

Caribbean ICT Indicators and Broadband Survey JAMAICA

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The authors accept responsibility for any errors or omissions in the project report and present it as a contribution to the dialogue surrounding the sustainable development of ICTs and its contribution to national and regional development.

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Executive Summary

It is globally accepted that Information and Communication Technologies (ICTs) play an increasingly important role in all spheres of national, regional and global development and therefore, robust and accurate empirical ICT data are required for public policy and corporate planning. Networks for Development: The Caribbean ICT Research Programme 2009-2011 is a multi-institutional project, which, according to its written objective, is aimed at “promoting stakeholder knowledge, exchange and dialogue about the potential contribution of ICT to economic development and poverty alleviation in the Caribbean.” This Report on the Caribbean Broadband and ICT Indicators Survey represents a main activity and output of the wider project.

The main objectives of this Survey were:

“To conduct an ICT survey....covering baseline information needs on ICT following international standards, and including specific modules on mobile and broadband required for studies and analyses by different partners involved in the Caribbean ICT Research Programme”, and

“To analyse the household level data, including the status of broadband and mobile usage in order to promote evidence-based policy planning and implementation with respect to ICT development and its impact on social and economic development of the region.”

The Jamaica study is the first in a series of such research projects meant to be carried out in the Caribbean region, to generate baseline data on the ICT sector.

This pioneering investigation finds that there is a low level of computer and internet penetration in Jamaica, with a slow uptake of broadband services. There is continued disparity in rural/urban access as well as in usage of the internet and computers among men and women. Overall usage across all geographical and demographic groups remains low. The Kingston Metropolitan Area (KMA) and Other Urban Centres (OUCs) outstrip rural Jamaica in both internet and computer access and usage, and women are heavier users than men. Among the main causes of the above is the barrier of high cost of equipment and services, reflecting, among other factors, the fiscal policies of the Government. Level of educational attainment, age, gender and geographical location are significant variables in

accounting for non-internet access among Jamaicans. As expected, the penetration of mobile phones is high, with constant and active usage, mainly of voice services.

Even as the data show relatively low levels of computer and internet access, the intensity of usage suggests that if the internet were more widely accessible (by location and cost), there would be a larger uptake. This supports previous notions that the population is very receptive to the use of technology as long as it is available at the right price. Notably, however, usage of both the mobile phone and internet service is concentrated around social activities, with very low applications to economic and educational endeavours. While there is a measure of economic survival intrinsic to the social interaction fostered by mobile telephone, explicit business usage of both mobile phones and the Internet by individuals is discernibly low. While this reflects in part, the young age cohort who account for the main users of these ICT's, it calls for greater education and consumer awareness to shift user appetites from predominantly voice and entertainment to more diverse usage patterns, with a stronger representation of educational, business and other developmental activities.

In this regard, more integrated ICT policy making involving such sectors as health, education, banking and generally more business-oriented strategies are required. This calls for stronger Government leadership at the highest levels in fashioning a knowledge-based society across the silos of ministries and departments.

There is a clear need for re-education and re-orientation through public education on the diverse uses and infinite possibilities associated with internet and other applications including mobile phone via both basic and smart phone technologies. The Government's drive to develop and expand the use of computers and the internet in schools is commendable and some significant progress has been achieved within these mainly secondary educational institutions. However, extending the push for school-based access beyond the school fences and into the wider community, combined with continued development of the appropriate educational interventions, should help to redress existing weaknesses. But citizens should not be encouraged to await a government handout. They will need to find creative ways to acquire computers and internet access once these are

priced at affordable rates. The challenge here is to the private providers and retailers of equipment as well as to the government fiscal authorities. The study's overwhelming message is that a reduction in the cost of computers and internet access will significantly stimulate increased acquisition and usage of these technologies.

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Introduction

Jamaica is the largest of the English-speaking countries in the northern Caribbean, with a population of over 2.7 million. With a labour force of 1.3 million (2009), Jamaica's unemployment rate in 2010 was estimated at 12.9%, with continued low real GDP growth rates over the past four years moving to -0.8% (est.) in 2010. Jamaica's economy has increasingly become dependent on services (mainly tourism and remittances) given the decline in fortunes in the traditional areas of mining and agriculture. In addition to tourism, there has been some growth in trade for music, entertainment services and other cultural products. Services now account for approximately 60% of GDP, according to the 2010 estimates of the Planning Institute of Jamaica.

The Information and Communication Technology (ICT) sector has been one of the fastest growing, especially in the last decade following the liberalization of the mobile telephony market in 2000. In keeping with global trajectories, the mobile telephony penetration rate in Jamaica is well over 100% of the population size and there is growing infrastructure to facilitate fixed and wireless internet connectivity and other services. ITU data for Jamaica show an 87% growth in mobile subscriptions per 100 inhabitants between 2000 and 2009. Over the same period, *fixed lines per 100 inhabitants declined from 19.22 % in 2000 to 11.12%.* The introduction of wireless broadband is beginning to fill the gap caused by the decline in fixed line telephones. Wireless needs to continue to grow as a means of bridging the emerging rural urban divide in internet connectivity and to help to meet the growing consumer demand for online, every-where, every-time services.

In addition to the decline in fixed line telephony and the significant growth in mobile telephone penetration, the ICT landscape in Jamaica has been characterized by relatively low levels of adoption and use of the computer and Internet due mainly to high prices. Even though prices in Jamaica have declined significantly since the liberalization of the market, they remain high compared with many other countries,

partly stemming from the prevailing fiscal policies including the imposition of high consumer taxes and high import duties on computers and other ICT equipment.

As this survey confirms, household broadband penetration across all socio-economic groupings in Jamaica is still considered to be relatively low. Earlier International Telecommunications Union (ITU) data show fixed broadband moving from 0.12/100 inhabitants in 2001 to 4.13/100 inhabitants in 2009. Data from 2006 to 2009 for mobile broadband also reflects a slow uptake of the services, 0.02/100 to 1.72/100. This has been largely attributable to the fact that most Jamaicans have been lacking affordable access to broadband services, even with the introduction of 3G and 4G services into the island. The slow rate of penetration of broadband (fixed and mobile) is in stark contrast to the rapid rate of mobile phone penetration which accompanied the phased opening of the telecommunications market between 2000 and 2003. Regulatory and legislative barriers often work to stymie the potential which exists to leverage various opportunities in the sector. These problems are reflected in the Network Readiness Index published by the World Economic Forum in April 2011, which revealed that Jamaica has consistently plummeted in rankings of overall readiness since 2006/07.¹

This research project seeks to contribute to the body of indigenous data about the state of ICTs in Jamaica, moving the discussion from conjecture to establishing baseline data. It is intended to enhance evidence-based policy making and contribute to the dialogue on the transformation of Jamaica into a more competitive knowledge-based society.

¹ World Economic Forum - Global Information Technology Report 2010-2011, Issued April 2011

About the Survey

The Caribbean Broadband and ICT Indicators Survey was designed to provide reliable estimates from a representative sample of individuals living in households in Jamaica. The sample size for the survey was 2,200 respondents selected from all parishes across Jamaica. The target population for the survey was the population of males and females, aged 10 or over living in private households.

Methodology

The survey utilized a three stage sampling design with the first stage being a selection of enumeration districts (EDs) with probability proportional to the number of dwellings recorded in the 2001 Population Census. In the second stage of sampling 10 dwellings were randomly selected from the EDs that were selected in the first stage. Finally, in each of the selected dwellings one respondent who was 10 years or over was selected randomly using the Kish Selection Method for interviewing.

The sampling frame for the Caribbean Broadband and ICT Indicators Survey was developed by the Statistical Institute of Jamaica (STATIN), who were contracted to assist with the fieldwork data gathering. Information from the updated 2001 Population and Housing Census was used. A master sampling frame is developed after every Census and is updated every 4-5 years to include the most recent changes in the population through a Listing exercise. This frame provides a basis for the implementation of all the household surveys conducted by STATIN.

The survey domains were classified as: KMA,² Other Urban Centres,³ Rural Areas and National.

Sample Coverage

Of the 2,200 dwellings selected for the sample, 1,755 were successfully interviewed yielding a satisfactory household response rate of 80%.

Sampling Error

In general the analysis relating to the ICT survey is conducted at the 95% level of confidence.

Quality control procedures were implemented to reduce the occurrence of non-sampling error in the survey, including a thorough training programme for the interviewers, led by the UWI TPM Project management team. A number of field and validity checks of the questionnaires and a comprehensive edit and consistency check were carried out during data processing.

The Survey Instrument

The survey instrument was designed to collect ICT data which can be compared with international data.

The instrument, modelled from one used by the International Telecommunications Union (ITU) was carefully revised and re-constructed in parts to meet language and cultural contexts of the Caribbean while remaining valid as a tool for internationally comparable data gathering. The questionnaire consisted of six modules:

1. Data about household members
2. Housing Features
3. Household Access to Information and Communication Technologies
4. Individual Use of the Computer and the Internet
5. Mobile Access
6. Special Module for Persons with Disabilities

² Kingston and Urban St. Andrew

³ Parish capitals and other urban areas

Main Findings

Demographics

The demographic profile of the respondents who participated in this Survey was consistent with STATIN's population estimate of 2009. Of the 1,755 successful interviews, the distribution of males and females was fairly even. This was the same across the geographic areas of Kingston Metropolitan Area (KMA) and Other Urban Centres (OUC) and Rural Areas. The modal age group (excluding 60 and over) was 30-34 years.

Table 1 General Demographics of Survey Sample

STATUS	
Modal Age	30-34 years
Gender	Male 51%. Female 49%
Educational Level	Completed Secondary (43.5%) Completed Primary (44.6%)
Main Occupation	Skilled Agriculture/Fisheries (21.3%) Craft/Related Trade (18.4%) Service Workers (17.5%) Elementary Occupations (10.9%) Legislator (8.1%) Professional (6.9%) Plant and Machine Operators (6.9%) Clerks (5.7%) Technicians and Associated Professionals (4.3%)
Employment Level	Self Employed (33.4%) Paid Employment (31.3%)

Of those surveyed, the majority of 45% had completed at least primary education, while 44% had completed at least secondary education. Respondents in KMA (53%) and Other Urban Centres (45%), reported completion of Secondary Education, while in the Rural Areas, the majority of 52% reported completion of a least Primary Education.

Approximately 33% of respondents were reported to be "Self Employed", 31% "Paid Employees", 24% "Unemployed" and 11% "Outside the Labour Force". In the KMA region, 34% of respondents were reported to be "Unemployed", 33% "Paid Employees", 25% "Self Employed" and 9% "Not in the Labour Force". In Other

Urban Centres, 39% of respondents were reported to be "Paid Employees", 31% "Self Employed", 17% "Unemployed" and 13% "Not in the Labour Force". Among respondents from Rural Areas, 39% were reported as being "Self Employed", 27% "Paid Employees", 24% "Unemployed" and 11% "Not in the Labour Force".⁴

ICT Access and Use (Household and Individual)

Indicators on access to and use of ICTs by households

This section will report the findings of the Survey through an examination of core and extended ICT Indicators. Core ICT

Table 2 - Core ICT Indicators

Core ICT indicators

1. Proportion of households with a radio
2. Proportion of households with a television
3. Proportion of households with a fixed line telephone:
 - a. Proportion with fixed line only
 - b. Proportion with cellular only
 - c. Proportion with both fixed and mobile telephony
4. Proportion of individuals with use of a mobile telephone
5. Proportion of households with a computer
6. Proportion of individuals who used a computer (from any location) in the last 12 months
7. Proportion of households with internet access at home
8. Proportion of individuals who used the internet from any location in the last 12 months
9. Location of individual use of the Internet in the last 12 months
10. Internet activities undertaken by individuals in the last 12 months
11. Proportion of households with access to the Internet by type of access
12. Frequency of individual access to the Internet in the last 12 months (from any location)
13. Proportion of individuals who used a mobile cellular telephone in the last 12 months

Reference indicator

1. Proportion of households with electricity

Source: Partnership on Measuring ICT for Development. Core ICT Indicators 2010

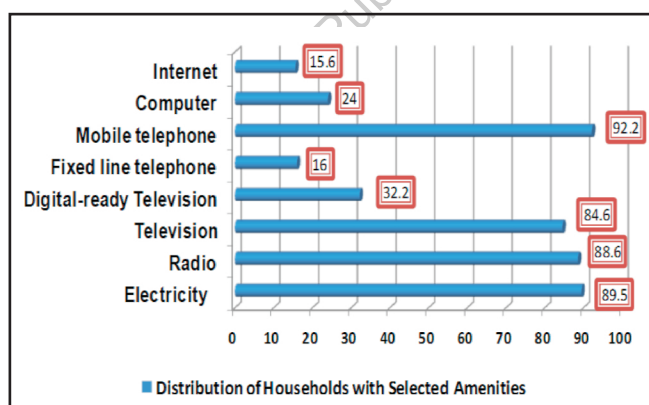
⁴ The survey sought to capture the employment status of respondents. It is however recognised that the questions related to employment were not sufficient to adequately measure the concept of unemployment to produce results that were comparable to national estimates.

Indicators were developed by a number of UN partners under the Partnership on Measuring ICT for Development in order to develop comparable statistics on access to, and use of, information and communication technologies (ICTs). This analysis utilizes the most recent revision (2010) of these core indicators which include a mixture of data for household and individual access and use. For the list of Core Indicators see Table 2.

A general overview of the survey data shows a continuation of high penetration levels for basic traditional media such as radio and television as well as the mobile/cellular telephone. Access to computers and the internet continue to lag behind. Data on electricity, used as a reference indicator, suggest that there is wide access to this basic commodity, indicating potential for wide use of ICT products, including computers. Generally, Urban Areas (KMA and Other Urban Centres) recorded greater access to all ICT services, notably for fixed line telephones, access to a computer and internet access at home. This reflects a continuation of the urban/rural divide.

Access to television was reported to be 84.6%, comparing favourably with ITU estimates for 2010 of 79% globally and 72.4% in developing countries (ITU database 2010). All geographic areas reported a high degree of access to both radio and television, with the highest percentages reported in Other Urban Centres and the lowest in Rural Areas. Consistent with expectations, there is a high level (92.2%) of household access to cellular/mobile telephones. Of households reporting access to a telephone, 77.6 % reported the cellular phone as the only form of telephone access, with the highest proportion (79.6%) being found in Rural Areas.

Figure 1: Distribution of Households with Selected Core/Reference Indicators

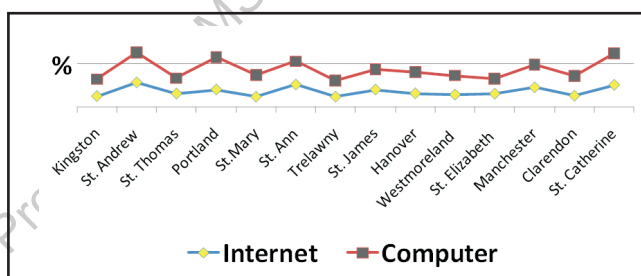


The evidence of a substitution of mobile for fixed line services, leading to declining levels of household teledensity in Jamaica has been sustained. Dunn (2009) reported that “the fixed to mobile substitution rate in Jamaica has mirrored

the rate of change globally, despite efforts to slow the consumer shift from landlines to mobile”. Of those surveyed, 1.4 % reported that they had a fixed line service only, while 14.7% reported that they had both fixed and mobile telephone services.

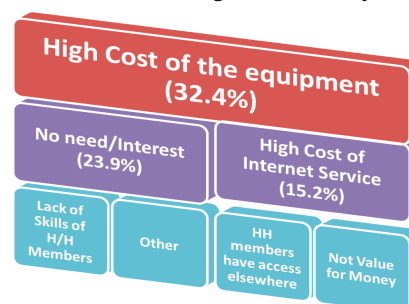
The ITU estimated for 2010, that the proportion of households with access to a computer in developing countries was 22.5% and 15.8% with access to the internet. Globally, the proportion of households with internet access was estimated at 30%. The Survey revealed that approximately 24% of the Jamaican population had household access to computers, while 15.6 % has access to the internet at home. The distribution of internet access mirrored that of computer access in households across parishes island-wide, with an approximate 10% differential in favour of computers by parish responses, as in Figure 2.

Figure 2: Household Computer and Internet Access by Parish



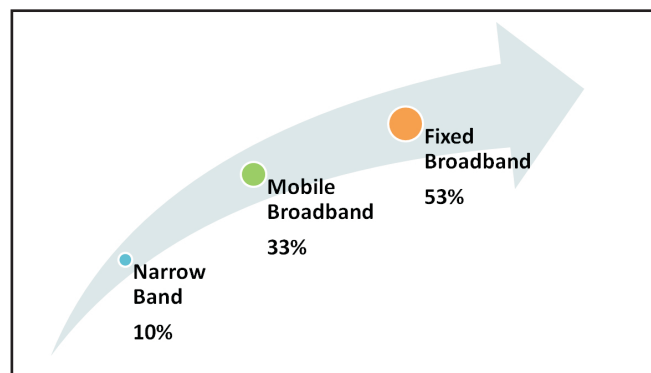
The continued low level of household access to computers reflects to some extent the effect of the reintroduction in 2009 of a general consumption tax (GCT) on all purchases of computers in Jamaica. Household access to the internet was relatively low mainly due to the high cost of equipment and service, as perceived by respondents. The majority of households with access (51.7%) spent between J\$2,001 J\$4,200 per month on internet services. Of the households with reported computer access, approximately 47% had no access to internet within the household. Importantly, 23.9% of households reported no need or interest in having household internet access, perhaps accounted for by an absence of public education on the need for internet linked computers at home or by an ability to gain access from other locations.

Figure 3: Reasons for Not Using the Internet by Household



The majority (52.6%) of households surveyed accessed the internet via fixed broadband services, while a significant proportion (33.4%) used mobile broadband, evidence of a growing trend toward the use of this mode of access.⁵

Figure 4: Main Internet Access Technologies in Households



Indicators on access to and use of ICTs by individuals

The analysis of the data with respect to the use of the computer and internet presents interesting findings in terms of age, gender, activity type and perceptions of the social impact of the internet on individuals. The results indicate that in the last twelve months, just under half of the respondent population used a computer (from any location), with the highest percentage being recorded in Other Urban Centres (57%), followed by KMA (56%) and Rural Areas (42%)

Similarly internet usage (from any location) in the last twelve months was reported at 42% of the population, with Other Urban Centres having the highest percentage of Internet users at 51%, followed by KMA at 49% and Rural Areas at 33%. In the case of both computer and internet usage, more females than males accessed these ICTs.

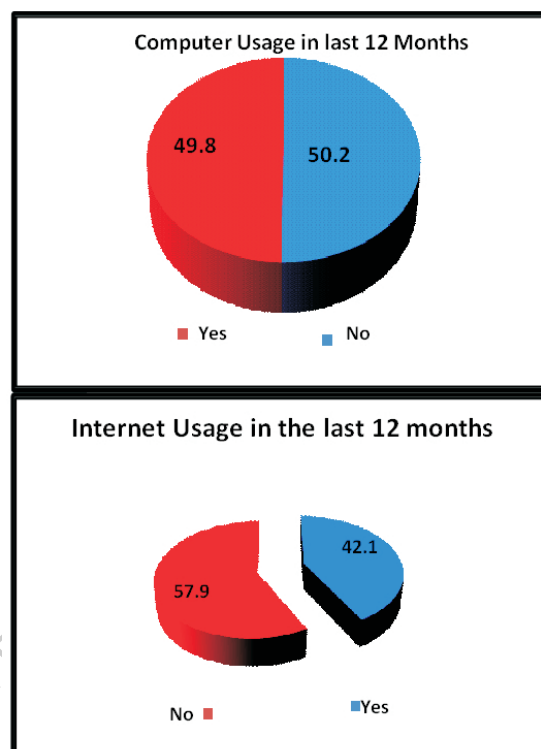
Notably, the home (43%) and place of education (37%) ranked highest on the list of locations of internet use within the last 12 months. Home was the primary location of Internet use in KMA (55%) and Other Urban Centres (43%), while Place of education was the primary location of use in Rural Areas, reflecting the comparative level of household access by geographic area.

Only 13.6 % of individuals accessed the internet via community internet facilities, reflecting some but not significant use of or access to the Government of Jamaica, Community Access Points Programme (CAP) that is

⁵ Narrowband includes all Internet access types with an advertised download speed of 256 kbit/s and includes Analogue Modems, ISDN and other Narrowband. Broadband includes all Internet access types with an advertised download speeds of 256 kbit/s or more. Broadband Internet access types provide sufficient bandwidth to permit the combined provision of voice, data and video and may be supplied via a fixed or mobile device.

mandated to create wider access to the Internet and ICTs into traditionally marginalized communities, especially in rural Jamaica.

Figure 5: Percentage of Respondents who used the Computer and the Internet in the last 12 months



In terms of frequency of use, the data reveals that in the last twelve months 38% of persons nationally used the Internet at least once a day, 36% used the Internet less than once a week and 26% at least once a week but not every day. KMA recorded the highest rate of daily Internet usage at 50%, followed by Other Urban Centres at 42%. In Rural Areas however, the majority of individuals (46%), used the Internet less than once a week.

The youth were the most prevalent users of the computer and the internet, with 62% (cumulative) of users being concentrated in the age group 15 to 34 years.



The age distribution is reflective of the activities conducted on the internet. Sending/receiving emails was the primary Internet activity undertaken by individuals in the last twelve months, followed by social networking. This relates to use of the internet for private purposes and not in relation to their jobs. These data then highlight the issue of non-use of the internet for activities that will contribute to the development of the economy and personal business objectives. Activities such as accessing Government information and electronic banking rank very low among the list of activities.

Figure 6: Location of Individual Internet Use within the last 12 months

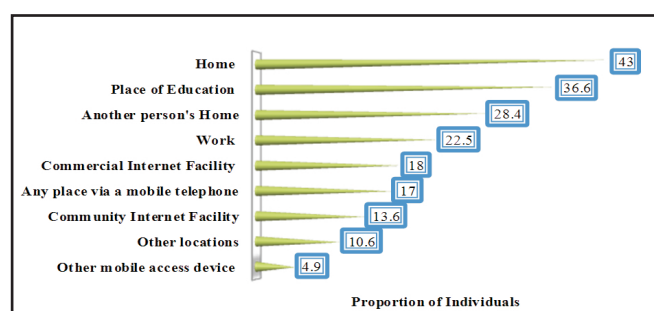
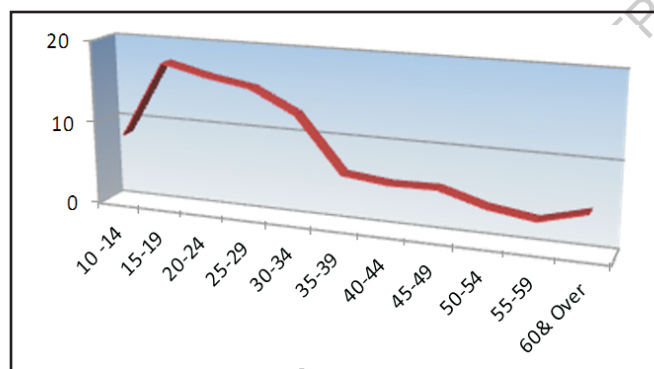


Figure 7: Internet Usage by Age Distribution



Profile of Activities by Gender

A closer examination of the use of the internet by sex shows a difference in the reported types of activities which were more prevalent among females than males. More women than men were engaged in all activities, with the exception of gaming, downloading movies and software, and viewing pornography.

Figure 8: Individual Internet Activities within the past 12 months



Figure 9: Most prevalent Internet activities by Gender

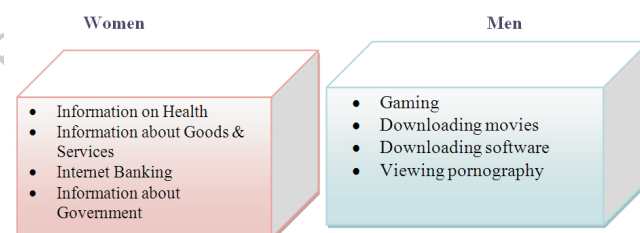
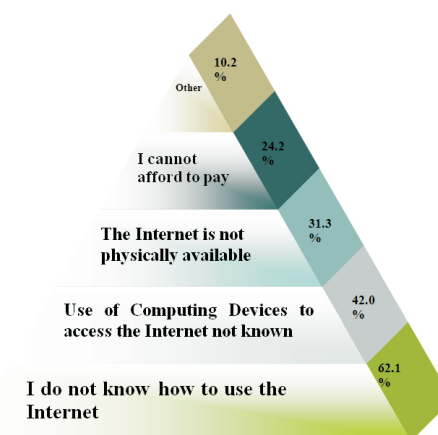


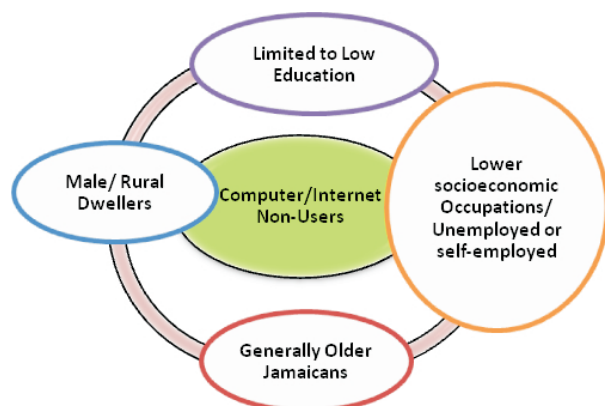
Figure 10: Reasons for not using the internet



Of the non-users surveyed, 62.1 % reported that they do not know how to use the internet, while 42% did not know how to use the computing devices to access the internet (see Figures 10 and 11).

The data portrayed a profile of a typical non-user of the internet as illustrated in Figure 11. A gender breakdown of the reasons showed that most males were non-users because of the physically unavailability of the internet, while most female non-users reported issues with the use of the computing devices as the main problem. More rural than urban users were non-users of the internet.

Figure 11: Profile of Computer and Internet Non-User



Impact of Internet Use

With respect to perceptions about the impact of the use of the internet, 60% of respondents who have ever used the Internet reported that it had improved their relationship with friends. This was followed by 51% who reported that the Internet had improved their relationship with relatives and 48% who reported that the Internet improved their access to educational services and information. Fewer persons perceived the internet as having an impact on access to health information and services, safety and access to emergency services (Figure 12).

Among persons who had reported that the Internet improved their work, relationship with friends, relationship with relatives, quality of life and social status, there was a fairly equitable distribution across gender. However, among persons who reported that the Internet had improved their access to emergency services, access to health services and information and access to education services and information, a larger proportion was female. Among respondents who reported that the Internet had improved safety in their daily life, a higher percentage was male.

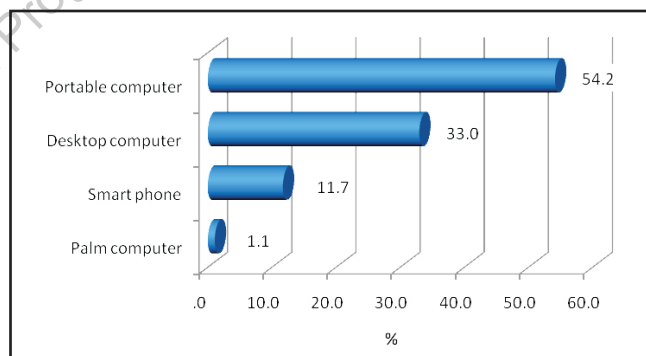
According to the survey, 54% of respondents indicated that the 'Portable Computer' was their preferred Internet

access device. This was followed by the 'Desktop' computer at 33% and 'Smart Phone' at 12%. This pattern held true for both genders, and across areas. However it was found that only 44% of respondents already owned their preferred Internet access device.

Figure 12: Perceptions about the impact of the internet on various aspects of life



Figure 13: Percentage Distribution of Preferred Internet Access Devices



Mobile Telephony

In terms of the core indicators reflecting individual access and use, 98% of individuals reported having used the mobile phone in the last 12 months, indicating a high level of access to and use of mobile telephone technology. KMA had the highest proportion of individuals who have used a mobile phone, with 99% of individuals in this area reporting that they have used this ICT. The proportion of individuals who have used a mobile phone was almost equally high in Other Urban Centres and Rural Areas at 97% and 97% respectively.

The data suggest high and constant usage of the mobile telephone, with 94.4% of users reporting that they had used the mobile telephone within the last 30 days (Figure 14). Of the small minority who reported infrequent cellular phone usage, the majority indicated that they did not own a mobile

telephone or they were not interested in using one. However, of the infrequent users who were interested, 64% said they planned to increase usage within the next year.

Figure 14: Frequency of Mobile Telephone Use

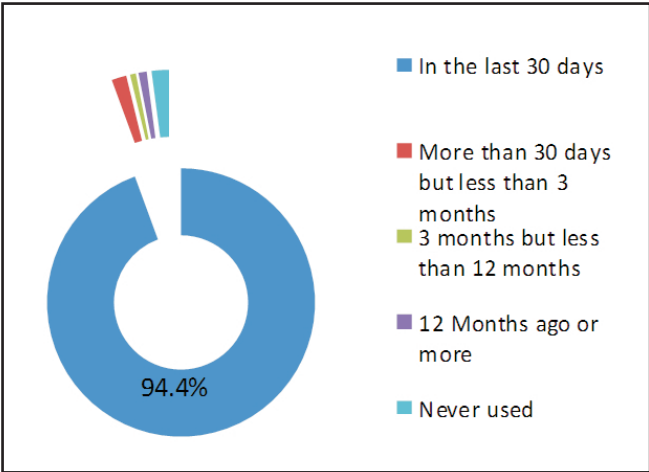
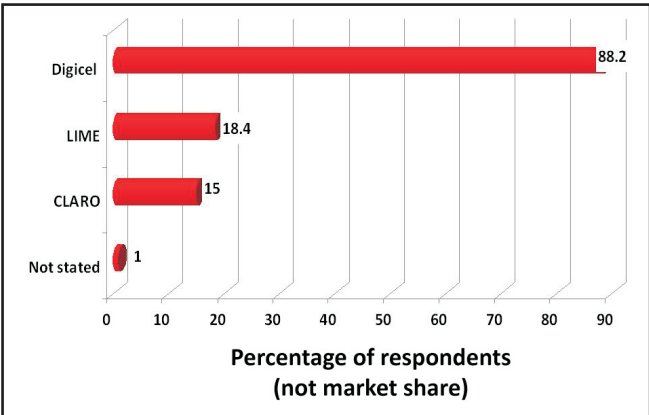


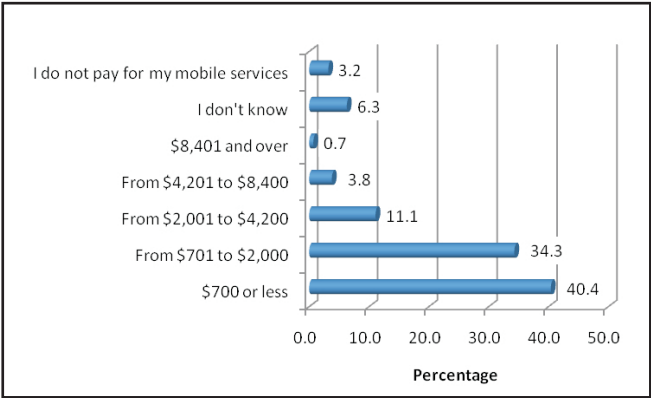
Figure 15: Percentage of Respondents by Mobile Service Provider



Data on the proportion of respondents by mobile service provider showed that 88.2 % of respondents indicated Digicel as a provider, confirming their position as the dominant provider in the mobile telephony market, followed by LIME and CLARO. The continued use of multiple providers should be noted (Figure 15).

Approximately 40% of the respondents indicated that they paid “\$700 or less”, and just over a third (34%) paid between “\$701 and \$2,000” for mobile services. In terms of willingness to pay for mobile services that could facilitate all of their communication needs, approximately 34% of those surveyed were willing to pay between “\$701 and \$2,000” per month, while 33% were willing to pay less than \$700 per month.

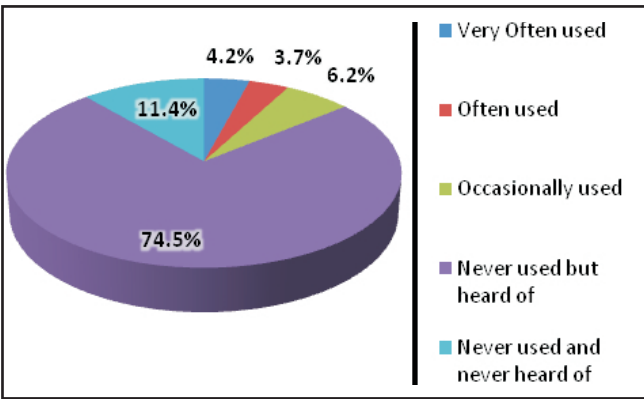
Figure 16: Reported Expenditure on Mobile Services



Voice services remain the most prevalent use for mobile phone users, with 69% reporting that they utilized this service very often, which is reflective in the main usage activities of the mobile telephone. 97% of respondents use the phone for social interaction, with significantly lower proportions for accessing data type services. Interestingly 14% of respondents who accessed the internet did so via the mobile phone, with only 4% using it very often, while 74.5% have never done so, but are aware that it can be done.

The distribution of usage by services supports the findings that the vast majority of respondents (97%) reported that they used their mobile phones to conduct activities related to social interaction with friends and family. 95% of those who used Voice indicated that they used it for social interaction with friends and family. While this usage category does subsume some personal economic or survival outreach or work-related networking with close associates, the greater proportion would be of a mainly social character.

Figure 17: Percentage Distribution of Use of Mobile Internet

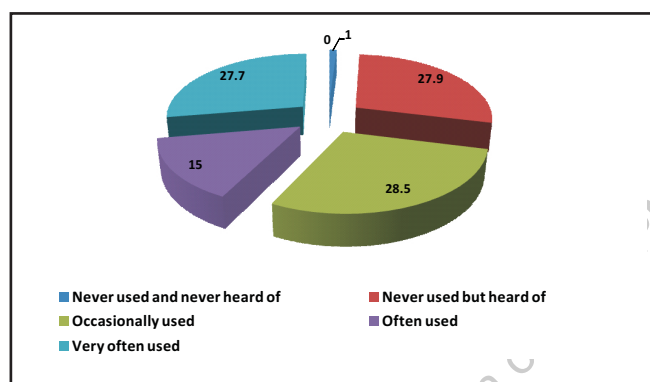


The Survey findings suggest that mobile phone usage in Jamaica is mainly by young persons, utilizing mainly voice services for social interaction. It would appear that a closer

correspondence between personal lifestyles and the mobile phone exists with younger users. Usage, expertise, advanced knowledge about functionalities and willingness to spend on the mobile phone all decline in the older age cohorts. Some 74.5% of mobile phone users are aware of the mobile internet but have never used it. Approximately 14 % of those who gained access to the internet did so via the mobile phone, with varying degrees of frequency. Similarly, 75.9 per cent of mobile phone users have never used, but heard that the mobile phone can be used to send and receive emails.

The majority of respondents (74%) have never used to mobile phone for Mobile Messaging Service (MMS), while Short Messaging Service (SMS) seemed a more popular application for the mobile phone. Many Jamaican youth who do not use the SMS feature would appear to now do so for reasons of literacy or a discomfort with the cognitive skills required for easy and rapid use among friends. These users tend to favour the more expensive voice options.

Figure 18: Percentage Distribution of Use of SMS



These findings on mobile opportunities can be analysed against the background of what is perceived to be a global shift in the mobile landscape toward the adoption of multi-functional “smart phones” which operate as personal computers with the numerous accompanying applications. Many global and regional analysts see this growth in mobile applications as the current phase of innovative mobile applications and an opportunity for Caribbean markets to develop its own forms of teleworking and other creative usages. (see Dunn (2009) and Wooding (2011).

Given the proliferation of mobile phones and the growing access to “smart phones” the data supports the argument that for Jamaica, taking advantage of these opportunities will require:

1. Continued investments in 3G and 4G networks to enable an expansion on ICT access in rural and inner city communities

2. Expanding consumer practices from mainly the use of the mobile phone for voice toward more value added economic services and activities
3. Increasing consumer awareness initiatives on the use of these and other compatible ICT services
4. Offering cost effective solutions to increase access to equipment and services to facilitate the creation and use of indigenous value added local applications.

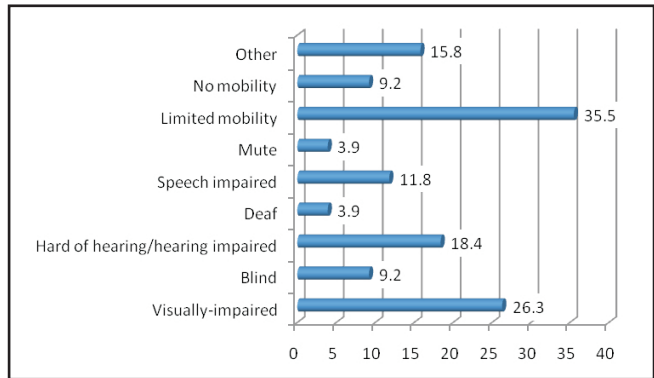
ICT Access and Use by Persons with Disabilities

The Vision 2030 plan states that Jamaica is seeking to become "a society that is inclusive, accessible, provides opportunities for all, and recognizes the rights, freedoms, and responsibilities of persons with disabilities in the process of nation building". At the World Summit of the Information Society in Tunisia in 2005, it was reaffirmed through the Tunis Agenda for the Information Society, the need for "paying special attention to the formulation of universal design concepts and the use of assistive technologies that promote access for all persons, including those with disabilities." This was in recognition of the fact that ICTs can empower persons with disabilities and provide new opportunities to participate fully in social, economic and cultural activities. The Survey therefore sought to provide a baseline for the use of ICT's by the disabled population in Jamaica.

Historically, there have been difficulties in getting information about disabilities, mainly due to the stigma attached and difficulties in reaching persons who are in institutional care or controlled domestic contexts. A 2010 discussion by Carol Williams indicated that the Jamaica Council for Persons with Disabilities (JCPD) uses the United Nations estimate for disabilities in a population, which would mean that 10 per cent of Jamaicans or about 260,000 persons on the island are living with some form of recognizable disability. The last census (2001) reported that 163,206 persons said they had a disability or infirmity.

For this Survey, only 4% of the surveyed population indicated that they fell within this category, mostly female (61%), with just over half the respondents residing in the rural area (51.4%). The majority of those who reported a disability were found to have limited mobility (36%), followed by the visually impaired with 26%.

Figure 19: Percentage Distribution of Types of Disabilities Reported



The survey found that only five per cent (5%) of the respondents with disabilities were in paid employment, another 29% were dependent on support from parents/guardians and 38% received other sources of income.

In terms of access and use of ICTs, 9% of respondents considered the need for some technology to assist them in earning an income. Of this amount, 76 % indicated that they used the mobile phone, while 37% used a fixed line telephone. Some may use both. Respondents were largely unaware of specialized ICT devices such as Screen readers, Speech Synthesizers and Voice Recognition Software. Given the small response rate for this aspect of the survey, there is need for further and detailed work to ascertain the state of access and use of ICT among this population.

Conclusions

While confirming some long held notions about the state of the sector, the Caribbean Broadband and ICT Indicators Survey has highlighted certain gaps in the development of the ICT sector and provided a reliable basis on which policy makers and industry players can improve on the present and craft the future development of the sector. The survey data also presents the baseline for the development of indices which can track indicators which move beyond access and usage and toward measurement of ICT for developmental purposes.

The results clearly present a picture of a highly penetrated mobile voice market, which from recent pronouncements will soon be moving towards corporate consolidation with plans by the already dominant provider, Digicel to acquire the fastest growing competitor, Claro. From the findings, Digicel is already by far the leading player in mobile voice, whose growth and success in its first Caribbean market, Jamaica, has been phenomenal. At the same time, the competition policy and regulatory conditions will need to be reviewed and revised to ensure the maintenance of effective competition in the Jamaican telecoms market a decade after the dethroning of the Cable and Wireless monopoly. All providers, including the successor company to Cable and Wireless Jamaica Limited, Lime, are actively seeking to expand their service offering beyond voice, including in the delivery of ICT content and business services.

The ITU reports that even while mobile cellular growth is slowing worldwide and reaching saturation levels in developed countries (with on average 116 subscriptions per 100 inhabitants at the end of 2010 and a marginal growth of 1.6% from 2009-2010), the developing world is still increasing its share of mobile subscriptions from 53% of total mobile subscriptions at the end of 2005 to 73% at the end of 2010. Based on the survey, there are still opportunities for growth in usage and marketing of value added mobile services. However it is the relatively low penetration of computer and the internet that will put a brake on the extent of growth of these value-added services. This opens the opportunity for policy makers and industry providers to examine how to increase and maintain competitiveness in network expansion and access, as well as by addressing a number of other key issues.

Evolution of Telecom/ICT Business Model

Jamaica, like many other countries, has now conquered universal access to voice telephony, using basic mobile technology. The business model for mobile telephony is evolving toward the use of smart phones on 3G and 4G networks to offer services such as video telephony, mobile television and mobile internet access. This convergence of services gives rise to the need for immediate reform of public policy, to prioritize the seamless offering of such new non-voice services. This policy reform would include:

1. Urgent revision of the Telecommunications Act of 2000 to create new conditions for competition in a wide range of services by a diverse range of service providers and under a re-structured regulatory regime.
2. The creation of a champion agency or the re-purposing and resourcing of an existing entity to stimulate the development of indigenous innovation in content and new ICT applications for economic development.

Focus on Broadband

There is a positive relationship between broadband investment and economic growth, but this will not materialize with only a roll out of broadband infrastructure. What is needed is the proliferation of broadband access and training opportunities throughout rural and inner city communities, in the educational system and within the wider society, thereby laying the foundation for a knowledge-based, technology oriented workforce. There is also the need for increased consumer awareness of the benefits of access to computers and the internet to generate more widespread ICT uptake towards personal and national economic growth. The creation of a competitive knowledge based society can place Jamaica in a position to be a leader in the regional and eventually the hemispheric arena in content and software applications, thereby attracting more and better investments. (see the Costa Rican model)

The Role of the Government

There is the need for better integration of ICT into development policies and strategic planning for all economic sectors. Further, Government must begin to see itself as

playing a central role in the delivery of services via ICTs. The use of the computer, internet and mobile telephone for services such as tax and rate remittances, official documents applications and delivery, ebanking, mbanking, ecommerce and other services is still in the embryonic stage in Jamaica. This however, could be a function of the older age cohort that dominates the public and private sector management ranks and their own limited use of these ICTs. Medium to long term planning is required for a mobile internet generation of digital natives who will demand mobile and ubiquitous ICT services not just as a social interface, but increasingly to conduct core business and other transactions. The arrival of this new culture could be signalled by a replacement of the now prevalent demonstration, especially in rural areas, with the mantra, we want justice, we want better roads. To that will be added the cry: "we want laptop computers! we want high speed internet! "

This scenario may be some time in coming, but in the meantime, it may be anticipated that for the current mainly youthful users of the ICT services, activities will move with age from games and social networking to more advanced applications such as online job applications, online educational courses, internet banking, on-line shopping, requesting and getting health and government information online and by more extensive uses of tele-working technologies. Are our policy-makers adequately preparing for these eventualities on a national scale? Indeed are our authorities helping to foster this brave new digital world, with new demands and opportunities? One of the merits of this report is that it serves as a clarion call to action towards creating global citizens and a new competitive environment in Jamaica and the wider Caribbean, powered by wider access to the digital tools.

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Background Information

About the Telecommunications Policy and Management Programme

The Telecommunications Policy and Management Programme was established in 2005-2006, as a unit within the Mona School of Business, with the resource support of a Chair from the Digicel Foundation. It is dedicated to providing cutting edge, independent policy and technology research, as well as graduate level training in the areas of telecommunications policy development and Information and Communications Technologies (ICTs). The Programme was designed to address these needs, given the rapid expansion of the telecoms and ICT sectors in the Caribbean and globally. It has been led since its inception by Professor Hopeton Dunn, working with an exceptional team of researchers, lecturers and industry professionals, either in full time or part-time associate roles.

Summary of TPM Achievements

Among the main achievements of the TPM programme to date are as follows:

1. Established the first offering of a Master's degree programme in telecommunications and ICT in Jamaica at UWI, Mona, with the first cohort already graduated. Designated a Node of Excellence in the Centres of Excellence Programme of the International Telecommunications Union (ITU) in 2006.
2. Spearheaded the revision with other MSB leadership of Jamaica's ICT Strategic Plan in 2007, a plan which though incorporated into the Vision 2030, remains largely unimplemented.
3. Strengthening Jamaica's global influence in ICTs and telecoms through providing leadership of international panels and organizations in the sector.
4. Successful organization and hosting of several high level Conferences and Regional Seminars.
5. Consistent contribution to academic discourse and industry analysis through regular research reports, academic papers, journal articles, book chapters and books, all widely available to industry and regional networks of scholars. In 2011 the programme was awarded the Principal's Award for the UWI Mona Research Project Attracting the Most Funds in the Faculty of Social Sciences.

About the International Development Research Centre (IDRC)

IDRC is a Canadian Crown corporation, based in Ottawa, Ontario, was created in 1970 "to help developing countries use science and technology to find practical, long-term solutions to the social, economic, and environmental problems they face". The mission of the IDRC is "Empowerment through Knowledge" by:

- Funding of applied research in developing countries,
- Providing expert advice to researchers, and
- Building of local capacity to undertake research and innovation.

The Centre supports four broad research areas, namely:

1. Agriculture and Environment,
2. Information and Communications Technologies for Development,
3. Innovation, Policy and Science, and
4. Social and Economic Policy

For further details visit the IDRC website:
http://www.idrc.ca/en/ev-8513-201-1-DO_TOPIC.html

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