

E-government non-adoption in the Republic of Mauritius

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Abstract: *E-government is the use of ICT to make government more accessible, transparent, accountable, cost-effective, and to widen citizen participations into policy making. However not all citizens can use online government services because of digital divide, that is, discrepancies emerging from the access or use of ICT. This problem may become particularly severe especially when those people who need e-government services the most are unable to do so. In this paper, an investigation is carried out to find out why some people in the Republic of Mauritius do not use e-government. The reasons are classified according to some of the components of the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) model. Following some studies, 'Trust' is added as a determinant of e-government use. A survey covering 155 citizens was conducted across the Republic of Mauritius. The highest percentage of citizens (around 30%) stated that they had no reason to use e-government services, 21% said that they were unaware that such e-services exist and 17% said they were not interested in using e-government. All policy implications are discussed.*

Keywords: *E-government, Technology Acceptance Model, Unified Theory of Acceptance and Use of Technology.*

1. Introduction

E-government is electronic government. It is about the provisions of services by the government through the use of ICT. This redefines the role of public sector administrators and citizens by transforming the mentality of the former to treat the latter as important participants into the decision-making process [1]. E-government is believed to generate many benefits both to the users and the providers such as 24/7 access to the government, access to information, instant reporting of grievances, increased transparency, increased accountability, reduced corruption, effective public sector management, improved interactions between the government and businesses, improved provision of government services, higher customer satisfactions, engendering greater trust in the government and citizen empowerment.

However the mere existence of digital government (or its benefits) does not automatically entail its use by citizens. During another study carried out to examine the perceptions of e-government users, it was found that a considerable proportion of the population in the Republic of Mauritius were non-users. Thus an investigation was carried out into why some people do not use electronic government despite the numerous benefits it generates. The reasons for not using government websites are examined in this paper. The frameworks used are the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT) model along with an element of 'trust'. After long and careful deliberation, these were deemed necessary as these explain the behavioural intentions of citizens in the adoption or non-adoption of e-government. This paper is structured as follows: first the literature review is examined, followed by the methodology, then the results are discussed at length which eventually leads to some recommendations and finally this paper is concluded with some suggestions for future research.

2. Literature Review

During a study conducted by Ramessur [2], it was revealed that around 69% of the respondents in Mauritius were less motivated to use e-government services because the webpages were not in the native language. E-services were reported to have a low degree of interactivity which was mainly limited to downloading forms. Some citizens were also unaware about the existence of online government services in Mauritius. In this paper, the reasons for not using e-government are assessed through different components of the TAM, UTAUT model and 'trust'.

The Technology Acceptance Model (TAM) was first developed by Davis [3] where he proposed two fundamental variables perceived usefulness and perceived ease of use that determine user acceptance. Perceived ease of use directly influences perceived usefulness [4]. Perceived ease of use is about the belief of the individual regarding the extent of physical and mental effort required to use the system [3]. Perceived usefulness refers to enhanced job performance in terms of efficiency, effectiveness and improved performance. It affects the behavioural intention directly and above its impact via attitude [3], [5]. Perceived ease of use and perceived usefulness have been found to be influential in the adoption of technology and significant in the literature on e-government. These two core constructs have been found to be significant in the literature on e-government, for instance in the studies conducted by Lin et al [6], Carter and Belanger [7] and Hung et al [8]. TAM may be extended to explain the behavioural intention of any technology and is influential in explaining the use of e-government as well [9] [10].

The Unified Theory of Acceptance and Use of Technology (UTAUT) model was initially proposed by Venkatesh et al [11] to address the shortcomings of the TAM. TAM does not account for some important constraints such as money. The UTAUT model rests on both conceptual and empirical models used for technology acceptance which recognises aspects of sociology, psychology and communications. The UTAUT model postulates that performance expectancy, effort expectancy, social influence and facilitating conditions significantly affect the intention of people to use a particular system. This model uses the four components and also four moderators: gender, experience, age and voluntariness of use [12]. Performance expectancy is about the belief that the use of the system will allow gains in job performance. It includes perceived usefulness, motivation, job fit, relative advantage and outcome expectation. Effort expectancy is about the easiness of using the system and is split into perceived ease of use, ease of use and complexity [11]. Social influence is about how important other people perceive the use of the new system and these are influenced by subjective norms, social image and social factors. Facilitating conditions are about the know-how and the availability of resources such as technical and organisational infrastructures that encourage the use of the system. Taiwo and Downe [12] report that many empirical studies found that most of the UTAUT components predict behavioural intention.

However social influence did not predict the behavioural intention of e-government use as reported Alshehri et al [13] and instead they advocated the inclusion of website quality and trust. Rehman et al [14] revealed that trust in government, trust in the Internet, transaction security, information security, perceived risks influences a citizen's behavioural intention to engage in transaction on the government websites. Belwal and Al-Zoubi [15] measured trust in terms of reliability of government services, transparency and accountability, reliability of ICT system, establishment of institutions, participation, efficiency of public sector and cost savings, deters citizens' use of e-government services. Zaidi et al [16] argue that the use of e-government services depends on the extent to which government websites are safe and protects citizens' information. Several other studies have highlighted online security and trust in a particular government as being prerequisites for the adoption of e-government [17], [18], [19], [20], [21].

3. Methodology

The survey used for this paper was conducted during the first quarter of 2015. A total of 155 citizens who do not use e-government were selected across the islands of Mauritius and Rodrigues. The number of respondents in each region was initially selected according to the percentage of population that prevailed in each region relative to the total population of the Republic of Mauritius. Then all respondents within their respective regions were randomly selected. This approach to data collection was deemed necessary to capture any difference that might exist across different regions and to generate a nationally representative data set.

During the data collection process, some non-users expressed their reluctance to give information partly because they were anxious that the data collection team could be from the income tax department and partly because e-government deals with the government. Nevertheless after being assured that this study had nothing to do with the government officials or tax department, they provided all the required information as requested. A pilot study was conducted before the main study was finally undertaken. All questionnaires were administered on a face to face basis and in the native language 'creole' to avoid any confusion.

Respondents were asked to tick the items on the questionnaire that best explained their reasons for e-government non-adoption. They could tick as many items as they wanted and they could also write down or voice out their opinions. The reasons were then categorised according to five components: 'facilitating

conditions' and 'performance expectancy' of the UTAUT model; 'perceived usefulness' and 'perceived ease of use' of the TAM; and finally this study adds an element of 'trust' to explain why some citizens in the Republic of Mauritius preferred not to use electronic government.

As displayed in Table 1, the highest proportion of the sample were mainly women (57.4%), private sector employees (37.4%), those aged between 36 to 45 years (23.9%), married people (60.6%), rural dwellers (53.5%), those who had done up to 'O' level (49.7%) and with a monthly income up to Rs 10000.

TABLE 1: The Characteristics of the Respondents

Demographics factors	Number of citizens	Percentage	Demographic factors	Number of citizens	Percentage
<i>Gender:</i>			<i>Monthly income groups:</i>		
Male	66	42.6	Up to Rs 10000	78	50.3
Female	89	57.4	Rs 10001 to Rs 20000	38	24.5
<i>Age groups:</i>			Rs 20001 to Rs35000	25	16.1
18 to 25 years	30	19.4	Rs 35001 to Rs 55000	11	7.1
26 to 35 years	36	23.2	Rs 55001 to Rs 70000	1	0.6
36 to 45 years	37	23.9	Above Rs 70000	2	1.3
46 to 54 years	25	16.1	<i>Area of residence:</i>		
55 to 64 years	20	12.9	Urban	72	46.5
65 years and above	7	4.5	Rural	83	53.5
<i>Marital status:</i>			<i>Education:</i>		
Married or in an union	94	60.6	Primary schooling	22	14.2
Not Married/ Not in an union/ Divorced/ Separated/Single	61	39.4	Vocational education	6	3.9
<i>Sector of employment:</i>			'O' level	77	49.7
Self-employment	31	20	'A' level	22	14.2
Private sector	58	37.4	Certificate & diploma	8	5.2
Public sector	19	12.3	Bachelor degree	11	7.1
Others	47	30.3	Postgraduate degree	9	5.8
N	155	100			

4. The Reasons for Not Adopting E-government

Around 34% of the sample said that they had never used electronic government. This might further discourage the use of electronic government. It is important for citizens to start using government websites as these ultimately make them develop more positive attitudes towards electronic government [20]. A relatively greater percentage of male respondents (around 18% out of the 34%) stated that they had never used e-government services. This problem of non-adoption is aggravated when around 21% stated that they did not even know that e-government services exist. A relatively greater percentage of female respondents (around 12% out of the 21%) stated that they were unaware of the existence of government websites. In both cases of unawareness and no previous experience with the government website, the respondents were most likely to be married rural dwellers, aged between 18 to 25 years, private sector employees, earning up to Rs 10001 per month and had studied up to 'O' level only. Thus this research contributed in spreading awareness about

government websites among a significant percentage of non-users. Initially so as not to influence the responses of citizens, the respondents were asked to fill out the questionnaires and then their queries about the government websites were answered. Many non-users inquired about what these websites contained and how they could be useful to them.

TABLE 2: Lack of Facilitating Conditions

Items on questionnaire	Number of citizens	Percentage
I do not have access to the internet	12	7.7
I do not know how to use the internet	14	9
I do not know how government websites may be useful to me	15	9.7
I do not have a computer	16	10.3
I do not know how to use a computer	19	12.3
I do not know how to access the government website	23	14.8

Source: Adapted from Roopchand [23]

Facilitating conditions directly affect usage behaviour. Lack of facilitating conditions in terms of inadequate IT skills and ICT infrastructures may seriously hamper the use of government e-services [22]. Some of the non-users interviewed in the present study expressed their inability to use technology due to lack of resources, skills and inaccessibility. These are listed in Table 2. Among the items listed in the 'lack of facilitating conditions', the greatest percentage of e-government non-users (around 15% out of which 8.4% were men) said they did not know how to access government websites followed by 12% who did not know how to use a computer. Around 10% stated that they did not know how government websites might be useful to them and this category also included highly educated people working at senior positions.

TABLE 3: Low Performance Expectancy/ Low Perceived Usefulness and Lack of Motivations

Items on questionnaire	Number of citizens	Percentage
Government officials do not respond to my online queries	2	1.3
I cannot submit applications online	2	1.3
The government does not take these websites seriously	6	3.9
Information is not up-to-date	8	5.2
Government websites are not useful to me	24	15.5
I am too old to use these e-services	3	1.9
Others do it for me	14	9
I am not interested	26	16.8
I have no reason to use e-government services	46	29.7

Source: Adapted from Roopchand [23]

The performance expectancy component may also be interpreted as the perceived usefulness component of the TAM plus the motivation aspect in using a new system. Table 3 highlights the poor delivery of online government services with around 15% (out of which around 10% were men) stating clearly that the websites were simply not useful to them and 5% stating that information displayed online was not up to date. Around 4% were convinced that government officials do not take these websites seriously along with 1.3% who revealed that their online queries were not answered. Here the element of citizen centric e-government is absent. Citizen centricity implies putting the citizens at the heart of policies and changing government priorities to opt for the welfare of citizens. Some citizens even stated that online services were not very useful as they had to eventually travel to government offices to get the job done. This is in line to a previous study conducted in Mauritius [2]. Thus it may be said that these online government services in the Republic of Mauritius are not always customer driven.

For some citizens, motivation to use electronic government was non-existent. A considerable number of respondents were either not motivated to use government e-services at all or at least not on their own (Refer to Table 3). Around 30% revealed that they had no reason to use online government services out of which the highest percentage were women (around 17%), those who were married, those employed in the private sector, those with a monthly income up to Rs 10000, those aged between 18 to 45 years and those who had studied up to 'O' level only. Around 17% of the sample of non-users (out of which 9% were women) stated that they were not interested in using government online portals and the highest percentage of these non-users was married, rural dwellers, self-employed people, with a monthly income up to Rs 10000, those aged between 18 to 25 years and who had studied up to 'O' level only.

TABLE 4: Low Effort Expectancy/ Low Perceived Ease of Use

Items on questionnaire	Number of citizens	Percentage
It is too expensive to use the internet	1	0.6
Government websites are not well designed	4	2.6
E-government is too difficult or complicated to use	8	5.2

Source: Adapted from Roopchand [23]

According to the Technology Acceptance Model [3], perceived ease of use or effort expectancy in the UTAUT model [11] is the extent to which a system may be easily used. It influences behavioural intention which in the present study would be influencing the adoption of e-government services in the Republic of Mauritius. Effort expectancy was examined through three items on the questionnaire as listed in Table 4. Around 5% of the sample preferred not to use government websites because they felt that these were too complicated to use and around 3% said that these websites were not well designed. During the interview some citizens expressed their concerns about the difficulties associated with navigating on the government portal as neither the language nor the information displayed on government websites were clear. Some even stated that the government webpages were too slow to load. Out of the 155 non-users interviewed only one citizen attributed his non-adoption of e-government to the high price associated with the use of internet. Here following Swanson [24], cost associated with access, in this case, the Internet is treated as perceived ease of use.

TABLE 5: Lack of Trust

Items on questionnaire	Number of citizens	Percentage
I do not feel online government services are safe	5	3.2
I do not trust government websites	6	3.9

Source: Adapted from Roopchand [23]

Trust is strongly associated with citizens' satisfaction and linked to several aspects of e-government [20]. Davis [3] argues that the intention to adopt a system depends upon the user's overall attitude towards it. Attitude acts as an important determinant that predicts adoption of electronic government [25]. The main influence on usage of e-government is trust [26] and web security affects citizen's intention to use the free wireless Internet parks [22]. Thus in this study it is postulated that the level of public trust affects citizens' attitudes towards the adoption of e-government and to capture this, two items were put on the questionnaire. These are listed in Table 5. Around 4% of the sample said that they did not trust government websites and around 3% felt that it was not safe to use online government services.

5. Conclusion and Policy Implications

Around 34% had never used e-government services, around 30% had no reason to use these e-services, around 21% said that they were unaware that such e-services exist, around 17% said they were not interested in using e-government, 15.5% stated that government websites were not useful to them and roughly the same percentage of respondents admitted that they did not know how to access government websites whilst only 1 citizen out of the 155 interviewed found that subscription to internet services were too costly.

In this research it was revealed that women were less likely than men to be aware of government websites, to have reasons and be interested to use these websites. Men were more likely than women to have never used these government websites and felt that these were not useful to them. However these trends may not be generalised beyond the sample as the differences may be due to chance. The sample is not large enough to test for significant differences on perceptions across gender. Nevertheless this research highlights some key aspects underlying the problem of non-adoption of e-government in the Republic of Mauritius which should be addressed by policy makers so as to increase online inclusion from all segments of the population. Increasing users of e-government services would in that case justify the enormous investment made in e-government.

Motivation is an important aspect if we want citizens to use e-government. They must be motivated to use the existing tools and technologies [15]. Government must create more awareness about e-government through newspapers, televisions, advertising campaigns and social media. However simply creating awareness without the required investment in technologies, physical and human capital would not increase the usage of government portals [2], [27]. The government must develop IT capacities of citizens to enhance social inclusion [28]. Initiatives must be taken to make offline citizens willing to use the existing tools and technologies. For those who do not have a computer or laptop or cannot access the internet, it is recommended that the government indulges into the creation of free wireless internet kiosks in each residential area. For those who lack the competencies to access government websites, the government should provide ICT training courses on a regular basis. The government may also help those who lack the financial means (especially for those whose monthly income do not exceed Rs 10000) to buy a personal computer or to subscribe to internet services by giving them the necessary funds to do so or make these available to them at reduced prices. Special programmes may also be devised to cater for the needs of women, self-employed people and those working in the private sector.

During the face to face administration of questionnaires some citizens highlighted the poor delivery of online government services. Some citizens even stated that online services were not very useful as they had to eventually travel to government offices to get the job done and some government officials did not respond to their grievances. Greater use of e-government will be possible through, for instance, the provision of more updated information online, officials answering emails and addressing online grievances promptly. The degree of responsiveness and reliability of online information are important. All government officials must recognise the crucial role that they play in the citizens' decisions of whether or not to adopt e-government services.

Unless the benefits that e-government confer upon potential users are demonstrated, the latter would not adopt e-government [29]. In order to attract more offline users or those rare online users, the government may create a one-stop gateway that provides all those e-government services that satisfies the citizens' needs of information to the possibility of completing their tasks online without having to physically move to government offices. Online service quality impacts directly on the user satisfaction [30] and predicts the use of e-government services [31]. The Mauritian government must therefore improve its online service quality (for example, improve its information quality, relevance, accuracy and timeliness [16]; enable task completeness; and reduce wait time [32]) to widen online citizens' participations in government activities and contribute into the democracy process.

Several studies have highlighted online security and/or trust in a particular government as being prerequisites for the adoption of e-government [14], [15], [16], [17], [18], [19], [20], [21], [22]. Politicians, government website designers, administrators and technicians must pay particular attention to these aspects. People's perceptions about the government itself, corruption level, transparency and ethics, for instance, would either motivate or demotivate them to participate in the e-governance process. Lack of trust deters the adoption of e-government. But by increasing the chances for exposure and empowering the citizens to question rules and procedures that are arbitrarily applied [33], greater online citizen participation may be encouraged. Also unless non-users or low frequency users feel that it is safe to use government websites, they will be reluctant to adopt e-government. The government must address risks to privacy and security of its citizens by assuring them that there are adequate internet safeguards and legal structures to protect them. The legal framework in the Republic of Mauritius must also support free access to information and repeal secrecy laws.

6. Suggestions for Future Studies

The sample size could be increased in order to gather views from a greater proportion of the population where larger sub-groups could be created and the reasons behind their non-adoption of e-government could be examined through other statistical tools such as the Pearson Chi-Square test and Factor Analysis.

It is believed that social influence may have a positive influence on a citizen's decision to adopt e-government. This study did not investigate into all the components of UTAUT and TAM models as it was designed to give a basic understanding into why people do not use e-government services in the Republic of Mauritius. An investigation into the social influence aspect behind the use of e-government needs to be carried out especially among public sector employees as peer influence would be stronger whereby communications among different departments are carried out through ICT. Other frameworks such as Theory of Reasoned Action, Diffusion of Innovation and Theory of Planned Behaviour may also be used to understand the behaviour of offline users of government services.

Nevertheless the present study gives an insight into the shortcomings of the government website as identified by non-users and hence these may inform policy making in the Republic of Mauritius so as to reduce online exclusions. Online exclusions imply the unequal use of e-government services and the loss of substantial feedback from certain segments of the population.

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