

# ***A Critical Assessment of E-Government in the Caribbean: Success, Challenges and Use of Emerging Technologies***

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## **Abstract**

There have been sustained calls on the need for countries in the Caribbean to improve public service delivery as well as the methods by which governments interface with citizens. These modernisations are increasingly being framed in terms of the role of emerging technologies and more specifically, e-government and c-government to transform the operations and effectiveness of governments. As small and developing states, the region is faced with unique institutional and structural challenges to the adoption and implementation of these measures. The results of various e-government strategies have been varied across the board. This paper offers a critical assessment of e-government strategies across the Caribbean focusing on the challenges, success factors and opportunities for implementation. The study explores the challenges and opportunities for advancing in and beyond e-government to c-government and more generally, in utilising emerging technologies and innovations towards improved public governance.

## **Keywords**

E-government, Caribbean, developing countries, c-government.

## **Introduction**

Countries in the Caribbean have witnessed sustained calls to modernise public administration. Specific attention has been placed on the need to improve public service delivery as well as for the ways in which governments interface with citizens. These modernisations are increasingly being framed in terms of the role of emerging technologies and more specifically, e-government and connected government (c-government) to transform the operations and effectiveness of governments (Ramírez-Alujas & Dassen, 2014; Imran & Gregor, 2007). In the Caribbean, as small and developing states, the region is faced with unique institutional and structural challenges to the adoption and implementation of these measures. These specific features of Caribbean small states also carry certain implications as it relates to the options, success factors and barriers to the adoption of public governance innovations, such as c-government. Additionally, the results of various e-government strategies have been varied across the board (Durrant, 2007; Rose & Grant, 2010).

This paper offers a critical assessment of e-government strategies across the Caribbean focusing on the challenges, success factors and opportunities for the implementation of e-government and, particularly in moving to c-government in the region.

It does this by focusing on the efforts to adopt e-government in select Caribbean Countries, through a comparison of the various strategies for e-government and c-government. Hu et al. (2009) have highlighted the range of definitions and ongoing discussions on key elements of e-government. For this paper, we adopt the European Commission's (1999) definition which states that "Electronic government (e-government) can be defined as an ever increasing and pervasive use of information and communication technologies in the context of the Information Society, which more and more affects the public sector; the importance of this development is increasingly acknowledged in many countries around the world and experiments are being conducted at all levels of government . . . to improve the functioning of public services concerned and to extend their interaction with the outside world". The paper responds to calls for further research in the Caribbean context, as Thakur (2012) notes that there is limited research on e-government in the Caribbean, particularly with regard to the efficacy of national e-government strategies.

The paper proceeds as follows. In the next section a brief review of the literature on e-government is presented and characteristics related to small states. This is followed by a discussion the study's methodology, which is then followed by discussions on e-government development in Barbados, Jamaica and Trinidad and Tobago. A comparative assessment is then presented which is followed by the conclusion with implications for research and practice.

## **Literature Overview**

A major starting point in this review is to note the link that has been established between e-government and improved public sector performance (e.g. United Nations, 2014; World Bank, 2004). Other benefits relate to improved transparency and accountability, reduced costs, improved revenues and reduced transaction costs for customers.

Small countries such as those in the Caribbean note the successes but also face a number of challenges in implementing e-government strategies. As noted by Dada (2006) many such strategies tend to fail in developing countries. To this end, the UN's latest e-government report considers the conditions of Small Island Developing States (SIDS) as a special category in the consideration of e-government (2014). Namely, SIDS are constrained by natural disasters (Awan, 2013), economic crises, the cost and other challenges around providing goods and services as well as infrastructure such as telecommunications as well as small size, markets, population and influence (see e.g. UN 2014: 37). Indeed, Cullen & Hassall (2013) have also noted these challenges which have prevented some of the Pacific Islands from realising benefits, in spite of significant investments (2013). In determining the best model for e-government implementation (i.e. central vs departmental) it has been observed that it may be easier to opt for the former in smaller countries. This central body would coordinate the activities of the different bodies.

The literature suggests that certain conditions lend to more effective e-government programme than others. Among these is the suggestion that there is some relationship between a country's ability to invest in the infrastructure and supporting policy areas for e-government development on one hand and the level of economic development on the other. The indication is that investments in e-government/ICTs must be accompanied by supporting investments (e.g. education). Of course, political support (e.g. champions) is also to be underscored in determining the extent of support and priority that an e-government agenda will receive (WB, 2004). The matter of a champion(s) is important too in light of Joseph and Jeffers observation on the role of leadership, political influence and managerial outlook on the success of e-government in the Caribbean (2009). It has also been noted that e-government strategies are most effective when envisioned as part of a wider public sector performance enhancement programme (Ibid: 1; Heeks, 1999). Other enablers or indicators of readiness for the adoption of e-government include, wide access to the Internet, the existence of civil servants willing to reconceptualise citizens as customers and share information.

## Methodology

This study uses a qualitative approach, comprising of a review and content analysis of the e-government strategies, national ICT policies (as a foreground and indicator of propensity for adopting emerging technologies) and national development documents as it relates to e-government in select Caribbean States, namely Barbados, Jamaica, and Trinidad and Tobago. The three countries are somewhat representative of the wider English-speaking Caribbean in terms of size, capacity and resources, as well as general culture and features of the administrative system. For instance in a 2009 study, Joseph and Jeffers conducted a cluster analysis using data based on a range of measures of e-government development among countries in the Caribbean and found these countries (along with St. Lucia) formed a unique cluster. They suggest that this group of countries provide a view of government efforts toward promoting and developing e-government initiatives and as such, the rate of adoption, attitudes and specific issues faced by these states would be a good indicator of where the rest of the region exists in terms of likelihood for adopting new technologies.

An overview of the study context is presented in Table 1 below.

	<b>Barbados</b>	<b>Jamaica</b>	<b>Trinidad and Tobago</b>
Population	284,644	2,715,000	1,341,151
GDP per capita (PPP at current international \$)	15,574 (for 2012)	8,892	30,446
Percentage of individuals using the Internet	75%	37.8%	63.8%
Fixed (wired)-broadband subscriptions per 100 person	23.82	5.06	14.56
Mobile cellular subscribers per 100 persons	108.1	102.24	144.94
Mobile-broadband subscriptions per 100 inhabitants	41.5	28.3	18.9
United Nations E-Government Development Index (2014)	0.5933	0.4388	0.4932
United Nations E-Government Development Index Global Rank (2014)	59	109	91
<b>Table 1 – E-government and related indicators for Barbados, Jamaica, and Trinidad and Tobago (all data refer to 2013 unless otherwise stated)</b>			

Sources: ITU (2014), World Bank (2014), United Nations (2014)

In the following sections, a historical overview and analysis of current implementation of e-government initiatives is discussed.

## E-Government Development in Barbados

As one of the most economically developed countries in the Caribbean, Barbados often ranks highest in the Caribbean by most measures of information and communication and technology (ICT) adoption and use (see Table 1). Indeed, the E-Government Development Index score for Barbados (from the United Nations E-Government Survey 2014) is the third highest in the Caribbean, and also highest among the three countries examined here (United Nations 2014).

However, such comparisons should not obfuscate the challenges that relate to the formulation and implementation of e-government and c-government policies in Barbados. In some ways these challenges

are similar to Trinidad and Tobago and Jamaica, and include limited technical expertise, infrastructure, and adequate alignment with public sector reform strategies.

Public sector reform is of course an ongoing part of the agenda of former administrations as well as the current government in Barbados. The government's 2002 White Paper on Public Sector Reform highlighted the need for reform in a context of changing local and global socio-economic conditions. It envisioned a public sector that was proactive rather than reactive to these changing conditions (Government of Barbados, 2002). However, it only considered the relationship between information and communication technologies (ICTs) and reform in specific cases such as a need for better management information systems in different sectors. The subsequent Public Service Act of 2007 also made limited references to information technologies for example, by specifying how public employees may or may not use them for work (Government of Barbados, 2007).

Recent reviews of reform have taken a more expansive view of the role of ICTs where the government has sought to use e-government to improve the way it interacts with citizens as part of overall efforts at public sector modernization (Commonwealth Secretariat, 2008). Much of the efforts of reform are monitored by the Office of Public Sector Reform. These include e-government projects on education infrastructure and pedagogy, customs and excise, court administration, and accessing government information (Best-Winfield, 2006; Office of Public Sector Reform, 2004). Other projects that are more recent include online payment of land taxes<sup>1</sup> or the Legislative Information Management System<sup>2</sup> which essentially makes the drafting of legislation more efficient and allows for online public access of legislation.

Crucially, e-government is explicitly viewed by the government as a part of its public sector reform efforts. While several e-government projects are underway in different sectors, the organization with shared responsibility for monitoring the government's e-government efforts is the Ministry of Public Service (formerly the Ministry of Civil Service) (Office of Public Sector Reform, 2013). This is somewhat different from other countries which often have a central information technology agency with this responsibility.

A draft e-Government strategy for Barbados was developed in 2006 by the Ministry of Civil Service which actually recommends (among other things) the creation of a central information management agency with overall responsibility for implementation of the government's e-government strategy and related programs. This strategy focuses on many of the infrastructure and technical requirements for achieving the broad goals of improving service delivery, transparency, and efficiency within the public sector. More importantly it correctly attempts to connect organizational reform with the incorporation of ICTs by emphasizing the need to first refine existing business processes (Ministry of Civil Service, 2006). It is difficult to determine the extent to which an alignment of e-government initiatives and organizational reform is actually pursued by government agencies. There is as yet no central agency responsible for monitoring and implementing the e-Government strategy. As a result, competing ICT policies and standards exist among different government agencies (Ministry of Civil Service, 2013).

In addition to the e-Government strategy there is also the National Information and Communication Technologies Strategic Plan of Barbados (2010-2015). As is consistent with similar plans internationally, it outlines the ways in which ICTs can help the country achieve its national goals in sectors such as business, the environment, and culture. More importantly, the plan also recommends that the government become a model user of ICTs in order to promote greater adoption and use within the population (Ministry Of Economic Affairs, Empowerment, Innovation, Trade, Industry and Commerce, & Government of Barbados, 2010). However, some observers have found limited evidence that the government is a major user of ICT related services (Molla, Taylor, & Licker, 2006).

The draft e-Government strategy (2006) was scheduled to be updated by 2014 ostensibly to respond to new technologies and evolving public sector reform. However, this process is not yet complete. As a result, there is no unified strategy that government agencies can use in assessing how to employ new cloud based technologies, social networking platforms, or mobile applications in their work. Furthermore, new challenges continue to emerge. For example, across the world as access to ICTs increase there is a need for more public and private investment to protect cyber-security interests. In this regard, the government did

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<sup>1</sup> [http://gisbarbados.gov.bb/index.php?categoryid=9&p2\\_articleid=8709](http://gisbarbados.gov.bb/index.php?categoryid=9&p2_articleid=8709) (Accessed February 22, 2015).

<sup>2</sup> <http://www.caribjournal.com/2012/05/10/barbados-eyes-digital-legislation/> (Accessed February 22, 2015).

recently launched the Computer Incident Response Team although there remains the need for an overall cyber-security strategy.

The strategy of linking e-government initiatives to national public sector reform is both intelligent and pragmatic. In many ways this sets Barbados' e-government strategy apart from other countries. However, there has been little substantial follow-up since the initial draft strategy was developed in 2006. This has meant that individual government agencies have limited direction when responding to new and emerging ICT's and practices. There are institutional reasons for this, such as the lack of key responsible agency for managing the e-government program. Such an agency could also allow us to better understand how well the country has been able to actually pursue its goal of aligning e-government with public sector reform.

## E-Government Development in Jamaica

The Government of Jamaica has framed efforts to introduce e-government in the context of a desire to improve the delivery of services to the public and modernize government. For instance, a 2005 e-government project document notes, "(t)he strategic objective of the project is to simplify e-governance for all stakeholders, resulting in a truly modernized public sector, and enhanced service delivery for the citizenry" (CITO, 2005: Abstract). It has also been observed, that at least 25% of the PSR Modernization Unit's *Public Sector Modernisation Vision and Strategy 2012* relate to e-government (CITO, 2005). Furthermore, the national ICT Policy which deals extensively with e-government also extends these considerations to increased transparency and accountability of government. The stated objectives of that policy are "To create a transformational state bureaucracy; on demand 'government through integrated end to end' processes across the Government service and with stakeholders; effective communication; stimulation of public involvement; empowerment of citizens; minimization of social exclusion, and realization of the knowledge based society" (Office of the Prime Minister, 2011: 31). Jamaica's national development plan, Vision 2030 has also noted the importance of ICTs in making the country a place to live and work.

Initiatives have been introduced across some of the critical areas of the public sector (see Table 2 below). These are also some of the more important revenue generating and business facilitation segments. Many of these early initiatives (e.g. Inland Revenue & Customs) were undertaken with the support of the IDB during 2003-4.

Agency	Initiative	Achievements
Jamaica Customs	Jamaica Customs e-Payment system	Reduced processing time for import-related transactions, in some cases from seven/eight days to two hours; increase tax compliance; increased revenues
Inland Revenue	Inland Revenue Tax Payment Portal	Increase ease in paying taxes
Office of the Registrar of Companies	Online fee payments, company registration and database search for subscribers	Reduced time in response to clients
National Land Agency (NLA)	e-Land Jamaica allows access to the NLA database, including certificates of title and online payments	Smoother process in registering land and formalizing ownership, etc.

Registrar General's Department (RGD)	RGD Online application for certificates, e.g. birth and marriage certificates	Reduced transactions costs for public and greater access to services
Management Institute for National Development	e-Learning Initiative	More flexibility in the delivery of educational programmers
Jamaica Trade Board (JTB)	JTB Information System facilitates online registrations and applications for licenses and fee payments	Increased ease in licensing and certification of products for import and export
E-Gov Jamaica	One Stop Company/Business Registration Form ( Super Form)  National Security Interest in Personal Property (NSIPP) Collateral Registry National Identification System (NIDS)  Fiscal Administration Modernization Programme (FAMP)	Development and support of e-government initiatives; building increased linkages across sectors
E-Learning Jamaica	Tasked with infusing ICTs across secondary schools and increased access to educational resources via the Internet and cable television	Increased support to parents, teachers and students

**Table 2: Sample of E-Government Services in Jamaica**

Many of the initiatives are aimed at facilitating online payments for taxes, tracking goods and services, online searches, access to government forms, registration and furnishing information. Thanks to these initiatives achievements have been noted, for instance in reduced transaction time and general improvement in the interface between government and citizens/clients (also see table 2). Benefits have accrued not only to government in terms of increased income but also to Jamaicans at home and in the Diaspora who are able to access government much easier.

In spite of these accomplishments, the issue remains one of integrating the various initiatives across individual units to achieve a seamless e-government structure. Thus by 2005, the GoJ moved to revise and improve the role of ICTs in government. Reforms were aimed at moving towards more seamless governance and connectivity and by extension to achieve a coordinated national agenda which extended to the private sector. To this end, a major project was undertaken with the aid of the Government of Canada in 2005. The result was the transition of Fiscal Services into E-Gov Jamaica and its designation as the central coordinating body, offering ICT support to other government agencies (Jamaica Information Service, 2013). This is one of the most important developments in the Jamaican context, as they work towards seamless coordination across government agencies.

The institutional landscape supporting e-government in Jamaica has, therefore, evolved over the years. This is seen in the introduction of a number of facilitative legislations and regulations (e.g. the Electronic Transaction Act, 2007) and the introduction and demise of a number of organizations. Included here is Fiscal Services (formerly responsible for digital revenue functions) and the Central Information Office (CITO), originally created to coordinate the introduction of ICTs in government but which has transitioned to a policy unit in the line ministry in 2013.

The prospects for the adoption of new technologies such as cloud computing (i.e. c-government) as a means of achieving a more seamless integration of services and end user satisfaction is an area that has

gained some interest. Indeed, E-Gov Jamaica has done some work towards introducing cloud technology in the public sector and research has been done to assess its potential (Jamaica Information Service, 2011). E-Gov has moved towards acquiring infrastructure to facilitate the introduction of cloud/c-government services, including cloud telephony, cloud hosting and back up and support critical IT infrastructure to government entities but full implementation has yet to be realised. While e-government strategies have focused on the Internet and to a lesser extent, cable television (e.g. e-learning), the role of the mobile phone needs to be further considered given the over 100% penetration rate of mobile telephony vis-a-vis the number of Internet users.

Relatedly, given the size and capacity of the public sector, it has the potential of being a leader in the adoption and use of such new technologies. However, movement remains slow, with some of the problems here being reminiscent of wider issues facing the society. For instance, the country generally remains at least a good 10 years behind in the adoption of new innovations including practices, laws and regulations as illustrated for instance in the timing of regulatory reform in the telecommunications industry in the late 1990s to early 2000. The pace of obtaining reform and culture change in the public sector has also been slow and also mirrors the experience of other Caribbean small states, while indicating the less than enthusiastic embrace of ICTs and new technologies across the public sector. The wider culture is also one where the Internet, mobile phones and other devices have been seen largely as instruments for social communication and entertainment, with the informational value still being underplayed (Horst & Miller, 2005).

The adoption of ICTs in government also remains uneven with some government agencies being more advanced than others. As such, there is need for more organization and consolidation of standards across the public sector (CITO, 2005). Ironically, this mirrors the larger PSR programme in Jamaica where the creation of executive agencies (“agencification”) have contributed to the creation of a two-tiered system characterised by a more advanced segment co-existing alongside a more traditionally bureaucratic and inefficient public sector (Minto-Coy, 2011). Interestingly, this result is also to be expected, given that some of the agencies in which e-government was first introduced are some of the institutions created during agencification.

As government moves to the adoption of new technologies and more availability of information and services online, the focus also naturally broadened to include issues such as cyber security, privacy and data protection. These are increasingly important as the government seeks to negotiate between the rights to individual security and privacy and the need to facilitate smoother, more personalized services. The case of the National Security Interest in Personal Property Registry which saw personal and private information, including addresses, tax payer registration numbers and other personal details being made publicly available by a government body (see Luton, 2015), raises both the negative and positive implications of more extended e-government and increased openness.

Ultimately though, the introduction of these initiatives have not necessarily registered internationally, with the country facing successive declines in international rankings, including the Global Information Technology Report (from 45 in 2007/8 to 86 in 2013). This has been due to underperformance vis-a-vis the rest of the world in areas such as Internet penetration.

## **E-Government Development in Trinidad and Tobago**

In 2000, Trinidad and Tobago’s National Electronic Commerce Policy Committee recommended the establishment of an E-Government Unit. This unit was formed within the Ministry of Communications and Information Technology in 2001 (E-Government Unit, 2002). Over the years responsibilities for e-government have moved between different ministries as they have evolved including the Ministry of Public Administration and Technology and the Ministry of Science and Technology (Ramsajan, 2012).

The vision stated by the E-Government Unit was “Transforming the Public Service into an Electronic Government Organisation and providing online interactive and quality government services on a sustained “always on” basis, to all citizens of T&T and the wider community, regardless of time, distance and location” (E-Government Unit, 2002). This was supported by a number of objectives identified as:

- “To facilitate, co-ordinate and encourage an increasing number of government services online as an alternative to traditional service delivery

- To use Web Technologies for “linking” all Ministries, Statutory Boards and Departments within the Public Service
- To act as a support centre to assist and guide Ministries in making increasingly better use of Information Systems and the Internet/World Wide Web
- To provide the guiding framework for designing and implementing E-Government solutions
- To maximize the effectiveness of e-governance.
- To develop, adopt, ensure and encourage the use of best practices in e-government.
- To promote learning and facilitate the transfer of knowledge of Information and Communications Technologies (ICTs), which drive E-Government initiatives throughout the Public Service.” (E-Government Unit, 2002).

The role of e-government development in influencing government efficiency and e-business is discussed in a study by Srivastava & Teo (2007). This study included data from some countries in the Caribbean region, including Trinidad and Tobago. Choudrie, Wisal, & Ghinea (2009) examined the usability of e-government sites in developing countries, and found that Trinidad and Tobago was performing well in some aspects. In a study of website usability of Trinidad and Tobago’s government ministry websites, Roach and Cayer (2010) highlighted dimensions which influenced users’ ability to locate information and utilize services.

The Minister of Public Administration for Trinidad and Tobago indicated that the vision for e-government centred around “Our dream and our evidence that we have a truly transformed public service is the day when a citizen in any part of the country can use a cell phone to access any government service and provide inputs into public policy, ask to see the up-to-date expenditure on any project, or to perform that most fundamental of democratic functions — to vote” (bridglal, 2012). She also indicated that e-Payments legislation would be taken to the Parliament of Trinidad and Tobago during 2012.

As plans progressed, it was reported that the Minister of Science, Technology and Tertiary Education had indicated that the portal tconnect had added 18 additional forms to facilitate citizens’ access to government services online (Neaves, 2012). It was also mentioned that a toll free number was available to support queries and assistance to citizens, and that over 70 e-services were planned for implementation over the ensuing three-year period (Neaves, 2012).

Consultations on the national ICT plan were launched, and also involved the online input of citizens.

A draft national ICT plan for 2014 to 2018 was developed in 2013, building on previous plans and emerging ideas for national development. A key theme of this plan is e-government. This theme “focuses on working as an integrated Government and seeks to improve the Government’s operational efficiency and customer service delivery” (Government of Trinidad and Tobago (GoTT), 2013, p. 11). The national ICT plan identified key imperatives associated with this theme as “Migrating to Transactional e-services and Collaborating to Implement Shared ICT Systems and Processes” (GoTT, 2013, p.11).

In developing the 2014 to 2018 plan, a review was conducted of their 2003 National ICT Plan, and among the goals achieved, the GoTT identified the promotion of effective government through “1) Delivery of the award winning tconnect, the vehicle for multi-channel Government services delivery and 2) A more connected government to enable inter- and intra-ministerial communications and information sharing” (GoTT, 2013, p.15)

The United Nations E-Government Survey 2014 indicates a dip in country ranking for Trinidad and Tobago from 67 in 2012 to 91 in 2014. The E-Government Development Index (see Table 1) is based on three key dimensions – Availability of Online Services, Telecommunication infrastructure and Human capacity (United Nations, 2014). The report highlights initiatives by the GoTT in relation to facilitating interaction between business and government, including for example, the fisheries industry with a mobile application mFisheries connecting customers and fishers and enhancing safety. A number of partnerships among government ministries are included on the TTBizLink website which links to e-government applications related to imports and exports, company registration, port and maritime services, taxpayer registration and work permits.

## **Success, Challenges and the Adoption of New Technologies: A Critical Assessment of E-Government in the Caribbean**

The paper has reviewed the attempt to adopt e-government in three Caribbean States. Collectively, there is some desire to integrate ICTs and new technology in improving government. Indeed, all the cases presented have interpreted e-government in the context of the push for improved public services and modernising government.

E-government services are shown to include the provision of online forms, applications, registration and payments. To this end, successes have been registered in areas such as improved compliance, greater transparency as it relates to government processes and forms, as well as increased revenues and greater ease in conducting business. This is also reflected in earlier reviews of progress toward implementing e-government strategies (CARICAD, 2009).

The policy, legislative and regulatory landscape in support of e-government has also advanced. However, there is a far way to go in the adoption of new technology. For instance, the three countries covered here are among the Caribbean leaders in terms of their achievements in e-government. The irony here is - using these countries as markers for the rest of the region- it is clear that the region as a whole have some way to go in activating the benefits of e-government and new technology for improving the performance of government.

More specifically, in comparing the e-government experiences of Barbados, Jamaica, and Trinidad and Tobago and reflecting on the literature, four main points arise. First, as noted earlier it is important for governments generally to strategically align e-government strategies with public sector reform. What we find is that there are differences in the extent to which this occurs in each of the three countries. In the case of Barbados, the government did make this incorporation an explicit part of its e-gov strategy, however there is as yet no major action that appears to follow such a strategy. In the case of Jamaica, where no such strategy was explicit, we note how previous public sector reform has led to a two-tiered system within the public administration (Minto-Coy, 2011). Partly as a result of this, executive agencies that were created during this process were also more likely to introduce e-gov initiatives. Finally, in the case of Trinidad there is some evidence of an alignment of public sector reform and e-government. The policy implication here is that simply articulating strategies that align e-government and public sector reform is not sufficient. Indeed, without such an alignment there is the potential of undermining e-government initiatives or worse exacerbating the differences between public sector agencies in their ability to leverage the benefits of ICTs to achieve their goals.

The second observation concerns how responsibility for implementing the government's e-government strategy is distributed among public sector agencies. As we know from global best practice, what is important is that organizational responsibility and leadership for an e-government strategy is clearly assigned to a public agency or group of agencies, along with the requisite resources (the central vs departmental point raised earlier). Based on the above discussion, it has been an evolving process in all three countries.

Third, the current higher e-government indices reflected for Barbados and Trinidad and Tobago vis-à-vis Jamaica lends some support to the observation about the relationship between economic development and gains in e-government (see table 1). As such, Jamaica and other countries in the region that have not done as well economically are also those that are lower in international rankings related to e-government.

The fourth point is that successful e-government is not simply about rolling out the infrastructure but also about making improvements in related policy areas such as education, towards more effective and informed utilisation of ICT technologies. This point also finds resonance in the UN's observation that SIDS (including those investigated here) need to address challenges related to infrastructure, low access to broadband, literacy levels and increased online presence by government in order to benefit fully from e-government (2014: 25 & 37).

A fifth point is that, beyond income levels, many Caribbean territories are also listed among the middle and high income groups. As such, making improvements in e-government is not only about levels of economic development but also about political will and vision in determining the level of resources and support which will be allocated to an e-government strategy (Awan, 2013). As Joseph & Jeffers (2009)

note, e-government development in the Caribbean may require more than new agencies and “may in fact represent a subtle interplay of intangible variables such as leadership, managerial outlook, and political influence” (pg. 67).

Finally, based on the above case studies and analyses, we make a number of general policy recommendations. Among these is the importance of champions who are knowledgeable, interested and willing to be advocates and support e-government initiatives. These champions are needed at the helm of governments, but also within individual ministries and within the private sector and voluntary organizations. These can also be organisational but must be adequately resourced and networked.

Support for the roll-out of e-government across the region has come from international organizations. Internally, there is recognised need for such advancements but there has also been a tendency for reforms initiated from outside the region to result in a lack of ownership and support at the local level. Thus, while this dependence on international funding for local reforms is understandable in the context of small and developing states, the reality too is that this can affect the level of support and rate of implementation on the ground. This is heightened where implementation may be the responsibility of civil servants already undergoing reform fatigue and in cultures where the 'I' in ICTs (see Minto-Coy, forthcoming 2015) has yet to be embraced fully.

Relatedly, and in line with Cullen & Hassall's (2013) comments on the role of culture in SIDS and the impact on e-government success, the cases suggest a need to develop strategies that are mindful of national and public sector cultures. This involves the extent to which citizens tend to be engaged (or are willing to engage with the state) as well as the norms which govern the nation and way in which the public sector operates.

Innovations such as m-government and c-government have not yet emerged meaningfully within governments, even where the current context (i.e. high mobile penetration rates) may suggest a natural appetite for such services. There remains a need to consider more proactively the role of mobile phones in realising the objectives of e-government agendas across the region.

More public education and awareness is also necessary across the region. This is as it relates to increasing knowledge of the role and uses of ICTs and new technology, e-government, and correspondingly measures for guarding against abuse and threats related to the use of these new technologies. Awareness raising will also relate to the legislative mechanisms in support of e-government and the implications which they have for individuals and organizations. Government is also shown as needing to increase its stewardship and use of citizen data, as it can also inadvertently open avenues for abuse.

## **Conclusion**

The paper explored the implementation of e-government strategies and examined reasons for the present scenario. It argues that certain factors influence the region's ability to make further advances such as challenges related to its size and public administration culture, including, resources, activating the 'I' in ICTs and varying commitment and acceptance within government and among public servants of the value of such advances, particularly in improving public administration. Furthermore, some of the challenges which have been underscored in earlier discussions around government adoption of ICTs also surface in this discussion on emerging technologies. These include, demand side challenges which exist in the way of access and use of ICTs. There also remains a mismatch between public sector reform efforts and e-government strategies across the region. Ultimately, the study and its findings will have resonance for small and developing states as it relates to the challenges and opportunities for advancing in and beyond e-government to c-government and more generally, in utilising emerging technologies and innovations towards improved public governance.

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