remains as tacit knowledge. Secure networks such as e.g. Global Regulators Exchange (GREX) established by telecommunication regulators which is used to share best practices can be examined as a means to tap into the expertise which reside across the region, share information between all arms of the crime and security network, including legislators and used to complement existing training and development activities.

Formal training opportunities can also be extended throughout the region through existing frameworks such as the Caribbean Knowledge and Learning Network (CKLN), UWI Open University and other ICT-facilitated learning channels.

Operational Efficiencies (Officer to Technology)

Functional collaboration through ICTs at the regional level can be effective only if national systems are in place and effective. The implementation of basic ICT systems across the region is therefore essential. The interconnection of these systems into the regional frameworks operated through the already established Regional Intelligence Fusion Centre and the Joint Regional Communication Centre (units of CARICOM IMPACS) should translate into effective use of the technology to support efficient regional operations.

A Strategic Planning Framework Model for Functional Cooperation through ICTs Mission:

To create an enabling ICT environment within a knowledge management framework (4 stages model) to facilitate regional collaboration in crime and Security.

Strategic Areas for Collaboration

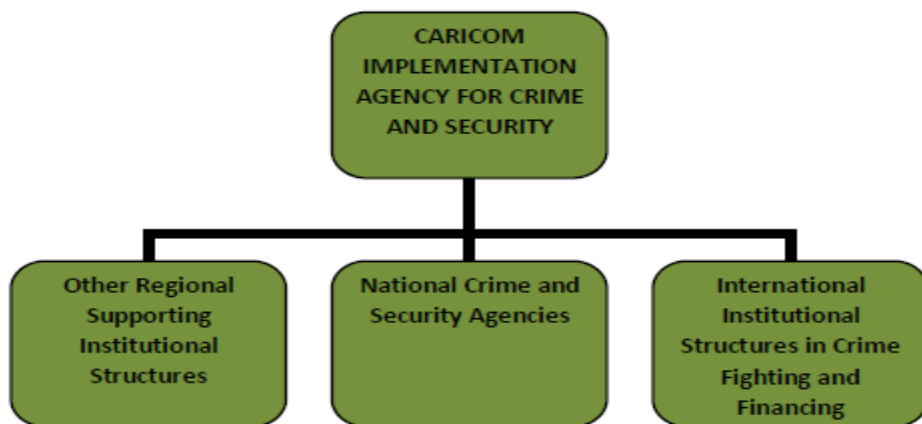
- **Policy Coordination**
- **Intelligence Gathering and Sharing**
- **Training and Capacity Building**
- **Operational Efficiencies**

Strategic Objectives

1. To utilise ICTs to facilitate harmonised policy, regulatory and legislative responses need to address crime and security management issues.
2. To promote the development of ICT capacities at the national level to enhance operational efficiencies and use of the regional ICT infrastructure to create linkages both within and outside of the region, thus creating a framework for cross-border intelligence gathering and sharing. A harmonised approach is required with respect to financing the development of these capabilities to take advantage of economies of scale.
3. To realise the transformation of existing institutional structures into knowledge-based learning organisations at the national and regional level. This requires implementation of knowledge-intensive management systems.
4. To encourage the use of ICTs to enhance human resource development, identify experts, and to share knowledge widely throughout the region instead of among a few countries for the benefit of all the people of the region.

Operational Framework

Within the overall CARICOM Governance structure, the existing institutional arrangement for functional collaboration should be enhanced to operate within the knowledge management framework throughout the stages of from regional policy formulation to implementation to monitoring and evaluation.



Conclusion

Crime in the 21st century is borderless and the success of the criminal network may be attributed to, inter alia, their ability to manage information and knowledge. Effective functional collaboration in regional crime and security therefore requires a higher order ability to manage knowledge about criminal networks and activities. As a knowledge management system, ICTs represent the tools which, if used effectively, can promote a harmonised approach to the management of data and information relating to criminal activity within the region and beyond. While institutions both at the national and regional levels currently use ICTs to facilitate functional collaboration, there is greater scope for more use. Importantly, it must be recognised that the systems by themselves will not lead to effective functional collaboration. Institutions at the national and regional levels need to transform themselves into knowledge-based organisations, with the capacity to effectively apply high order ICT knowledge management systems to Crime and Security management.

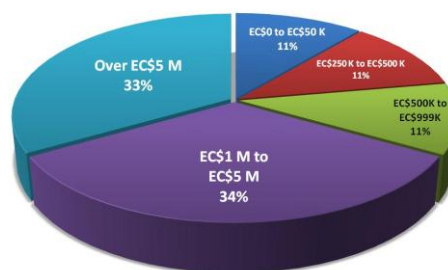
Policy Brief 5:

The Examination of Prevailing Models for the Evaluation of the Impact of ICT on Development within the Caribbean

Statement of Issue

During the past decade (2001 to 2010), regional governments have increasingly invested in ICT-related projects to address public service operational inefficiencies in addition to socio-economic challenges. Specifically, these ICT-related initiatives were implemented in part to strengthen the data collection, analysis and communication capabilities of the public service, foster citizen empowerment and support economic growth and diversification. In order to assist in the realisation of these goals, adequate project management is critically important if the specific projects are to fulfil their intended objectives and overall, provide a meaningful impact. Without adequately trained personnel equipped with a practical ICT assessment approach, the intended objectives of many ICT projects will remain unrealised. An appropriate method or suite of methods would be useful to measure the impact that investments in ICT have made, in order to assess the impact of the investments.

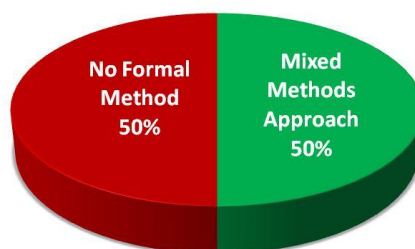
Approximate value of ICT projects implemented during the period 2001 to 2010



The key findings of a recent examination, has revealed the following:

- Approximately 34% of reported ICT interventions implemented during the period 2001 to 2010 were valued between EC\$1m to EC\$5m. Over 33% of reported ICT interventions during the same period were valued over EC\$5m.
- Over 35% of ICT projects are funded by government revenue.
- Approximately 50% of reported ICT interventions implemented during the period 2001 to 2010 were assessed via a combination of qualitative and quantitative methods however; the remaining 50% were not formally assessed.

ICT Impact Assessment Methods Used



- Approximately 65% of respondent reported that the impact on public sector of ICT projects is unclear.

Policy Options

Although there are established guidelines on project management such as the PRINCE2 methodology¹ and the Project Management Body of Knowledge methodology², focus is primarily on project execution and less on impact assessment. The research indicates that impact assessment for ICT projects are conducted about 50% of the time. Therefore, it is important that a policy be developed to mandate the impact assessment of ICT projects which have been implemented within the Caribbean region and which will also inform the implementation and assessment of future ICT projects. According to the findings of this research project, three main policy options are proposed. One is the development of a 'National Information and Communications Technology (ICT) Impact Assessment Policy. Additionally, a 'Restricted Information and Communications Technology (ICT) Impact Assessment Policy which should be designed to assess projects valued at EC\$250,000 and over. The third policy option is a 'Participatory Information and Communication Technology Impact Assessment' (PICTIA). The following sections describe in detail the advantages and disadvantages of each of the proposed policy options.

National Information and Communications Technology (ICT) Impact Assessment Policy

This policy would mandate that all executing agencies/departments/ministries conduct an ICT impact assessment in an effort to determine the effect of the initiative, in particular on the public service entity and the general public. National governments may utilise a preferred impact assessment approach; however, the newly proposed, Participatory Information Communication Technology Impact Assessment (PICTIA) should be given consideration. This approach represents a blend of the participatory and rapid research methodologies combined with the aim of providing a practical and flexible approach suitable for ICT impact assessment in the region.

Additionally, any impact assessment policy will require that a ministerial committee on ICT be established (or where already established, strengthen) and be charged with the responsibility for key whole-of-government ICT policies and the overall strategic vision for how ICT should support the achievement of the Government's outcomes and wider policy agenda.

It is also suggested that an ICT Governance Board be created with a strong remit from the Government of the relevant jurisdiction to drive the agreed recommendations arising from the review and focus on addressing impact assessment exercises.

¹ PRINCE2 is a process-based approach for project management, providing an easily tailored and scalable project management methodology for the management of all types of projects. The method is the de-facto standard for project management in the UK.

² The Project Management Body of Knowledge (PMBOK) is a guide first published by the Project Management Institute (PMI) to document and standardise generally accepted project management information and practices.

Advantages:

- ❖ Provides a mechanism to improve the realisation of intended objectives, in addition to a means to apply corrective measures where necessary.
- ❖ Provides an inclusive, transformative and empowering avenue for local constituent participation.

Disadvantages:

- ❖ Increase costs for training in research skills.

Restricted Information and Communications Technology (ICT) Impact Assessment Policy

Similar to the above option in structure, the restricted ICT impact assessment policy would require all executing agencies/departments/ministries to conduct impact assessments on ICT projects valued EC\$250,000 and over in an effort to determine the effect of the initiative, in particular, on the public service entity and the general.

Advantages:

- ❖ Provides a somewhat more flexible mechanism (when compared to policy option 1) to improve the realisation of intended objectives, in addition to a means to apply corrective measures where necessary.
- ❖ Provides an inclusive, transformative and empowering avenue for local constituent participation.

Disadvantages:

- ❖ Increase costs for training in research skills.

Participatory Information Communication Technology Impact Assessment (PICTIA)**Overview**

The PICTIA method employs an intensive team-based approach which permits an effective inquiry to be completed in **4 to 6 weeks**. The approach also embraces the view that research efforts conducted in the region have traditionally excluded local constituents from the research process (limited to data collection) and, as such, attempts to reverse this practice by proposing a more inclusive, transformative and empowering approach. As depicted in Exhibit 1, the PICTIA approach targets the public service (government ministry or department, agency, etc.) and the general public (communities or special groups of persons) as its primary stakeholder focus domains. Exhibit 2.0 highlights the six step PICTIA process.

Exhibit 1.0, ICT Impact Assessment Stakeholder Focus

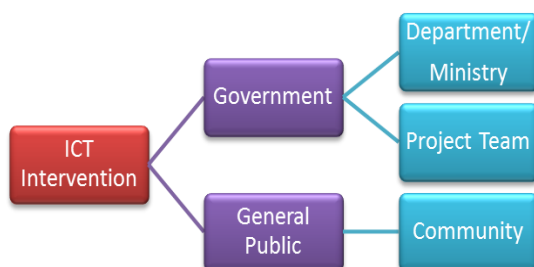
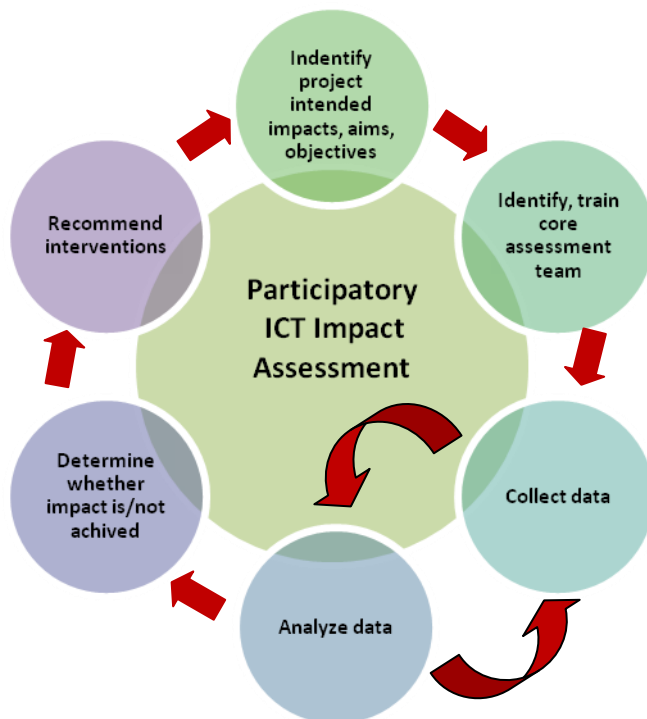


Exhibit 2.0, Participatory Information Communication Technology Impact Assessment (PICTIA)



Project Identification

ICT-related projects to be assessed under the Participatory Information Communications Technology Impact Assessment (PICTIA) can be selected as a result of a strategic work plan item, a directive from the Minister responsible for Information and Communication Technology, or via an external request.

Core Assessment Team

The composition of the core assessment team should be reflective of a variety of portfolios. In particular, consideration should be given to ensure the portfolios of Office of the Prime Minister, Finance and Information and Communication Technology are represented. Small teams of 4 – 6 members have proven effective and are preferred to larger teams. It is expected that core team members be formally trained in qualitative and quantitative techniques.

Data Collection

Data collection via the Participatory Information Communication Technology Impact Assessment (PICTIA) seeks to obtain data from multiple sources in effort to strengthen the validity of the data. This concept is known as triangulation. Three PICTIA data collection techniques include team semi-structured interviewing, team observing and questionnaire-based surveys. All collected data is then discussed and synthesised amongst the group on a daily basis.

Data Analysis

The data analysis step of the Participatory Information Communication Technology Impact Assessment (PICTIA) involves an in-depth examination that identifies issues and themes communicated by respondents and guides additional data collection efforts. First, the interview and observation logs/notes are carefully reviewed and responses collated per question. Then key issues of themes identified in phrases or sentences are highlighted. Exhibit 3.0 shows an example, of a list of respondents' responses to a question regarding how they utilise their Community Centre Computer Lab.

Exhibit 3.0, Sample Collated Respondent Interview Log

RESPONDENT #1. *The computers in the community centre are working well. I am able to send my son an email to stay in touch. But I have to send it quickly because **the lab is very hot since the air conditioning stopped working** or **before 5:00 pm***

RESPONDENT #2. *I have not used the community centre lab because when I get home at **5:00 pm it is closed**. But I hear the computers working ok. I am happy the community has the centre.*

RESPONDENT #3. *I rely on the community centre to surf the Net and to Facebook with my friends. Yesterday I even **downloaded some cool music and games**. But what I really would like is that it **opens after 5:00 pm** and offer some **night classes in computers**.*

From the example, at least three (3) important issues have been identified by the bold and underlined text. These issues are (i) repairs are required to the air conditioning unit (ii) improved security measures should be adopted to control unrestricted downloads and (iii) there is a potential demand for introductory computer evening classes. There is also at least one recurrent theme (identified by the shaded text) regarding the need for extended hours of operation of the lab. Exhibit 4.0 shows a sample schedule of research activities the PICTIA may consider.

Exhibit 4.0, Sample Schedule of PICTIA activities

Week 1	<ul style="list-style-type: none"> •Team formation •Project documentation review •Discuss methodology and schedule of operation •Daily review meetings
Week 2	<ul style="list-style-type: none"> •Data collection and analysis •Data validation •Draft findings report •Daily review meetings
Week 3	<ul style="list-style-type: none"> •Data collection and analysis •Data validation •Draft findings report •Daily review meetings
Week 4	<ul style="list-style-type: none"> •Data collection and analysis •Data validation •Draft findings report •Review meeting •Submit final report
Week 5 (Optional)	<ul style="list-style-type: none"> •Repeat activities until completion
Week 6 (Optional)	<ul style="list-style-type: none"> •Repeat activities until completion

Policy Recommendation

As financial resources become increasingly scarce, and possible continued investment in ICTs, it is imperative that regional governments adopt a firm position regarding impact assessment in effort to adequately measure return on investment and overall socio-economic impact. A national ICT impact assessment policy will support this effort.

Regional ICT Policy Development – Long-term, strategic considerations

The research conducted under the Rapid Response Initiative has created an avenue for wider insight into the ICT sectors across the region. Though initially aimed at identifying and addressing immediate areas of policy deficiencies, an analysis of the research findings of the RRI projects identifies some key long term issues that must be addressed. These issues have been found to span all the major sub-sectors across the region. As such, it is critical that any long term efforts aimed at the development of ICT on the local or regional levels must have strategies for addressing these issues as a fundamental component. The four main issues of sector development will now be discussed.

Developing creative human and financial resource strategies

A key challenge to the ICT sector which recurs across the region is that of limited resources. There are two aspects to this challenge, the first being financial limitations and the second is limited human resources. Many ICT and ICT development related projects and/or initiatives are generally supported by external funding, as in most cases national budgets are not able to provide the requisite support. This is also true for the operations of many ICT agencies and government departments. In the developing ICT services sub-sector, a lack of resources severely impairs the operations of many small and medium enterprises and is a disincentive to potential businesses. Similarly, in the area of security, there are many initiatives and projects that are solely dependent on external funding, which is generally only available for very limited periods.

The second and more critical aspect is the lack of human resources. In many departments and institutions, e.g. the regional Statistical Offices, there is a scarcity of skilled ICT personnel. Consequently, this limits the functionality of these departments and agencies, and many are unable to execute their stated mandates and missions. In some cases, the lack of human resources has contributed to projects being aborted. Without the skilled personnel, it is impossible to further develop and build the sector.

It is therefore evident that a key long-term objective in the development of the sector must be the addressing of this issue. Creative solutions must be developed and coupled with strategic and thorough implementation techniques. The investment in the development of the human capital must be seen as an issue of the highest priority by all regional stakeholders. Joint action must be taken by governments and private stakeholders in further promoting careers in ICT and then presenting opportunities for training and capacity building through grants, scholarships and other types of funding. The development of a more robust human resource capacity will better position the regional sectors to negotiate and acquire better external funding arrangements, as well as more effectively utilise national budget allocations.

Proactive and current approaches to ICT

Most of the ICT sectors across the region were birthed during the era of the rapid expansion of Public Switched Telephone Network (PSTN) based telecommunications. As such, this was the context in which development of the regulatory frameworks and approaches occurred. The subsequent thrust for liberalisation over the past decade and a half has resulted in some amendment to these frameworks and approaches. However, since that time there have not been significant changes to regulatory frameworks and other aspects of ICT development throughout most of the region. This “need to update” is a key requirement across all sub-sectors. The frameworks for regulating the telecommunications sub-sectors are still directed to fixed-line network operations in most instances; in others, the treatment of mobile networks does not properly consider the market dynamics. Similarly, the broadcasting sub-sector has very limited frameworks, most developed during the era of radio broadcasting. In the ICT-services sub-sector, the current policy frameworks show little in the

support of the sub-sector's development. This prompts the consideration of whether this sub-sector has been considered and planned for, or simply just emerged and was left to grow independently. Furthermore, the statistical data required to inform strategic sector development is often limited. This is a direct consequence of the fact that many Statistical Offices still operate in alignment with post-modern models; i.e. as departments or sub-departments of government bodies, and most ICT data is collected only by means of National Censuses conducted usually every decade.

The attainment of long-term goals and the realisation of sustainable development within the regional ICT sectors necessitate both an updating of existing sector frameworks and approaches, as well as proactively embedding measures for dealing with future growth. Archaic, inflexible, reactive approaches will not be able to address the issues brought by increasing convergence within the sector and the establishment of NGNs within the region. Conversely, proactive and updated approaches will provide avenues for addressing the issues of regulatory arbitrage, data shortage and enterprise development. These are all necessary to ensure properly functioning markets and sub-sectors, which in turn are fundamental aspects of a sustainable ICT sector.

Strategic Implementation and Evaluation Methods

A review and analysis of mission statements, policy documents and legislation of the various sub-sector institutions and agencies across the region, will reflect very clearly-defined goals and objectives, as well as procedures for execution. However, the research has found that in many instances, there are significant discrepancies and gaps in actual operational methods and standards. This is reflected on many levels. On the level of regulatory frameworks, it was found that many laws and policies are poorly implemented in day-to-day operations; in some cases, a consequence of limited resources. This creates avenues for arbitrage. Similarly, many agencies and/or government-instituted bodies do not carry out their stated functions and uphold their stated positions. This is significantly reflected in the area of ICT project implementation, wherein there is a general agreement by all on the absolute criticality of ICT to the region's development. Nevertheless, it was found that across the region, roughly only half of the projects implemented are ever managed and assessed to determine if the stated goals were achieved.

It is impossible for sustainable development to take place in such an environment. Long-term strategies for sector growth must include a focus on the development of effective implementation methods; the gap between stated objectives and positions and operational standards must be diminished entirely. Key to this is the development of the skilled human resource personnel, which is lacking in some instances. In addition, new methods of implementation must be instituted and emphasis must be placed on evaluation and assessment of activity, based on stated objectives. In other cases, institutions must simply muster up the willpower to enforce what has been previously declared.

Continued Movement toward Regional Functional Collaboration

The findings of the various projects have highlighted a very interesting scenario. On the one hand, it has identified problems that are regional in scope. For example, there are increasing numbers of crimes that are linked to criminal networks with regional and international scope. The regulatory issues arising from increasing convergence of the sector are similar in many territories across the region, and often involve regional actors. In like manner, there is a growing need across the regional sectors to collaborate in order to capitalise on economies of scale. Conversely however, it was found that there are several instances of bilateral agreements and sharing relationships between countries in the region, with countries external to the region; and very little between the countries of the region itself. It is evident that these two movements are somewhat out-of-step. However, there are areas where efforts are already being taken to adjust this; one being the area of crime and security. This movement towards greater functional collaboration is indispensable to the development of the regional sectors. Furthermore, greater effectiveness of the sector would require collaboration not simply between regional ICT sectors, but also with other sectors across the region. It is expected that this would continue to be a fundamental component of any long-term strategy for regional sector development, as global phenomena continue to make the region a smaller place.

Concluding Remarks on the Evidence for Caribbean ICT Policy Development

Caribbean Governments have recognised that Information and Communication Technologies (ICT) present opportunities for fostering national development and enhancing competitiveness. However, in order to catalyse the process by which ICTs yield those benefits, it is necessary to establish a sound policy framework, not only to encourage the effective use of ICTs but also to create an enabling environment for investment in ICT and to develop a robust ICT services sector.

The Caribbean ICT Policy Rapid Response Initiative (RRI) was envisioned to provide a body of research or evidence on ICT issues that would be used to formulate appropriate ICT policies. The research therefore was directed towards providing that evidence in areas identified as lacking by Caribbean policy makers, namely ICT Regulation, Data Acquisition, ICT Services Sector Development, Regional Collaboration in Combating Crime and ensuring Security, and Assessment of the Impact of ICT on Development in the region.

The Research was undertaken by Caribbean practitioners who appreciate and understand Caribbean institutional and cultural environments, making this body of work truly relevant to the region. The research papers provide timely information to Caribbean Governments and, in addition, make recommendations on approaches that, if adopted, will advance policy formulation and, as a result, will advance economic and social development for all Caribbean peoples.

This Policy Briefs document was developed based on 5 full research papers. Interested persons may contact the Caribbean Telecommunications Union, should they wish to access copies of the full research findings. Additionally an Executive Summary Publication of the Caribbean ICT Rapid Response Initiative is accessible on the Caribbean Telecommunications Website under the 'projects' section.

Meet the Researchers



Mr. Kwesi Prescod

Kwesi Prescod (BSc Eng, MBA) is a professional with over thirteen years of experience in a wide breadth of aspects in the areas of the business development Information and Communications Technology (ICT).

Mr. Prescod has extensive experience in the management, development and operations of the core and access networks of complex multi-service telecommunications networks both within the Caribbean region and further afield. Mr. Prescod has worked on a range of 2G to 3G technology environments on behalf of a range of parties varying from carriers such as TSTT (Trinidad and Tobago), Nextel Communications (USA) and mmO2 (UK) to vendors including Lucent Technologies (USA), Nortel Networks and Ericsson (UK).

Since 2005, Mr. Prescod has made significant contributions to the development the ICT Policy function for the Government of Trinidad and Tobago, leading the government thrust to market liberalisation and Regulatory strengthening, as well as spearheading the development of the National Broadband Strategy, which included, among other things, championing the establishment of IXPs as key aspects of national and regional Internet development. Mr. Prescod also lead the development of fundamental “integrated Government” frameworks – dealing with legislative, institutional and operational considerations, which are still being leveraged today in on-going initiatives to infuse ICT into the systems of public administration of Trinidad and Tobago.

Most recently, Mr. Prescod has provided consultancy support to regional and international agencies that are in the process of developing intra-regional policy frameworks within the ICT sphere. In this regard, Mr. Prescod has served as a regional expert on Telecommunications and ICT policy matters in the ITU/CTU HIPCAR Project. He was the main researcher on the project, “Implications of Technology and Service Convergence on the Operational and Organisational Aspects of Regulation”.

Mr. Wayne Butcher

Mr. Butcher is an information technology professional and is currently a Research Associate at the Centre for ICT at the University of Trinidad and Tobago. In a career spanning over 25 years he has worked in the fields of engineering, management and ICT. In these capacities he has held positions in both industry and academia. This includes over 12 years working in the local telecommunications sector in research and development, engineering and ICT.

Mr Butcher holds degrees in electrical and electronic engineering from the University of the West Indies and in computing science from the Imperial College of Science and Technology. He is currently a research associate in the Centre for ICT at the University of Trinidad and Tobago, where he is engaged in teaching and research. Chief among his academic interests are ICT for development (ICT4D) and the development of embedded systems.

Mr. Butcher has also been engaged in consultancy for over 15 years. He has worked for a number of local, regional and international clients in the fields of industrial development, energy, ICT and strategic management.



Mr. Lancelot Busby

Mr. Lancelot Busby is a former United Nations staff member of long standing and an accomplished Statistician who has contributed significantly to statistical development in the Caribbean and further afield. Mr. Busby has accomplished the following:

1. Graduate of the University of the West Indies
2. Completed post-graduate training at the Centro Interamericano de Enseñanza de Estadísticas (Inter-American Center for the teaching of Statistics) in Chile
3. Completed an MBA degree from Brunel University in association with Henley, The Management College of the United Kingdom
4. Has been the author of numerous papers and publications on statistics

In addition, for many years he has been at the forefront of the move to modernize statistics and statistical services in the Caribbean. For many years as staff member of the Economic Commission for Latin America and the Caribbean (ECLAC) he has delivered advocacy and technical assistance to the Caribbean Countries in various aspects of Statistics. His Colloquium on Statistics and the New Technologies in 1989 was the first formal attempt to discuss the need for modernization of statistics in the Region.

After his retirement from ECLAC, Mr. Busby served for one year as Advisor to the Research Unit of the Central Bank of Trinidad and Tobago, after which he has been engaged in a number of consultancies, among them being the following:

- Conducted numerous project evaluations on behalf of the International Agencies
- Served as Consultant to Central Statistical Office of Trinidad and Tobago
- Member of the Statistics Sweden consultancy team that reviewed the statistical situation in Trinidad and Tobago and made recommendations for its modernization
- Consultant to ECLAC on estimating the social and economic consequences of natural disasters that affect the Caribbean countries
- Reviewed the Disaster Management infrastructure of a Central American country and made recommendations for its improvement
- Leading advocate and consultant on the design and construction of economic and social databases in Caribbean countries. Performed a consultancy in this regard for ECLAC in 2011
- Currently engaged in the design of a Regional Statistics Work Programme for the Caribbean countries that are members of CARICOM
- Part-time lecturer in a Master's programme in Official Statistics programme at the University of the West Indies
- Author of many papers on Statistics



Mrs. Michele Thomas

Mrs. Thomas is currently a Research and Management Consultant. She has a background in telecommunications policy and social and economic research and planning, having worked as Director, Policy and Strategic Planning at the Spectrum Management Authority (2002-2008), and as Senior Economist at the Planning Institute of Jamaica (1998-2002).

Since 2008, Mrs. Thomas has been involved in ICT policy research and teaching, as well as the provision of business services to a number of institutions including the Telecommunications Policy and Management Programme, Mona School of Business, University of the West Indies, Mona, various Government Ministries and Agencies and

Non-Government organisations.

She holds a MSc. Regulation and Policy (Telecommunications), University of the West Indies (St. Augustine), 2006; a MSc. Economics from the University of London (Birkbeck College), 1997; and a BSc. (Hons.), Economics and Management from the University of the West Indies (Mona), 1990.

Mrs. Thomas was the main researcher on the project, "Collaboration Policy for Functional Cooperation through ICT, in the Area of Crime and Security".



Mr. Pierre Bowrin

Mr. Pierre Bowrin is the Information Communication and Technology Policy Advisor at the Department of Technology for the Government of Saint Kitts & Nevis. His responsibilities include ICT policy development and project management. In addition to his professional activities at the Department of Technology, he also serves as an e-tutor for the University of the West Indies – Open Campus, and is a youth advocate in his community.

Mr. Bowrin is currently pursuing a PhD in Governance & Public Policy at the Sir Arthur Lewis Institute of Social & Economic Studies at the University of the West Indies in St. Augustine, Trinidad. His research seeks to investigate the impact of Information and Communication Technology (ICT) interventions employed to strengthen public health systems in the Organisation of Eastern Caribbean States (OECS). Specifically, the study aims to assess the impact of Information and Communication Technology (ICT) interventions employed to support the collection, management, analysis and dissemination of public health data in OECS member states.

Mr. Bowrin holds a Bachelor of Business Administration from the School of Business at Cameron University, and a Master of Science degree in Information Systems from Central Michigan University. He is the co-author of the article, "Information Security in Caribbean Banks", which was published in the online journal "Issues in Information Systems" in 2005.