PROVIDING IMPROVED SERVICES TO CITIZENS, A CRITICAL REVIEW OF E-GOVERNMENT FACILITIES

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Abstract—Information Technology has now become an important pillar of the Mauritian economy. Every citizen in the society of different ages or social positions are benefiting from it. Inhabitants of Mauritius now have faster and more reliable internet, better mobile services and an increasing use of smart phones with applications dealing in our everyday life. Government has put a major focus on using E-services for easing processes in most, if not all of their Ministries. Governments have quickly realised the benefits to be reaped from early adoption of technology. With the advent of globalisation, better awareness and communication has paved the way for developing strategies to enable a citizen centric approach in the provision of ubiquitous on-line services to the population. This country wide approach to empower citizens by the rolling out of on-line services in the areas such as education, health, civil service, transport, judiciary, business, finance and security, to name a few, has been more than beneficial. This paper outlines the benefits that can be derived from e-Services and describes potential barriers for its proper adoption. Some implementations of E-government services are discussed whilst highlighting the strengths, weaknesses and lessons that can be learnt from each of these implementations.

Keywords—E-Government, E-Governance, E-Readiness, G2C, M-Government, I-Government

I. INTRODUCTION

With the fast growing of computers and massive internet usage, it is bound that e-Government is going to play an increasingly important role. E-government involves the use of ICT mainly the internet, to allow access to government’s services and information destined to residents, businesses or companies. In so doing, the quality of service and information being delivered is consequently improved in terms of time and accessibility [1]. Furthermore, an enhanced relation has been created with businesses and citizens whereby business operations and transactions are carried out in a faster and more efficient way.
However implementation of E-government does have some drawbacks in terms of technological infrastructure, security and privacy for citizens. People will not feel secure unless these technologies that are set up are reliable. Particularly one major barrier is in terms of ICT infrastructure, where by the system is mainly practical with the use of internet so as to be able to share information, communicate with citizens or businesses and deliver online services. But in some countries, the gap is present with those who have access to internet and possess proper telecommunication equipment to those who lack of such major infrastructure for the E-government project to be operational [2]. Another issue relating to infrastructure is that not each and every single family have the ability to purchase a computer since the income rate varies from rich to poor in developing countries. One may also have the ICT equipment but possessing the knowledge in ICT which includes the knowhow of using the technology, accessing the web portal so as to obtain the desired information or benefit from the services not all people are computer literate. In such cases, the government must come up with strategic plans which will create opportunities to learn the technology and become computer literate [1].

Secondly, creating and maintaining a governmental web portal platform obviously require high budget and is time consuming [3]. The cost will not focus only in creating the website but also a huge amount will be spent in training of staffs with the technology that they will have to work with and to maintain the website from bugs or threats. In addition to training cost, the government should cater for organizational cost specifically in developing countries because training monitored by local expertise will not be enough. The government would need experts and consultants for the communicational and technological aspects and which will guide the project and ensure better training. This will eventually result in a considerable increase in budget.

With the introduction of E-government, a process of change management need to be carried out from the traditional to electronic system which involves new techniques of undertaking and processing of tasks. Even with the new system which will ensure that the processes will be done more efficiently, the staffs are resistant to change [4]. The acceptance for a change is a major concern because human nature fear changes and ICT implementation will replace their respective jobs and consequently causes unemployment. In order to have a successful change management, it will take a lot of time to switch to the new system but the government should have proper plans that are set up to ensure and promote learning and participation of all the staffs for each level of the process [1].

II. LITERATURE REVIEW
A. E-Readiness
E-readiness refers to what extent the government is eager to benefit from the use of ICT so as to enhance the different government functions. E-readiness acts as a measurement to recognize to what degree a country is ready to participate in electronic developing activities such as the E-government. Several E-readiness frameworks have been designed but only some of the frameworks are available for successful projects. The 6 dimensions that form part of a particular framework which are assessed in order to evaluate E-readiness in E-government project are namely E-government ICT strategy, user access, E-government program, technological infrastructure, Human Resources and security [1].

B. Types of E-Government Models
E-government consists principally of two parts: frontoffice and back-office. The front-office involves
delivering online services to citizens and businesses through the use of the internet or other means. The back-office deals mostly with information sharing between the different government bodies. So, both G2C and G2B form part of the front-office whereas G2G is categorized as back-office. Some examples of the services offered in the different categories are shown in the table below.

Table 1: G2C and G2B Services

<table>
<thead>
<tr>
<th>G2C Services</th>
<th>G2B Services</th>
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<tbody>
<tr>
<td>Income tax</td>
<td>Employee's social contribution</td>
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<tr>
<td>Job search services</td>
<td>Corporate tax</td>
</tr>
<tr>
<td>Social Security</td>
<td>VAT declaration and notification</td>
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<tr>
<td>Personal Identification</td>
<td>Registration of new company</td>
</tr>
<tr>
<td>Car Registration</td>
<td>Statistical data submission</td>
</tr>
<tr>
<td>Building permits</td>
<td>Customs declaration</td>
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<tr>
<td>Declaration to the police</td>
<td>Environment-related permits</td>
</tr>
<tr>
<td>Public Libraries</td>
<td>Public Procurement</td>
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C. Existing International E-Government Systems

In this section, a number of successful E-Government initiatives will be highlighted and discussed

I. E-government facilities in Singapore

In 1981, the Singaporean government opted to computerize the civil service, and now this strategy is leading the country towards a transformation from an island city state to an intelligent island [5]. With the implementation of Egovernment, Singaporean government admits that they have formed a “world-class E-government”, where the residents and businesses have opportunities to participate and access the online services. Furthermore, traditional administrative work were replaced with a more organized and modern administration with the introduction of new technologies. Overall, Singaporean government made a lot of advances in the E-government project whereby this achievement positioned Singapore among the first five countries in terms of most successful E-government.

Discussions and Reflections

The Singaporean E-government project encompasses 3 main groups namely, G2C, G2B and G2E. Launched in 1999, Ecitizen is Singapore’s main government portal. The web portal is often know as a one-stop portal as it holds all relevant and important information and provides around 1700 services electronically in different fields [6]. These services are classified under 13 categories which provide better layout and more understanding of the website. Ecitizen will respond to all types of requests since it covers E-users ranging from youngsters to senior citizens passing through working people, residents and non-residents of Singapore.

E-filing is one among the most widely used E-services, on average 70% of the tax returns were filed online with the IRAS. This electronic approach leads to a reduction of around $ 2.7 per transaction where the cost is shared between the government and the E-user [7]. The user only has to pay for the internet access while the government pays for the online overheads. These online charges are relatively cheaper than labour cost..

The implementation of E-government has caused some particular drawbacks in terms of political, social, economy and technology. Regarding the political aspect, like in most cases the government would normally try to convince the population to opt for these new approaches and as a result the Singaporean Government would expect to gain more popularity and more power [7]. Thus, the citizens thought twice before using the E-government web portal as they were unsure of the online system, they thought that it was not reliable.

In technological terms, the citizens especially old ones are computer illiterate and this arises a fear in them that they cannot use the online services. On the other
hand, there is the problem that Singaporeans don’t prefer the E-services because some of the government websites are not user friendly [8]. This characteristic invokes that the websites will obviously receive much less clicks because of its low attraction. Being user-friendly, involves time in which the processes or simply browsing the websites takes. This issue had arisen many questions of whether or not to make use of the web portals. When at peak time or heavy traffic over the network, the internet access is relatively slow hence the users practically spend quite a lot of time waiting in browsing or making their respective applications online.

II. E-government facilities in India

Indian policy makers describes that with the introduction of Egovernment, transparency rate has increased, more opportunities available to alleviate poverty, diminish corruption and ensure a much brighter life for the citizens afterwards. E-services will be available at affordable prices.

- Bhoomi Project

With E-governance, particularly in the State of Karnataka, the domain of Land Records has undergone an effective and efficient change whereby an E-service known as RTC has been designed for online management and delivery of land records. This government service came with the aim of keeping track of the vast land records which was previously carried out by revenue officers. The project has covered around 20 million land records of ownership pertaining 6.7 Million farmers [9]. In addition to, online record kiosks also called as “BhoomiCenters”, have been set up in 177 different offices, whereby the RTC online service is provided in each of these kiosks. The kiosk allows record retrieval within 5 minutes and at most 30 minutes whereas with the manual system it would have require around 3 to 30days to retrieve the requested record. Other than record retrieval, the system also caters for the number of processed and pending land mutation. With RTC, the rate of corruption has considerably decreased because long ago farmers need to bribe officers so to process their documents and applications much quicker. Bhoomi has brought around 7.5 million to the government monthly. Last but not least, the project has contributed considerably to eradicate corruption, bring much more transparency in processing of the land applications and mutations and finally save time of both farmer and officers.

- Drishtee

Drishtee software made its debut in the State of Haryana allowing the government to provide information and basic services especially for the marketing and the distribution of goods online. The software allows marketing of a wide range of services to any service provider and is easily accessible. In this way, it reduces the cost of marketing of the citizen and offers a great opportunity to attract more clients since it is an online advertising [10].

Discussions and Reflections

E-government projects have been successful as well a wide benefit for Indian population. Even though, there have been certain complications that aroused with the implementation of the E-services. The main problem is the access to resources to be able to use the online services implying internet access. If such resources are not easily accessible but then how would a particular resident make use of the e-Services. Based on The Economist, it is observed that a very little percentage of people have internet access at their home [10]. Indian Universities do face the ICT problem because they also don’t have the basic or sufficient facilities to access to internet. Even if someone has internet access it is not sufficient because the latter need to set the
internet bill at the end of each month and this internet price is relatively expensive in India. In order to have internet, they need to pay for the installation of the telephone lines and in most cases many people cannot afford such installation cost particularly the prices varies from Rs30 000 in cities and around Rs80 000 in rural areas [10]. The rate of literate people in developing countries like India is very low even if India is known for its high level of education. For example, in Andhra Pradesh where electronic government projects such as E-procurement has been successfully deployed, it is observed that the rate of literacy in this region is around 44% only [11]. In some remote regions there are still no curriculums set up to encourage people toward education.

III. E-government facilities in Malaysia

E-government has emerged as an important pillar for public administration. Seeing its success, nearly all government across the globe has already decided to opt for its implementation so as to be able to change the way most government work. In Malaysia, the implementation was started through the introduction of the MSC in 1996 [12], which was bound to be beneficial to the citizens, businesses and to the government itself. The Malaysian Government thought that the use of technology would have an enormous impact on government administration and that it would drive the country to a knowledge-based one.

There exist 3 main initiatives in Malaysia namely E-syariah, E-land and pemudah which will facilitate relations among G2G, G2C and G2B.

• E-Syariah

E-Syariah was introduced in March 2002 to be used to enhance the quality of services in the Malaysian Syariah Court through technology use [13]. It then allowed the court to be run in a more refined manner. In the past, the Malaysian people saw the Syariah court as an archaic institution. The services there, were to slow and in some cases delayed, thus allowing more and more cases to remain unattended. The project comprises various modules, including Syariah Court Case Management System, Syariah Lawyers Registration System, E-syariah Portal, Library Management System and Office Automation System [13]. It may be noted that the Esyariah implementation was a success and it has truly improve the quality of public service delivery.

• E-land

E-land was initiated by the Ministry of Natural Resources and Environment [12]. It was mainly developed to ensure a userfriendly land management system which would be able to improve service delivery. A few years ago, land affairs were treated so inefficiently that it lead to several complaints from disappointed citizens. It also gave rise to other problems like red tape, unyielding procedures and corruption [12]. Another issue was that there were many charges that remained unpaid and thus caused the government’s reputation amongst foreign investors, businesses communities and the public to be stained. So to avoid such problems again, E-land was introduced in 2005. E-land is thought to be able to improve the transparency of land administration, as well as to renew the administration and management of land offices throughout Peninsular Malaysia [13]. The implementation of E-land in Malaysia did make a big impact on the population as well as the government [14]. According to a survey made among the Malaysian people, it was indeed found that the system worked more efficiently and that it would get better and better with increasing new technologies.
Discussions and Reflections
The E-syariah project has one main issue to deal with, notably online payment where they need to look after third parties for some management charges issue. The federal government cannot force the states to pay service charges to the bank, thus that problem is mainly related to the legislation issues [12]. There is always a need for an ICT and land law expert to be able to carry out that project successfully. Another main problem is the maintenance, the cost for maintaining such a system is high and if the government did not plan for an appropriate budget, it may hinder the E-government services [12].

III. PRELIMINARY OBSERVATIONS
A. E-Government in Mauritius
Central Informatics Bureau (CIB) in Mauritius carried out a survey on E-Government in March 2013. Some results and fact findings about the surveys which targeted a sampling of 880 household spread around the island are shown below. Around 53 % of the surveyed people respond that they are conscious that the government services are also available over the internet [15].

Figure 1: Concern about government services offered online
But it is noted also that 42 % of the respondents of the survey are internet users.

Figure 2: Rate of Internet Use
And among these 42% of internet users, only 45% of them access the Government Web Site (Figure 2.4) and 31% of them only make use of the e-services available on the government web portal [15].

Figure 3: Rate of Access to Government Portal among Internet Users

Figure 4: Government E-Services Usage Rate among Internet Users

IV. IMPLEMENTATION OF E-GOVERNMENT SERVICES IN MAURITIUS
The Government of Mauritius has set up a GES with the aim of bringing an effective information flow and communication between government departments, ministries and the public. The emails’ domain name intnet.mu has been replaced with the new electronic
mail system which can be accessed via the website shown below [16]. With the new email system being a web-based one, the employees have the opportunity to access the system from anywhere provided that the user has internet facility.

Figure 5: Mauritius Government Email Services
In 2003, around 380 users possessed an email account at the Government E-mail Service, according to the National Computer Board, the number of users have reached around 6800 in 2013.
The government web portal [17], has been re-designed and in parallel offering more electronic services as from 22 February 2013. The new web site project is now operational thereby targeting main groups of E-government such as:
1. Government to Citizens
2. Government to Business
3. Government to Government
The website has been designed and developed in such a way to help different types of user needs, in so doing the government ensures that most people benefit from the E-government project. The figure below shoes an overview of the government web portal [17].

Figure 6: Mauritius E-Government Portal

Around 66 E-services can be accessed at anytime and anywhere by the citizen and allows the resident for real time interaction with the government.

V. DISCUSSIONS
A. E-Government Barriers
There are a number of factors affecting the effective implementation and use of E-government. They fall into different categories, namely Technical, Organizational, Social and Financial. The table below summarises some important barriers that need to be tackled for the success of Egovernment facilities.

Table 2: Barriers for E-Government Services

<table>
<thead>
<tr>
<th>Category</th>
<th>Barriers</th>
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<tbody>
<tr>
<td>Technical</td>
<td>ICT Infrastructure</td>
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<tr>
<td></td>
<td>Privacy</td>
</tr>
<tr>
<td></td>
<td>Security</td>
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<tr>
<td>Organizational</td>
<td>Top management support</td>
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<td></td>
<td>Resistance to change to electronic ways</td>
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<td></td>
<td>Collaboration</td>
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<td></td>
<td>Lack of qualified personnel and training</td>
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<tr>
<td>Social</td>
<td>Digital Divide</td>
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<tr>
<td></td>
<td>Culture</td>
</tr>
<tr>
<td>Financial</td>
<td>High Cost</td>
</tr>
</tbody>
</table>

B. Future Scenarios of E-Government in Mauritius
I. Mobile Government (M-Government)
During the last recent years, the IT world has undergone through a mobile boom since there has been a rise in access to mobile technologies. This epic change is also because of the high availability of mobile internet connection. Nowadays, people consider a mobile phone without an internet connection not to be a complete mobile phone. After the implementation of the E-government, many countries and states have monitored the Information and Technology market, where it was observed that in the year 2011 there were around 6 billion mobile cellular subscriptions according to the ITU [18]. Thus, developing governments took the initiative to move
towards mobile-government where by touching more and more citizens.

Since, E-government involves the use of information and communication technologies to develop public services so as citizens can access the government electronic information and services, the mobile government is then defined as a subset of E-government. M-government involves the use of wireless communication technologies such as mobile phones, tablets, pagers, PDAs and laptops to access government information and services designed to citizens, businesses, public employees and non-profit organizations. M-government has been designed to provide specific better services beyond the E-government and in the same way the mobile users have easy access, more interaction and mobility.

With M-government implementation, mobility restriction is removed because with the particularity of M-government, it simplifies access to online services and information everywhere and at any time using wireless network. Another M-government benefit is in terms of time, where it gives the citizen the ability to communicate with government in a relatively small amount of time.

For example in Mauritius, the government has recently come up with the Short Message Service facility in the purpose of informing parents during the absence of their children on any school day via their mobile phones.

Discussions and Reflections

1. Security & Privacy

Wireless networks are often prone to spy by hackers who have the ability to scan documents and emails. The vulnerability of signals broadcasted by wireless networks attracts hackers to the infiltrate the network. In addition, there are specific programs and tools that have been developed to capture confidential information such as passwords.

2. Cost

The major concern of the public with the M-government implementation is the cost issue. The cost of accessing wireless network is quite expensive for the citizens to be able to access the E-services via their mobile devices. Secondly, the main component to use the system, the mobile device itself, is quite expensive in many countries. It is costly in some countries for someone to be able to own a mobile device. It’s only after complaints that in various countries the governments have decided to liberalize the price of the internet package [18].

However, the success of M-government relies mainly on the quality of the wireless technology and equipment that a country possesses. But for the time being, M-government won’t be fit for developing countries because the mobile and wireless communication still needs improvement. Nevertheless, emerging countries are progressing by implementing the electronic government platform.

II. Intelligent Government (I-Government)

I-government is a new concept coming to life in certain countries and is forging a strong relationship between the citizens and the government. Though we are more focused on the E-government platform, we will certainly move to the I-government one in the near future if it has not already been done. One of the main reason why governments will continue to move in the forward direction is mainly in making use of ICT as an instrument to provide government services to citizens, businesses and other governmental bodies in an effective and efficient manner as well as improving the quality of government and prepare it for the future. Although I-government is still in the development process and growing rapidly, it is clear now that we
will have to make the change from E-government to I-government to be able to face all the challenges ahead. Before moving on that idea, much research needs to be done to try and develop a good framework for the successful running of that new concept. We must have in mind the individual applications and how they will work on this new platform. Another requirement is that the government need to really have an open-minded attitude and they must be ready to follow new trends and developments happening in the society. To be able to build an I-government that will remain for years, we need to involve the society [19].

The transition to I-government involves the government to be more aware of the processes that need to handled and used correctly. These processes do have a huge impact on the information being displayed on the I-government platform, mainly being reliable and understandable.

VI. CONCLUSION

This paper provides a critical review of E-Government services both nationally and internationally. E-Government is going to play an increasingly important role in view of providing improved services to citizens and encouraging a more efficient services and transactions. Nowadays, we have IT facilities that were not present ten years back and IT facilities, be it in terms of connectivity, bandwidth, access to mobile devices, just to name a few, is improving exponentially. Broadband growth is a reality now in Mauritius and this is contributing greatly to having better E-Government services. However, there are a number of factors that are essential for the proper implementation of E-Government services. These include having a satisfactory e-readiness index of the citizens, having the proper human capital, the proper legal and institutional frameworks and having regulations and policies that would adequately support the much laudable initiative of E-Government Services.

References


