MEASURING THE INFORMATION SOCIETY:

Proposals for measuring the information society in Guyana and the wider world

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AUGUST 2007

Abstract

This paper primarily seeks to highlight the importance of measuring the information society, given that information and communication technologies – the bedrock of the information society – have been touted as vehicles for development. To this end, this paper underscores the importance of measuring the information society and by extension its impact on development, especially in developing countries such as Guyana; examines the global effort to standardize indicators for measuring the information society; looks at what obtains as it relates to the gathering ICT data in Guyana; and finally recommends a way forward for measuring the information society in Guyana and wider world.

CONTENTS

ABBREVIATIONS

CITEL	Inter-American Telecommunication Commission
DOI	Digital Opportunity Index
ECLAC	Economic Commission for Latin America and the Caribbean
EIU	Economist Intelligence Unit
GOG	Government of Guyana
HDI	Human Development Index
HDR	Human Development Report
HPI	Human Poverty Index
IADB	Inter-American Development Bank
ICT	Information and Communications Technology
ICT OI	Information and Communications Technology Opportunity Index
ITU	International Telecommunications Union
KADO	Korea Agency for Digital Opportunity
MDG	Millennium Development Goals
NDS	National Development Strategy
OAS	Organisation of American States
OECD	Organisation for Economic Cooperation and Development
TAI	Technology Achievement Index
UN	United Nations
UNCSTD	United Nations Commission on Science and Technology for Development
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational Social and Cultural Organisation
UNDP	United Nations Development Programme
WEF	World Economic Forum
WSIS	World Summit on the Information Society

1. INTRODUCTION

"The information society is an economic and social system where knowledge and information constitute the fundamental sources of well being and progress and that it represents an opportunity for our countries and societies, so long as it is understood that the development of that society within a global and local context requires a deeper appreciation of fundamental principles such as those of respect for human rights within the broader context of fundamental rights, democracy, environmental protection, the advancement of peace, the right to development, fundamental freedoms, economic progress and social equity ."

- Bavaro Declaration[1]

The development of the information society over the last decade or so has been fuelled by the development and growth in the use of the internet; the creation of cheaper and more efficient information and communication technologies such as cellular phones and computers; and the deregulation and expansion of services in the telecommunications industry. Moreover, the development of the information society is symptomatic of the globalisation of the world, economically, socially and politically.

In recent times the touting of ICTs for the sustained growth and development of all aspects of human life is en vogue. Indeed, the advancement of telecommunications, has been credited with removing the borders of countries thus resulting in economic, social and political benefit e.g. a student in the United States can purchase a textbook (shipping costs included), via the internet for about one-quarter of what it would cost him to buy the same edition of that book in the US. ICTs have increased the productivity of labour thus making so many tasks easier to do. Additionally, ICT is a new tool in the arsenal of Governments which can ensure greater efficacy in the governance of their respective countries. However, these benefits need to be measured so as to inform future policy decisions *inter alia*. In other words, the benefits and costs of the information society can

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[1] The Bavaro Declaration emanated out of the Regional Ministerial Conference of Latin America and the Caribbean for the World Summit on the Information Society (WSIS), held with the collaboration of ECLAC.

never be fully appreciated and understood unless 'relevant' and 'quality' indicators are generated in a 'timely' manner. Not surprisingly the developing world is lagging in this regard.

It is against this backdrop that this paper seeks to highlight the importance of measuring the information society, especially in developing countries such as Guyana – which in March 2006 officially launched its National ICT Strategy at a one day multi-stakeholder Conference. Further, this paper will look at what presently obtains as it relates to; examine the state of Guyana's information society; the status quo of measuring the information society in the Caribbean with emphasis on Guyana; and finally recommend a way forward for measuring the information society in Guyana and the wider world.

2. The World Summit on the Information Society

On December 21, 2001, the UN General Assembly passed Resolution 56/183 granting support for the holding of a two phase World Summit on the Information Society. The summit was executed under the patronage of the UN Secretary General with the International Telecommunications Union[2] (ITU) taking the lead role in the preparation for the summit. Moreover, the summit was seen as integral to the achievement of the Millennium Development Goals.

The two phases of the WSIS are;

1. *Geneva Phase (10-12 December 2003)*: This phase developed and fostered a clear statement of purpose and political will, and established concrete initiatives for the establishment of the information society. The Geneva Declaration of Principles and the Geneva Plan of Action were ratified at this meeting. In attendance were approximately 11,000 participants from 175 countries. The CARICOM member states which sent delegations are Barbados, Jamaica, St. Lucia, Suriname and Trinidad & Tobago in addition to a delegation from the CARICOM secretariat.

2. *Tunis Phase (16-18 November 2005)*: This phase of the summit sought to move from words to action, follow up on commitments made at Geneva and find solutions and agree on a way forward on issues such as Internet Governance, and Financing. This final phase of the summit was attended by 19,000 participants. In attendance from CARICOM were representatives from the CARICOM secretariat in addition to representatives from Barbados, Jamaica and Trinidad & Tobago.

It is worthwhile to note the several areas of action envisaged under the Geneva Plan of Action, these are[3];

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[2] The ITU is a specialized UN agency.
[3] Geneva Plan of Action, page 2 – 11.

1. *The role of governments and all stakeholders in the promotion of ICT for development*: - Under this plan of action countries are expected to develop national ICT strategies with multi –stakeholder participation; promote public/private or multi-stakeholder partnerships to name a few.

2. *Information and communication infrastructure*: - Without adequate and up to date infrastructure the information society will remain stagnant and thus unable to reach its full potential. To this end it is envisaged that initiatives be made to change to develop national, regional and international infrastructure; support technical and regulatory studies; increase connectivity in communities (schools, homes, health centres, community centres; and encourage innovation in cheaper and more reliable ICT equipment and services etc.

3. *Access to information and knowledge*: - This action plan seeks to promote the provision of easily accessible information such as documents, forms and archived materials to society through public access points utilizing ICT equipment; encourage the creation of cheap open-source software; and enhance the new culture of e-governance *inter alia*.

4. *Capacity building:* - This is concerned with the designing of programs to promote e-literacy especially among disadvantaged groups such as indigenous people and women and girls; training of a critical mass of ICT professionals and experts; designing of special programs to meet the needs of information professionals such as Librarians, scientists teachers etc; and the promotion of international and regional cooperation for building capacity, especially in the developing world.

5. *Promoting confidence and security in the use of ICTs:* - With the increased use of ICT for sharing information and commerce the issue of security is of paramount importance, recognizing this the Geneva Plan of Action envisages the promotion of user education on best practices; research and sharing of ideas on information and network security; development of national and international laws; and for all stakeholders to continually monitor and solve evolving problems related to security through a coordinated international, regional and national system so as to encourage trust and confidence in the use of ICTs, *inter alia*.

6. *Enabling environment:* - In order for the information society to reach the potential of what it promises for human development an enabling environment needs to be created through actions such as, the designing of harmonious national, regional and international legal and regulatory frameworks; the establishment of a working group on Internet Governance; promoting the development of ICT policy for the encouragement of the use of ICT in businesses especially among small and medium sized enterprises; and the promotion of best practices in the use of limited resources such as the radio-frequency spectrum.

7. *ICT applications:* - This section is concerned with the promotion of relevant actions within the areas of, E-government, E-business, E-learning, E-health, E-employment etc.

8. *Cultural diversity and identity, linguistic diversity and local content:* - Under the aegis of Governments and agencies such as UNESCO, this action plan is concerned with the protection, respect, promotion and enhancement of all cultures; promoting the creation of diverse content especially among disadvantaged groups; and development and research of technologies to aid in the continued preservation and promotion of all cultures, *inter alia.*

9. *Media:* - The plan of action seeks to encourage the media to play their role in the promotion of the information society; share information and best practices through national international and regional networks in addition to other forms of cooperation and solidarity; promote balance and diverse portrayals of different groups and societies; and bridging of the digital divide using their expertise and knowledge, to name a few.

10. *Ethical dimensions:* - This is concerned with the promotion of respect, peace, freedom, equality, tolerance, protection of privacy, respect for the environment etc.

11. *International and regional cooperation:* - Finally, the plan of action seeks to promote international and regional cooperation among governments, institutions and through multi-stakeholder partnerships etc.

The other sections of the plan consist of critical support areas such as follow-up and evaluation (see box 1) and the Digital Solidarity Agenda – which is concerned with such issues as mobilizing financial resources.

The WSIS has been completed but the commitments of all the stakeholders remain and as such work is ongoing on several fronts to ensure that words and put into action. To date efforts have been made to evaluate these actions e.g. a global stock taking exercise was done. The WSIS 'Golden Book' estimates that approximately €3.2 billion (see appendix table 1) was committed to the promotion of the information society. Additional tables on the global commitments made as regards the promotion of the information society can also be found in the appendix.

Box 1.

Geneva Plan of Action: Part (E) Follow-up and evaluation

28. A realistic international performance evaluation and benchmarking (both qualitative and quantitative), through comparable statistical indicators and research results, should be developed to follow up the implementation of the objectives, goals and targets in the Plan of Action, taking into account different national circumstances.

a) In cooperation with each country concerned, develop and launch a composite ICT Development (Digital Opportunity) Index. It could be published annually, or every two years, in an ICT Development Report. The index could show the statistics while the report would present analytical work on policies and their implementation, depending on national circumstances, including gender analysis.

b) Appropriate indicators and benchmarking, including community connectivity indicators, should clarify the magnitude of the digital divide, in both its domestic and international dimensions, and keep it under regular assessment, and tracking global progress in the use of ICTs to achieve internationally agreed development goals, including those of the Millennium Declaration.

c) International and regional organizations should assess and report regularly on universal accessibility of nations to ICTs, with the aim of creating equitable opportunities for the growth of ICT sectors of developing countries.

d) Gender-specific indicators on ICT use and needs should be developed, and measurable performance indicators should be identified to assess the impact of funded ICT projects on the lives of women and girls.

e) Develop and launch a website on best practices and success stories, based on a compilation of contributions from all stakeholders, in a concise, accessible and compelling format, following the internationally-recognized web accessibility standards. The website could be periodically updated and turned into a permanent experience-sharing exercise.

f) All countries and regions should develop tools so as to provide statistical information on the Information Society, with basic indicators and analysis of its key dimensions. Priority should be given to setting up coherent and internationally comparable indicator systems, taking into account different levels of development.

SOURCE: Geneva Plan of Action

3. GUYANA'S INFORMATION SOCIETY

"The world is heading inexorably toward an information society, and all governments need to see not the writing on the wall but the pulsing cursor on the screen."

- *Shashi Tharoor*[4]

The efficient and effective use of ICTs – the primary resources of the information society – in Guyana has been curtailed by low bandwidth, lack of creation of local content, inadequate government policies and the general low level of economic development and growth, *inter alia*. However, the use of the internet – a very important but not the only aspect of the information society – is at a respectable level given Guyana's per capita GDP. According to ITU statistics, for the year 2005, internet users per 1000 people for Guyana, Jamaica and Trinidad and Tobago was 142, 106 and 228 respectively. In South America Guyana is second only to Chile in terms of internet users per 1000 people. Admittedly, Guyana's population is relatively small and primarily concentrated along its coastal plain and as such its good performance relative to its peers in South America, while good, has to be taken within this context also. In terms of the telecommunications sector the rapid expansion of cellular phone technology over the last decade or so has revolutionized the telecommunications sector, however, much more needs to be done as it relates to the modernization of the telecommunications sector; with comprehensive reform of the sector being the most important hurdle to be crossed.

CARICOM Connectivity Agenda

At its twenty-third Conference of Heads-of-Government– July 2002, Georgetown, Guyana – the Caribbean Community committed to participate meaningfully in the global move towards the world information society, based on the idea that the information society and its attendant subsets have the potential to contribute to the sustained development of all countries and hence the achievement of the MDGs. It should be noted that the UN had only a few months prior passed a resolution supporting the WSIS summit, closer to home the Organisation of American States (OAS) at its Heads of State and Governments meeting, a year earlier, had agreed on a plan of action for a coordinated

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[4] Shasi Tharoor is UN Under-Secretary-General for Communications and Public Information.

regional effort towards the information society with the Inter-American Telecommunication Commission (CITEL) being the main driver.

To this end the member states of CARICOM agreed to focus its connectivity agenda on three main pillars, in keeping with the hemispheric and global approaches. These three pillars are:

1. Infrastructure
2. Utilization
3. Content

The execution of the agenda was based on the full participation of all stakeholders, and hinged on the principles of equity, universality and affordability; focused on advancing the livelihood and promoting the cultural diversity of all citizens of CARICOM and the hemisphere. Moreover, individual members were expected to devise their own national strategies in keeping with the focus of the region and the world.

Guyana's National ICT Strategy

In light of the aforementioned and the obligation of the Government of Guyana (GOG) to promote growth and development, steps were taken to move Guyana in the direction of the region and the world as it relates to the information society.

In October 2001, months before the CARICOM Connectivity Agenda was formally launched, the GOG and the Inter-American Development Bank (IADB) had agreed formally on the launch of a grand ICT Project worth an estimated US$ 22.5 million, of which the IDB had agreed in principle to contribute US$ 18.0 million. This project was seen as a national priority in keeping with the National Development Strategy (NDS) which sees ICTs as a vital tool with the potential to promote good governance; accountability and transparency; create opportunities for employment especially among the youth; develop the country's human capital capacity; and enhance national unity. The project comprised of seven primary components as shown in the following schematic diagram (figure 1).

Figure 1: Breakdown by type of activity
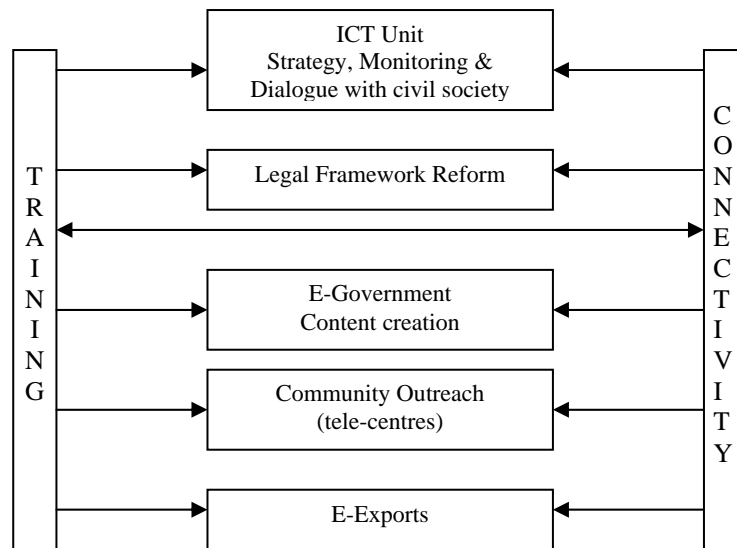
Source: ICT Project Document

As can be seen in the diagram, the project would have been executed by the ICT Unit (Office of the President), and the components of training (human capital development) and connectivity were supposed to act as the project's main artery and vein. Unfortunately, this project never materialize primarily since the Guyana Telephone and Telegraph Company (GT&T) – which has a twenty year monopoly[5] on the provision of landline and international voice and data communication services – blocked the IDB loan by lobbying successfully in the United States claiming that the proposed project was in direct contravention of its monopoly rights. Further, the successful implementation of the ICT project hinged critically on the comprehensive reform of the telecommunication sector; this effort has been stymied although resources have been used to hire three international consultants to devise a way forward. It would seem that the main cog in the wheel is the failure of the GOG and GT&T to arrive at an amicable solution to the problem. One positive outcome of this initial start to develop a national ICT strategy was the creation of the Guyana Development Gateway, which is essentially a web portal through which information on issues relevant to Guyana's development can be found. As a prerequisite to the creation of the gateway the Office of the President and the local NGO DevNet – which comprised the committee responsible for creating the gateway –

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[5] In addition to the initial twenty year monopoly GT&T has the option to extend its monopoly for an additional twenty years.

conducted an e-readiness assessment so as to ascertain the usefulness of creating the development gateway by looking at such areas as education, network access and regulation (see box 2 for the conclusions of the e-readiness assessment). The regions of Guyana which were surveyed for the assessment are 2, 4, 6, 9, and 10 – these regions are representative of the diverse regional characteristics of Guyana and account for a significant portion of the population.

After the above false start the GOG renewed there efforts at moving Guyana forward into the information society by launching the *Guyana National Information and Communication Technology (ICT) Strategy*. The official launch was held in March 2006 and was attended by stakeholders in the private sector, government agencies, educational institutions and civil society. It was a launch truly in keeping with the ideal of a multi-stakeholder approach to the creation of the information society as espoused by the WSIS.

Participants at the launch of the strategy were encouraged to place themselves into one of five areas, in keeping with the five over-arching themes of the strategy, which are:
- Capacity building
- Development of content and applications
- Infrastructure and connectivity
- Legislative and regulatory regime
- IT enterprise development

For the most part the draft National ICT Strategy is comprehensive in its focus on the areas critical to the development of Guyana's Information Society in a manner which has the potential to enhance the overall growth and development of the country and the promotion of Guyanese culture. However, in keeping with the primary focus of this paper, the draft National ICT Strategy pays very little attention to measurement and evaluation. The author did not find any mention of the words 'measure' or 'measurement', while 'evaluate' and 'Bureau of Statistics' were mentioned once. Admittedly, it is only a first draft, but the lack of emphasis on the importance and the need for measurement and evaluation is somewhat disquieting. It seems that most of the

strategy consists of the final report of deliberations of the breakout groups i.e. the points made by the stakeholders at the conference. While it is worthwhile to approach the development of the strategy in this fashion it is imperative that the government and/or the committee established to oversee the design of the strategy ensure that it is holistic and as such encompasses every aspect of the information society, especially those areas which the conference participants might have given little or no attention.

Box 2. Guyana E-readiness Assessment for the Guyana Development Gateway: CONCLUSION

The implementation of the Guyana Development Gateway will be a tool for the participation of Guyanese in the Information society. There are some challenges which must first be overcome :-

a) the limited connectivity in especially rural and hinterland areas mean that a significant part of Guyana's poor would not have easy access to the Gateway. In urban areas, access is available through Internet cafes
b) there is a growing community of users, but there is reluctance on the part of providers of the information and knowledge to digitise and share content.
c) the younger people are more likely to access the GyDG than the older decision makers. The content must therefore be specific to include their needs. The interest of the young in using accessing the Internet is hindered by the low literacy levels
d) The low interest in paying for online content means that the GyDG should not rely on the marketing of content as a means of sustainability.

The implementation of the GyDG takes place in an environment in which the following opportunities are present :-

a) The Caribbean has adopted the CARICOM connectivity agenda, and is developing strategies to move to the Information Society. The outputs of the World Summit on the Information Society provide guidance for the integration of the initiatives such as the GyDG into the development of Guyana
b) The GyDG would have to be marketed as one of the tools which could aid in the achievement of the Millennium Development Goals for Guyana, and be integrated into those sectors for maximum impact. The GyDG should be aligned to the development priorities of Guyana.
c) The GyDG would come at a time when the growth of demand for local content is steady. The managers of the GyDG would have to provide sources to the providers of content to be able to digitise and share this content – through provision of capacity building, feedback, impact analysis and probably include other incentives
d) The varied connectivity throughout the country means that the GyDG should examine the following aspects to promote access to the GyDG and other ICT tools.
These are :-
i) Develop partnerships with privately owned Internet cafes and the National Library to promote the GyDG and related content to users, and to access user feedback.
ii) Pilot the development of other community owned access points/knowledge centres and develop a model which would work in Guyana
e) The GyDG is a strategic tool for enhancing governance and social cohesion in Guyana through providing another medium for the monitoring/evaluation of the PRSP and for developing other best practices of collaboration.
It is concluded that the GyDG would be a relevant tool in the development of Guyana.

4. WSIS & MEASURING THE INFORMATION SOCIETY

"A realistic international performance evaluation and benchmarking (both qualitative and quantitative), through comparable statistical indicators and research results, should be developed to follow up the implementation of the objectives, goals and targets in the Plan of Action, taking into account different national circumstances."

- Geneva Plan of Action (Paragraph 28)

At the conclusion of the first phase of the WSIS summit (Geneva 2003), a commitment was made by an influential group of stakeholders and institutions to create the global *Partnership on Measuring the Information Society*. The Partnership was officially launched at the eleventh session of UNCTAD and includes members such as the ITU, OECD, UNESCO, the UN ICT Task Force and ECLAC to name a few. The objectives of the Partnership are:

1) Achieve a common set of core ICT indicators
2) Enhance the capacities of all national statistical offices to effectively collect and analyse quality ICT data, based upon the core ICT indicators
3) Create an easily accessible database of global ICT indicators

Identifying Core Indicators

Given the nascent stage of the development of indicators and indices to measure the information society, it is not surprising that there are several indices that have been developed and used by various organisations. Additionally, indices have been developed in tandem with a particular goal and as such the indicators used would often differ in comparison to other indices. For example, the UNDP's Technology Achievement Index (TAI) was created and used in 2001 when the UNDP's most revered Human Development Report explored the notion of how technology can promote human development. Therefore, it would not be remiss to posit that in the future organisations will from time to time continue the trend of developing their own indices and carrying out surveys where necessary to meet their needs and there is certainly no harm in doing

same, however, there is need for the standardization and regular reporting of indices and indicators not only for international comparisons but to track the growth and development of the information society, after all the best way of ascertaining the impact of a project is to monitor and evaluate it over time, having standardized indicators is a good way to do same.

The *Partnership on Measuring ICT for Development* has compiled a list of core indicators which were adopted by WSIS at its thematic meeting on 'Measuring the Information Society', held in Geneva, February 2005[6]. The meeting ratified the core list of indicators that would be used for international comparisons; the strengthening of the capacity of national statistical offices in developing countries; and the developing of appropriate methodology to measure the impact, and ascertain the relevance and contribution of ICT towards development and the achievement of the MDGs.

This core list of indicators is not meant to be a final list of indicators but represents the most comprehensive work to date on identifying indicators for measuring the information society. These core indicators are placed into the following four categories:

1) ICT infrastructure and access
2) Access to and use of ICT by households and individuals
3) Use of ICT by businesses
4) ICT sector and trade in ICT goods

Each of the aforementioned broad areas consists of several indicators such as, fixed telephone lines per 100 inhabitants; proportion of business using the internet or ICT goods exports as a percentage of total exports, to name a few (see appendix). The rationale behind these four areas is simple. ICT infrastructure and access is a natural starting point for obvious reasons, moreover the partnership correctly posits that since people, businesses and governments are the primary actors in any society then any core

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[6] A full description of these indicators and possible questions can be found in the report of the *Partnership on Measuring ICT for Development titled, 'Core ICT Indicators'.*

list of indicators must contain indicators that seek to measure the access to and the use of ICTs by these actors. A cursory glance at the full list of indicators will give the impression that government is left out. The partnership admits in its report that indicators for e-government are being worked on, and understandably so since e-government is a relatively new and evolving concept.

E-government aside, there has been a call by those countries which have participated in the WSIS meeting on measuring the information society, for the development of indicators that will shed light on the impact ICTs have on the social sectors such as education and health. In 2006, UNESCO – a member of the Partnership – published a report which suggested a core list of indicators for ICTs in Education (see appendix).

Indices

As previously stated there are several indices for measuring the information society which have been used over the last decade or so by different organisations and for different purposes. The *World Information Society Report 2006* contains a chapter which deals with the measurement of the information society and introduces the Digital Opportunity index (DOI) which was developed in by the ITU, UNCTAD and KADO. The DOI is compared with other main composite indices in table 1, most of which are based on some variant of the methodology used by the UNDP in the calculation of its Human Development Index (HDI) and other indices.

WSIS, according to the *World Information Society Report 2006*, endorses the DOI and the ICT-OI. Both of these indices were developed with input from the ITU – a major partner in the drive towards the development of indicators and indexes for measurement. Of the two the ICT-OI was developed before the DOI and before the list of core indicators were devised, therefore, while all the indicators of the DOI confirm strictly to those identified by the partnership those of the ICT opportunity index do not.

Table 1: Summary of the main composite indices for measuring Digital Opportunity

Index	Number of Economies	Number of Indicators	Clusters	Organisations
1) Digital Opportunity Index (DOI)	180	11	1) Utilization 2) Infrastructure 3) Opportunity	ITU UNCTAD KADO
2) ICT Opportunity Index (ICT OI)	183*	10	1) Networks 2) Skills 3) Uptake 4) Intensity	ORBICOM ITU
3) ICT Development Index	180	8	1) Access 2) Connectivity 3) Usage 4) Policy	UNCSTD
4) Information Society Index	52	15		IDC
5) E-Readiness Index	68	31	1) Connectivity 2) Business Environment 3) Adoption 4) Legal & Policy Environment 5) Social & Cultural Environment 6) Supporting E- Services	EIU IBM
6) Network Readiness Index	102	48	1) Environment 2) Readiness 3) Usage	*Info*Dev WEF INSEAD
7) Digital Access Index	179	26	1) Infrastructure 2) Affordability 3) Knowledge 4) Quality 5) Usage	ITU
8) Mobile/Internet Index	171	26	1) Infrastructure 2) Usage 3) Market conditions	ITU
9) Technology Achievement Index	71	8	1) Creation of technology 2) Diffusion of recent innovations 3) Diffusion of old innovations 4) Human Skills	UNDP

Source: World Information Society Reports 2006 and 2007.

*Figure obtained from the 2007 'Measuring the Information Society Report,' ITU website.

Of the nine indices the E-readiness index can be described as the odd one out and again this is understandable given that it was created for the sole purpose of assessing the e-readiness of the world's leading economies in creating an enabling environment which takes full advantage of what the cyberspace can offer to businesses. It would seem that this indicator was not meant to be a universal indicator of the global move towards the information society, although the 2005 ranking did include Jamaica which is by no means a leading world economy but to date has been one of the countries at the helm of the Caribbean information society[7]. Additionally, the E-readiness index separates itself from most of the other indices by incorporating into its index dimensions which look at the legal, business and socio cultural environment of the countries assessed.

The networked readiness index is the closest to the E-readiness index in its coverage and has the highest number of indicators on the list while covering a relatively significant number of countries. It is very important to note that while the World Economic Forum (WEF) uses data from organizations such as the ITU it also relies heavily on data from its global executive survey which is a perception survey used to get data for the calculation of the global competitiveness index of the WEF, given this methodological approach it is clear why the WEF can afford to use so many indicators in its index.

DOI & ICT-OI: A closer look

As highlighted earlier the DOI and the ICT-OI are the two indices which have been ratified by WSIS and are complementary in their purpose. The ICT OI has 10 indicators as opposed to the 11 indicators of the DOI, moreover the indicators used by the ICT OI pay attention to skills which is obviously crucial to the impact of the information society on any country. It is apt to note that the more indicators used the harder it is to obtain data for the overall index. In time it is hoped that this problem is solved or minimized with the international standardization of ICT indicators.

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[7] Along with Trinidad and Tobago (rank 41), Jamaica (rank 49) was listed as one of the world's dynamic adopters of technology in the UNDP's TAI, *"Human Development Report 2001"*.

The DOI is more forward looking as opposed to the ICT-OI which has a more traditional focus, further the latter index was developed with the primary purpose of tracking the digital divide, especially as it relates to the progress and shortcomings of developing countries. However, it should be noted that despite its developing country bias the index consists of both developing and developed countries. Further, it should be noted that the ICT-OI and the UNDP's TAI are similar in both their traditional focus and the inclusion of a dimension to capture human skills, however, the latter index has a dimension for the creation of technology which for the most part is not within the focus of the developing world, save for countries such as China and Brazil.

Not surprisingly, but nonetheless worthwhile to note, there is a strong correlation between the DOI, the ICT-OI and the HDI. The general idea is that a strong relationship between the DOI and the HDI or the ICT-OI and the HDI gives statistical confirmation for the relationship between a country's standard of living and its position in the information society. In figure 2 the DOI reflects a close positive relationship when regressed against the HDI, with a coefficient of 0.941 and r^2 of 0.885. The same exercise was done with the HDI and the ICT OI and the results are quite similar with a correlation coefficient of 0.956 and r^2 of 0.914 (see figure 3). This simple analysis shows that there is a positive relationship between a country's level of development as measured by the HDI and that country's rank on the DOI and the ICT OI. Further, the information society report has highlighted the close link between a country's performance on the index and its level of income. It should be noted, however, that there are several countries which have performed well on the ICT-OI index in contravention to what their level of income would otherwise dictate; the *Information Society Report 2007* notes that Jamaica and Guyana rank as much as 30 positions higher on the ICT-OI than their GDP ranks.

Fig 2: Graph showing the DOI Rank against the HDI Rank for 177 Countries
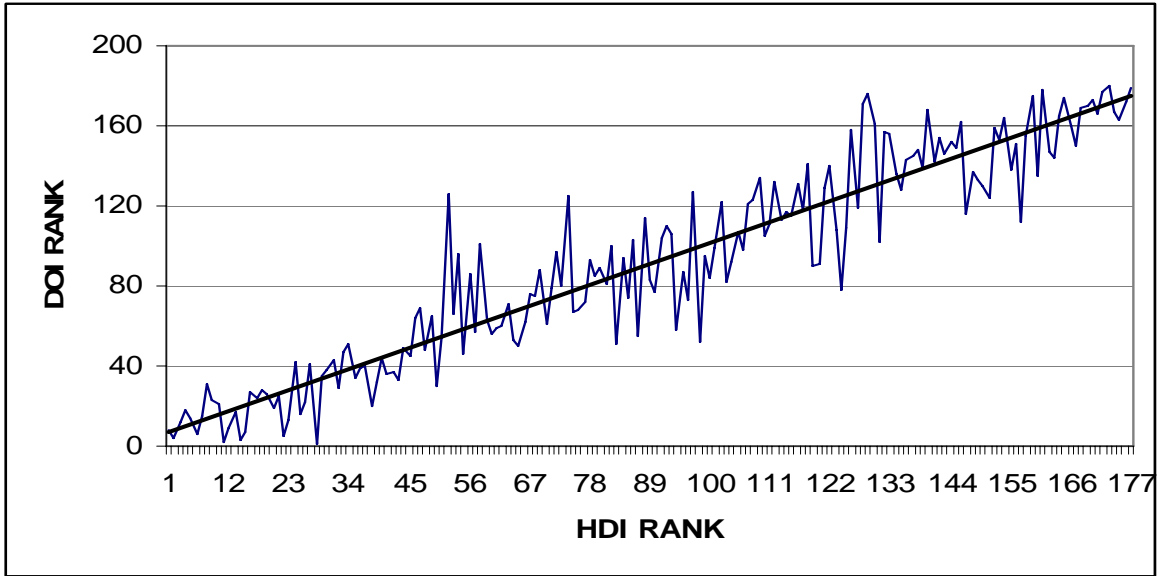
Source: Calculations done by author using data from the Human Development Report 2005 and the World Information Society Report 2006.

Fig 3: Graph showing the ICT OI Rank against the HDI Rank for 137 Countries
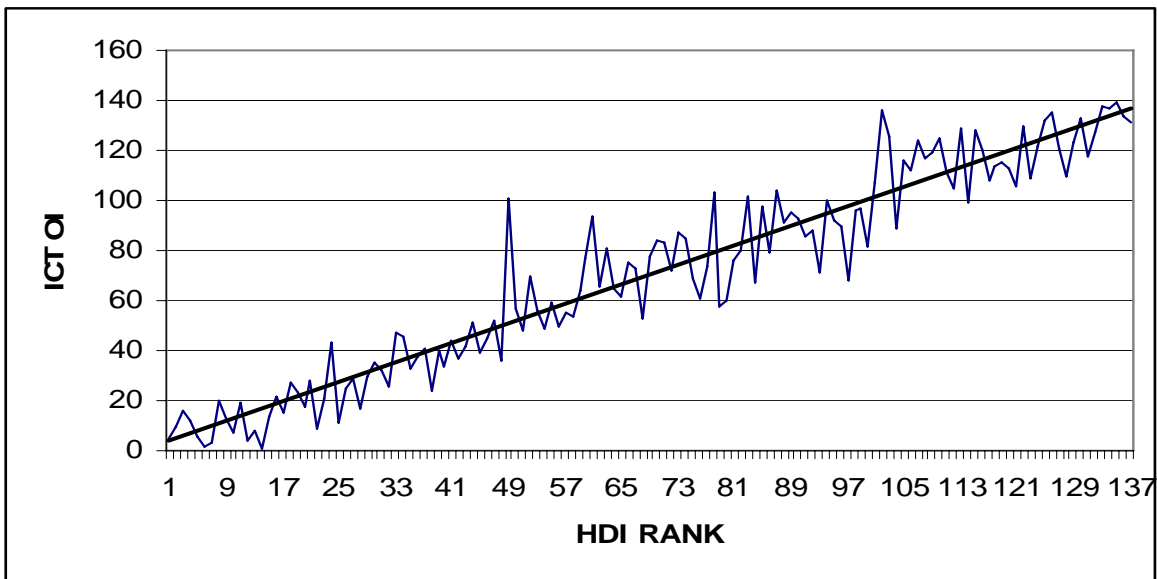
Source: Calculations done by author using data from the Human Development Report 2005 and the ITU website ICT OI data for 2005.

Like their HDI cousins the DOI and the ICT-OI indices consist primarily of 'dimensions' which in turn consist of 'indicators' e.g. '*opportunity*' is one of the dimensions of the DOI and it (*opportunity*) consists of 3 indicators which are used in the calculation of the overall index (see figures 4 and 5 and their attendant notes).

Figure 4: Schematic outline of the DOI
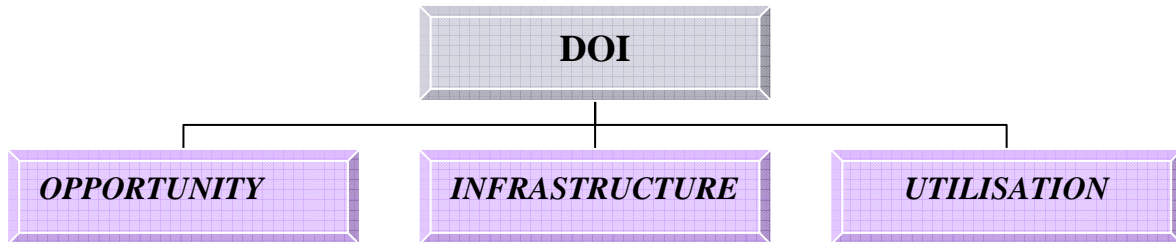
DOI Dimensions and their respective indicators

- Opportunity:
    - Percentage of population covered by mobile telephony
    - Internet access tariffs as a percentage of per capita income
    - Mobile cellular tariffs as a percentage of per capita income
- Infrastructure:
    - Proportion of households with a fixed-line telephone
    - Proportion of households with a computer
    - Proportion of households with internet access at home
    - Mobile cellular subscribers per 100 inhabitants
    - Mobile internet subscribers per 100 inhabitants
- Utilisation:
    - Proportion of individuals that have used the internet
    - Ratio of fixed-broadband subscribers to total internet
    - Ratio of mobile-broadband subscribers to total internet

SOURCE: World Information Society Report 2007

Figure 5: Schematic outline of the ICT-OI
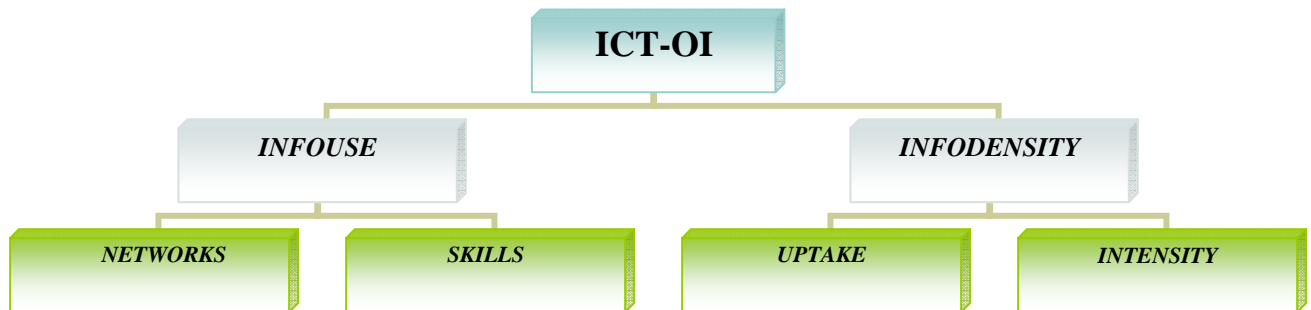
ICT-OI Dimensions and their respective indicators

- Networks:
    - Main telephone lines per 100 inhabitants
    - Mobile cellular subscribers per 100 inhabitants
    - International internet bandwidth (kbps per inhabitants)
- Skills:
    - Adult literacy rates
    - Gross enrolment rates
        - Primary
        - Secondary
        - Tertiary
- Uptake:
    - Internet users per 100 inhabitants
    - Proportion of households with a TV
    - Computers per 100 inhabitants
- Intensity:
    - Total broadband internet subscribers per 100 inhabitants
    - International outgoing telephone traffic (minutes) per capita

NB. *Infouse* is concerned with the use of ICT, while *Info Density* is concerned with the level of ICT capital and human capacity or skill.

SOURCE: World Information Society Report 2006.

5. ICT MEASUREMENT: Guyana and the Caribbean

At its twentieth Session, April 2004 in St. Croix, US Virgin Islands, the Caribbean Development Cooperation Committee (CDCC) – which primarily consists of the member countries of CARICOM – urged the Economic Commission Latin and America (the CDCC's parent body) to conduct activities relevant to the development of the Caribbean Information Society. One of the issues of concern was the measurement of the impact the information society would have; clearly, to do a thorough appraisal baseline indicators must be readily available and as such it was decided that a survey to ascertain the importance national statistical offices are placing on the collection of ICT related data should be done. The findings of this report were compiled in a document titled, *'Measuring the Information Society in the Caribbean: An assessment of the capabilities of Statistical Offices in CDCC Member States.'*

The survey was planned to be done in three phases i.e. a questionnaire survey of national statistical offices, telephone inquiries and the final phase should have consisted of on site visits to the countries surveyed, however time and limited resources ruled this out. Of the twenty-two countries approached fourteen responded to the survey; while this response rate is greater than fifty percent it is certainly remiss of the agencies responsible for collecting ICT data not to respond to the survey. Twenty-seven ICT indicators were selected for the study and participating offices were asked to note the ones they collected and the frequency with which they collected those indicators. They were also encouraged to list any additional indicators that they collect. The selected indicators can be grouped into four broad areas:
- Telecommunications equipment indicators (10)
- Telecommunications infrastructure indicators (9)
- Cost indicators (5)
- ICT sector indicators (3)

In terms of the number of indicators collected (table 2), Guyana only collects 12 out of the total 27, this number is below the average of 13 for all the countries surveyed. It

should be noted that of the 14 countries 9 collected 13 or less of the selected indicators. Montserrat collected all of the selected indicators.

Another important feature that was noted was the high percentage of indicators that were collected via national censuses. Guyana has the highest percentage in this regard with 92% of the selected indicators collected during national censuses while Montserrat had the lowest with 30%. Overall, 10 out of the 14 countries collected more than 60% of the indicators via national censuses. Since national censuses are usually done in 10-year cycles this does not augur well for the collection of timely ICT data. The good performance of Montserrat is commendable and can be partly attributed to the country's effective planning for the development of the country information society. However, it is apt to note that Montserrat has the smallest population (approximately 9,500) of the 14 countries in the survey, but while this makes it easier for them there effective planning and execution should be emulated by the rest of the region.

Table 2: Number of selected ICT indicators collected

Country	Selected Indicators					
	Collected	Not Collected	Not Applicable	% Collected	Census Based	%
Anguilla	18	6	3	75	10	56
Aruba	7	20		26	3	43
Bahamas	13	14		48	7	54
Barbados	12	15		44	10	83
Belize	9	18		33	6	67
British Virgin Islands	15	12		56	10	67
Dominica	13	14		48	10	77
Guyana	*12*	*15*		*44*	*11*	*92*
Montserrat	27	-		100	8	30
Netherlands Antilles	10	17		37	10	100
St. Kitts Nevis	9	18		33	8	89
St. Lucia	6	11		59	10	63
St. Vincent & the Grenadines	11	16		41	9	82
Trinidad & Tobago	13	14		48	8	62

Source: ECLAC Report – 'Measuring the Information Society in the Caribbean'

As it relates to the type of indicators collected (table 3), most countries did well in collecting information on ICT equipment, but apart from Montserrat and Anguilla all the other countries collected 4 or less of the 9 selected indicators for ICT infrastructure. In terms of cost only St. Vincent and Montserrat collected data; naturally 'cost' is an important indicator, especially for developing countries and has to be tracked over time to determine how accessible ICT services are. Most countries collected data on the ICT sector.

Table 3: ICT indicators collected by type

Country	Selected Indicators				
	Equipment (10)		Infrastructure	Cost	ICT Sector
	Collected	Census based	(9)	(5)	(3)
Anguilla	10	10	6		2
Aruba	4	30	1		2
Bahamas	8	6	4		1
Barbados	10	10	2		
Belize	6	6	2		1
British Virgin Islands	10	10	2		3
Dominica	10	10	3		
Guyana	*10*	*10*	*1*		*1*
Montserrat	10	8	9	5	3
Netherlands Antilles	10	10			
St. Kitts Nevis	8	8	1		
St. Lucia	10	10	3		3
St. Vincent & the Grenadines	10	9		1	
Trinidad & Tobago	8	8	4		1

Source: ECLAC Report – 'Measuring the Information Society in the Caribbean'

The study also looked at the staffing of the statistical offices of those countries surveyed, and calculated the number of workers per 10,000 persons in the population (table 4). Naturally, Montserrat has the highest worker per 10,000 persons in the population, Guyana, Trinidad, Belize Dominica and the Netherlands Antilles had less than the average of 1.8 per 10,000 persons. One striking feature of this aspect of the survey is the fact that females make up approximately 65% of the total employed.

Table 4: Number of persons employed in statistics offices

Country	EMPLOYMENT						Statistics Office Workers per 10,000 POP.
	Full Time			Part Time			
	Total	Male	Female	Total	Male	Female	
Anguilla	5		5				3.8
Aruba	30	14	16	1		1	2.6
Bahamas	85	12	73	1		1	2.7
Barbados	70	29	41				2.6
Belize	28	16	12				0.9
British Virgin Islands	27	9	18				12.2
Dominica	13	4	9	2		2	1.7
Guyana	*121*	*24*	*97*				*1.4*
Montserrat	6		6				8.6
Netherlands Antilles	31	15	16				1.4
St. Kitts Nevis	14	4	10				2.9
St. Lucia	34	11	23	4		4	2.1
St. Vincent & the Grenadines	15	6	9				1.3
Trinidad & Tobago	220	99	121				1.7
TOTAL	669	243	456	8		8	1.8

Source: ECLAC Report – 'Measuring the Information Society in the Caribbean'

The survey also looked at the constraints to the collection of selected and additional ICT indicators (table 5). As it relates to the constraints of collecting the selected ICT indicators it is disheartening to note that 9 out of the 14 respondents said the collection of such indicators was not a priority. The collection of additional indicators was constrained by not being a priority for all countries, save for Montserrat. Staffing was cited in both cases as a constraint to the collection of ICT indicators in Guyana, and while the table only indicates that funding was a not a constraint in the collection of additional statistics for Guyana, it is reasonable to assume that since this was a constraint to the collection of the selected indicators the same will hold for the additional indicators.

Table 5: Constraints to collecting ICT Indicators

Country	Constraints to collecting selected indicators				Constraints to collecting additional indicators			
	Not a Priority	Staffing	Funding	Other	Not a Priority	Staffing	Funding	Other
Anguilla	×		×		×		×	
Aruba				×	×			
Bahamas				×	×			
Barbados	×				×			
Belize	×		×		×			×
British Virgin Islands	×				×			
Dominica	×				×			
Guyana		×	×		×	×		
Montserrat				×			×	
Netherlands Antilles		×	×		×			
St. Kitts Nevis	×		×		×	×	×	
St. Lucia	×				×*			
St. Vincent & the	×		×		×			
Trinidad & Tobago	×	×	×	×	×*	×	×	

Source: ECLAC Report – 'Measuring the Information Society in the Caribbean'

* - The report assumes that since Trinidad and St. Lucia cited 'not a priority' as constraint to the collection of the selected statistics it would be reasonable to assume that the same holds for other indicators.

Clearly the ECLAC study was timely, and a useful indicator of the little emphasis paid on the collection of ICT related data in Guyana and the Caribbean. The fact that little priority is given to the collection of such data is striking and indicative of the urgent need for the region as a whole to get its act together.

It should be noted that the Guyana Bureau of Statistics is in the process of enhancing its capacity to effectively execute its mandate; overseas assistance is being provided to this end. While no clear agenda for the measuring of ICT indicators has been devised to date the Bureau has red flagged this area as part of its overall enhancement programme.

6. THE WAY FORWARD: Proposals

Given the importance that is being placed on the use of ICTs for development it is now opportune for the Guyana Bureau of Statistics to get on the international 'bandwagon' and start gathering, analyzing and disseminating information (indicators) relevant to the information society. Such information will give an indication of the development of the country's information society; enable comparisons with other countries; inform the decisions of potential investors and more importantly inform future policy decisions.

Proposals

Thus far this paper has painted a clear picture on the status quo as it relates to the measuring of the information society. In terms of Guyana, the lack of progress to date as it relates to the Statistical Bureau collecting relevant, timely and quality ICT data, especially in light of the renewed focus of the GOG to get the national ICT strategy off the ground, is cause for concern and attention. The following ideas are posited not as panacea for the shortcomings of measuring the information society in developing countries such as Guyana, rather they are proposed with the intention of suggesting a possible way forward and hopefully act as a catalyst for the development of ways in which the information society is measured in Guyana and the wider world.

1. Create a new culture of collecting statistics

In Guyana the collection and analysis of national data rests primarily with the Bureau of Statistics. Naturally, the information used in its reports is collected from agencies such as the Ministry of Health, the Meteorological Office and the Police Department to name a few. These inter-agency relations have been around for sometime and are indispensable to the efficacy of the Bureau of Statistics in the execution of its mandate. However, the time is ripe for more relationships to be established and for the existing ones to deepen. In other words, institutions such as the University of Guyana need to enhance their contribution or start contributing information to the Bureau of Statistics; in the area of

indicators for the information society this would include, for example, such data as the number of computer science graduates or the number of courses done via the internet or by other means of telecommunication. These data would not only serve to inform national policy but can also inform the decisions of the institutions that collect them.

To this end a new culture of collecting statistics – especially for measuring the information society – needs to be promoted. Admittedly, institutions are not likely to collect data or keep data safely and well organized if they cannot see the benefits of doing same, as such it would be a good idea for a national campaign to be started to encourage data collection and presentation and where possible analysis. The widespread use of computers should make the process of collecting and storing easier than in the past. For example, the use of simple programs such as Microsoft Excel can aid greatly in the collection and presentation of data, and there is no need to have large filling cabinets or boxes filled with data, all that is needed is a sizable hard drive and backup CDs.

Moreover, institutions need to be encouraged to get into the habit of keeping data, even when there is no immediate demand for it, albeit as long as doing so would not significantly increase costs. The need to collect and keep information even if there is no immediate demand for it can be likened to a vigilant security guard who makes it his duty to be watchful of persons that pass his station. Not all the information he keeps would seem useful at the time, but someday a crime might be committed and the mental note he had been keeping would come in handy. Ideally, with sound planning the Bureau of Statistics can preempt the need for keeping information that might not seem valuable by giving clear guidelines and offering support where necessary on the type of statistics to be collected and methods for ensuring the integrity of such data. For a developing country like Guyana, where resources are already limited, multi-stakeholder cooperation is crucial to the success of such initiatives as data collection.

Finally, quality data might be withheld in some cases where businesses for example might treat the dissemination of their private data as an unwarranted invasion into their operations. This possibility further supports the notion of having a national campaign not

only to encourage the collection and storage of quality data, but to encourage multi-stakeholder buy in. In other words, all stakeholders, especially private firms and agencies, need to be made fully aware of the benefits to society as a whole of having quality and timely information. While this is easier said than done, a concerted effort must be made and supported by appropriate incentives which would signal the seriousness of the authorities.

2. Use ICT to measure ICT

ICTs in themselves provide an additional weapon in the arsenal of data collection, analyzing and dissemination. Guyana's Bureau of Statistics has an information systems unit which provides support for the rest of the agency; it would not be unwise to assume that the same obtains in most countries around the world. If used effectively this system could make the work of the Bureau easier. For example, under e-governance there is the notion of 'joined up government' where government agencies are connected and as such can share information easily via a secured network; the Ministry of Finance currently has a system called the Interconnected Financial Management and Accounting System (IFMAS), which connects the transfer of financial data between the Ministry of Finance, local government and other government ministries. A similar system would greatly aid in the collection of data from different agencies.

However, there are other ways and means through which ICTs can be used to aid in the collection of information e.g. a government office can keep a tab on how many times its website is visited or a document downloaded, all with the aid of computer software. Certainly, such information would be invaluable in determining the need and impact of that particular government service. Another example, would be for online surveys to be carried out (especially for business surveys), this can be a cost cutting measure.

3. Contribute to the search for useful indices

It is open season for the identification of suitable indices for measuring the information society, and while the evidence shows that organisations such as the ITU and the OECD are at the forefront of the rush to create useful indices there is no reason why the Caribbean and Latin America or developing countries as a whole cannot create additional ways and means of measuring the information society in a manner which will reflect their unique differences. With this in mind there is scope for intra and inter regional cooperation e.g. Africa, the Caribbean and Latin America can work together in developing methods for measuring the information society in the third world i.e. south-south cooperation.

4. Create an index which separates developed from developing countries

It has been acknowledged time and time again that identifying indices for measuring progress is not easy and in the end there will be those who would still disagree on any given index, and as such will posit suggestions as to how that index or indices can be enhanced. Additionally, it is all but impossible to develop the perfect single index which would highlight the intricacies of all the countries measured.   Indices for the measurement of the information society are no different.   One of the shortcomings of Indices such as the DOI is that they sometime contain indicators that are not highly relevant to the focus of developing countries. Admittedly the ICT-OI complements the DOI by focusing primarily on the developing world; however, both indices consist of both developed and developing countries, which is certainly useful for international comparison and benchmarking. The *World Information Society Report 2007* notes that the number and types of indicators used for the ICT-OI are limited since it is difficult to obtain certain kinds of data in the developing world, further the exact position of high income countries should not be overrated rather their inclusion is primarily for benchmarking the rest of the world and to identify targets.

In light of the foregoing a possible way forward would be to develop two separate indices for measuring the information society, this in no way is a call for the extinction of the

current indices, but by going the route of separate indices the development priorities of all countries can be better catered for. It is like comparing a Toyota to a Rolls Royce, clearly they are in two different leagues and as such one is expected to be better relative to the other. So while it is good to compare cars in general it is worthwhile to also compare those in the same class.

Before venturing further it is apt to recognize that an index is not merely developed so as to rank countries or put differently merely compare them, rather an index such as the DOI is first and foremost a tool for tracking the progress or shortcomings of a country based on a set of previously identified indicators and/or dimensions. Therefore, given the global drive to adequately measure the information society it would be worthwhile for indices to be developed which add more utility to the ongoing measuring and evaluation process. Different indices will allow for more flexibility in the identification, definition and use of indicators for measuring the information society. It should be reiterated that this in no way is a call for the replacement of the current indices which consist of both developing and developed countries, admittedly separation of countries based on their level of income is usually done when analyzing the results of the ICT-OI, for example; rather, the proposal is that new indices be developed which can place more emphasis on the two groups separately and in so doing complement the DOI and ICT-OI. .

The UNDP, in 1997 introduced the Human Poverty Index (HPI) which sought to measure deprivation in the developing world and in the following year a second composite index was introduced to measure deprivation in the developed world. Hence the HPI-1 and HPI-2 are now used by the UNDP to measure deprivation in developing and developed countries respectively. Each index essentially has the same clusters – survival, knowledge and decent standard of living – but the developing world was measured on a different level as opposed to the developed world where poverty takes on a different face as opposed to the extreme poverty of the third world.

While there is the ever present concern about the availability of data in the developing world it is proposed that the same idea of having different indices or different weights

attached to certain indices, but with the same general dimensions or clusters, be used in arriving at indices for separately measuring the information society and by extension complementing the existing indices. The following excerpt from the Geneva Plan of Action places the icing on the cake of the argument for separate indices for measuring the information society in addition to the contribution by all countries to the global effort of identifying suitable indices.

> *"All countries and regions should develop tools so as to provide statistical information on the information society, with basic indicators and analysis of its key dimensions. Priority should be given to setting up coherent and internationally comparable indicators systems, taking into account different levels of development."*
>
> *-Geneva Plan of Action, paragraph 28f*

7. CONCLUSION

There are two general underlying proposals that should be highlighted from this paper i.e. the need for a change in the culture of data collection and the role of the developing world in the decision making process; within the context of this paper participation by the developing world in the decision making process is taken to mean contributing towards the development of indicators and methodologies for measuring the information society, in an effort to ensure that those indicators cater to their specific needs.

Without a doubt, the global shift towards an information society and the attendant increase in the use of ICTs hinges critically on how quickly all stakeholders are 'willing' and 'capable' to buy in to the grand national strategies that are now en vogue. Measuring the information society is akin to the foregoing, and as such all stakeholders have to play there part in keeping an account of the development, benefits and costs of using ICTs.   In other words while it is the responsibility of agencies such as national statistical offices to collect and analyse ICT related data, there needs to be a shift in the culture of data collection which would make the work of the relevant agencies easier.

For too long the countries of the developing world have taken a back seat on global issues – lack of funding and human capital being the central points of lament – and as such they need to play a bigger role in areas such as the development of new methodologies for measuring the impact of the information society. Admittedly, resources are limited but ICTs provide the perfect medium through which we can participate and increase our knowledge of the issues. Put differently, countries such as Guyana need to raise their voices louder and contribute towards the global development of the information society and its attendant issues such as measurement, so that its (Guyana) realities can be adequately addressed, especially since the information society has the potential to make an uneven playing field a little less uneven.

8. APPENDIX

1. Core indicators on ICT infrastructure and access

Basic Core

A1   Fixed telephone lines per 100 inhabitants

A2   Mobile cellular subscribers per 100 inhabitants

A3   Computers per 100 inhabitants

A4   Internet subscribers per 100 inhabitants

A5   Broadband internet subscribers per 100 inhabitants

A6   International internet bandwidth per inhabitant

A7   Percentage of population covered by mobile cellular telephony

A8   Internet access tariffs (20 hours per month), in US$, and as a percentage of per capita income

A9   Mobile cellular tariffs (100 minutes of use per month), in US$, and as a percentage of per capita income

A10   Percentage of localities with public internet access centers (PIACs) by number of inhabitants (rural/urban)

Extended Core

A11   Radio sets per 100 inhabitants

A12   Television sets per 100 inhabitants

2. Core indicators on access to and use of ICT by households and individuals

Basic Core

HH1   Proportion of households with a radio

HH2   Proportion of households with a TV

HH3   Proportion of households with a fixed line telephone

HH4   Proportion of households with a mobile cellular telephone

HH5   Proportion of households with a computer

HH6   Proportion of individuals who used a computer (from any location) in the last 12 months

HH7   Proportion of Households with internet access at home

HH8   Proportion of individuals who used

3. Core indicators on use by businesses

Basic Core

B-1   Proportion of businesses using computers
B-2   Proportion of employees using computers
B-3   Proportion of businesses using the Internet
B-4   Proportion of employees using the Internet
B-5   Proportion of businesses with a website (or web presence where the business has control over the content)
B-6   Proportion of businesses with an intranet
B-7   Proportion of businesses receiving orders over the Internet
B-8   Proportion of businesses placing orders over the Internet

Extended core

B-9   Proportion of businesses accessing the Internet by modes of access
B-10   Proportion of businesses with a Local Area Network (LAN)
B-11   Proportion of businesses with an extranet
B-12   Proportion of businesses using the Internet by type of activity

4. Core indicators on the ICT sector and trade in ICT goods

Basic Core

ICT-1   Proportion of total workforce involved in the ICT sector

ICT-2   Value added in the ICT sector (as a percentage of total value added)

ICT-3   ICT goods imports as percentage of total imports

ICT-4   ICT goods exports as percentage of total exports

5. Suggested Basic Core Indicators for ICTs in Education

Basic Core

ED-1   % of schools with electricity (by ISCED 1-3)

ED-2   % of schools with a radio set used for educational purposes (by ISCED level 0 to 4)

ED-3   % of schools with television set used for educational purposes (by ISCED level 0 to 4)

ED-4   Student to computer ratio (by ISCED level 0 to 4)

ED-5   % of schools with basic telecommunication infrastructure or telephone access (by ISCED 1-3)

ED-6   % of schools with an internet connection (by ISCED 1-3)

ED-7   % of students who use the internet at school (by ISCED level 0 to 4)

Extended Core

ED-8   % of students enrolled by gender at the tertiary level in an ICT-related field (ISCED 5 to 6)

ED-9   % of ICT-qualified teachers in primary and secondary schools (of the total number of teachers)

Table 1: Financial Commitment to Promote ICTs

Stakeholder	Commitment (€ billions)	Percentage of total
Civil Society	0.13	4
Business Sector Entities	0.35	11
International Organizations	0.83	26
Governments	1.90	59
	3.20	**100**

Source: WSIS Golden Book.

Table 2: Breakdown of activities by entity

Entity	Percentage of Total
Business Sector Entities	7
Civil Society	17
International Organisations	35
Government	41

Source: WSIS Golden Book.

Table 3: Coverage of activities

Area	Percentage of Total
Local	7
National	17
Regional	35
International	41

Source: WSIS Golden Book.

Figure 1: Breakdown by type of activity
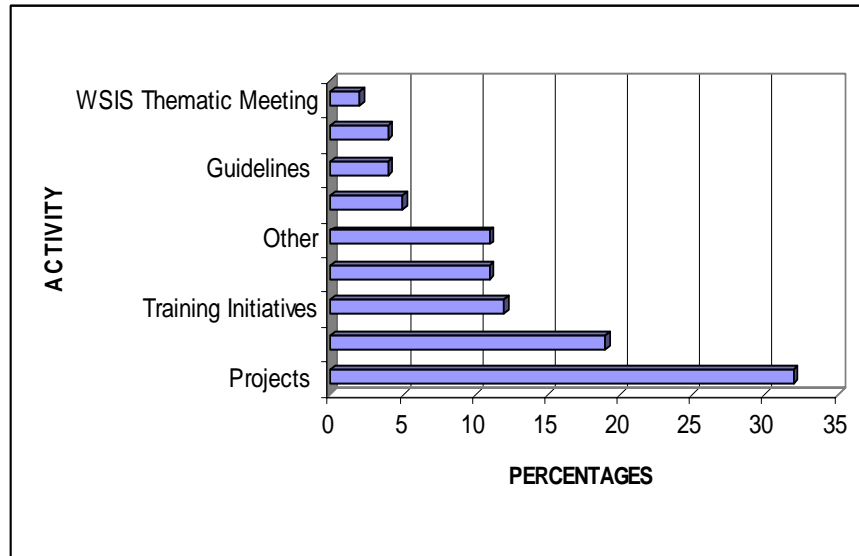
Source: WSIS Golden Book.

Table 4: Breakdown of activities by region

Region	Percentage of Activities
Latin America & the Caribbean	5
Africa	10
Asia-Pacific	13
Eastern Europe	14
Western Europeans & Other Groups	27
International	31

Source: WSIS Golden Book.

Member State: GUYANA

Basic Data:
Population: 770,139 (1996)
Area: 214,970 Sq Km
GDP: EC$ 1,916 mn (1996)
GDP Per Capita: EC$ 2,003 (1994)

1. Infrastructural framework: Connectivity and cost	
(a) Availability of communication services, access centres and networked computers	*Fairly good telecommunication services with marginal spread of access centres in urban areas. Much higher demand than availability of Internet. Total Internet connections about 3000.*
(b) Existence of effective competition among communication and information services providers	*Telecommunications under a monopoly. 5 ISPs operational with access through single gateway (one independent satellite based service)*
(c) Affordability and reliability of network access, including the cost of service (against per capita/average wage)	*Complaints of slow and unstable Internet access at high cost compared to standard of living. (Lease line 56/64(GT&T); (iNet) US$975 Dial-up 56k G$3000for 40hrs to 6200 unlimited)*
(d) Reliability of electrical supply for e-Business-critical operations	*Okay generally but problem of fluctuations which are dangerous for IT equipment.*
(e) Existence of any incubator facilities/IT Parks	*Nil*
Policy Framework: E-Leadership and Participation	
(a) Is E-Readiness a national priority	No
(b) Is there a national IT/E-Commerce plan or strategy existing	*No, though a draft IT policy is under consideration*
(c) Is there an agency leading the initiative	*Not yet identified.*
(d) Progress with e-Government and promotion of participation of citizens	*Nil (there are some information type websites of some of the govt. agencies)*
(e) Digitization of trade infrastructure and procedures	*ASCUDA for data compilation at Customs HQs without link to port/airport or trade agencies.*
(f) Partnerships between industry and government to improve E-Readiness	*No such initiative nor any structured consultation between stakeholders There is however a committee for ICTs that has private sector participation.*
Legal Framework: Security and privacy	
(a) Legal support for e-Commerce transactions	Not available, nor under planning yet
(b) Strength of legal protections for processing and storage of networked information	*Nil*
(c) Strength and effectiveness of the legal and regulatory framework to address and prosecute cyber crimes, authorize digital signatures, and enable public key infrastructures etc.	*Not available*
(d) Progress in protecting intellectual property rights.	*Need for more stringent enforcement*
(e) Measures of consumer protection and extent of efforts to protect privacy.	*Agency for consumer protection and Public Utilities Commission set up but no provisions for Internet.*

Human capacity framework: E-enabled Human Capital	
(a) Availability of e-professional for e-business	*IT graduates coming out with lack of sufficient employment opportunities for the present. Many migrate abroad.*
(b) Skills and efficiency of the workforce	*English speaking work-force with spreading usage of computers in public and private sectors.*
(c) Levels of IT teaching in the education system including private initiatives	*Reasonably good. Private teaching shops coming up.*
(d) E-literacy amongst citizens	*Presently very low*
(e) Is the institutional framework fostering culture of local creativity and information sharing within the society	*Not effectively. Local culture creative but conservative background, especially in business.*
E-Business Environment: Enabling seamless ECommerce	
(a) Present status of IT industry and IT in industry	*Some IT companies operational with low level of IT in traditional enterprises*
(b) Existence of e-enabled financial framework to support electronic transactions	*Not available. Credit card culture also barely exists.*
(c) Availability of venture capital for e-Business	*Not available*
(d) Transparency and predictability of regulatory implementation, openness of government, rule of law, etc.	*Much room for improvement as perceived by private sector*
(e) Climate and policy for participation by foreign investors in ICT businesses	*No specific notified policy but foreign investment encouraged*
The International and Regional framework	
(a) Negotiating stand on E-Commerce at the WTO, FTAA etc.	*Still under consideration*
(b) Regional and sub-regional collaboration	*Recommend CARICOM level network.*

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