

Sri Lankan Citizens' Use Behaviour towards E-Government Services

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Abstract

This research study focused on the main factors influencing Sri Lankan citizens' adoption of e-Government services. After reviewing existing literatures on technology adoption, the researchers chose the UTAUT model and picked up key determinants from it. The researchers aimed at answering research questions and testing the credibility of hypotheses brought about from the model. Entire Sri Lankan populations' internet users were selected as the population of this study and sample size was calculated properly for collecting data. Questionnaire was developed and made available in three languages; English, Sinhala and Tamil. Reliability test was carried out to see the internal consistency of the data. The collected data were analysed using SPSS 20 and Minitab 16, and Excel 2010 was also used at times. Correlation and regressions were calculated to see the underlying relationships among the constructs and their impacts. Analysis found that Performance Expectancy, Effort Expectancy, Social Influence had influence on Sri Lankan citizens' Intention to Use e-Government services and this intention influenced Use Behaviour of the citizens.

Keywords: E-Government, Adoption, UTAUT, Use Behaviour, Citizens, Sri Lanka

1. Introduction

Information Technology (IT) has interwoven itself with almost all activities of human life today and it has many benefits, opportunities and challenges for managers and policy makers in private as well as public sectors. Human engagements within the concept of time and space have significantly been transformed by technology. Governments around the world have been increasing investments in electronic services during the recent decades and have included the potential of online resources to improve the services to their citizens and increased their competitive advantages. The success of such initiatives by the governments largely depends on the higher adoption of such services by their citizens.

Many governments have been confronting difficulties such as bureaucracy in systems, decision making processes being found to be centralized, redundancy leading to complexity, poor sharing and coordination of information and the absence of strong Information and Communication Technology (ICT) infrastructure (Srivastava and Teo, 2008). The delivery of government information and services by using the ICT is commonly referred to as Electronic Government (e-Government) (Akman *et al.*, 2005; Karunasena *et al.*, 2011).

E-Government enables citizens to access information efficiently and also has improved the transparency and communication of government information. The diffusion of this innovation is normally attained with much cost for the implementing side; the government, however researchers have found that most countries suffer with low satisfaction in the citizens' adoption of e-Government services and they continue to come out with outstanding frameworks and models for understanding.

Sri Lanka also has set its foot into the stream of e-Government services by means of establishing the government portal. Available statistics on the citizens' adoption of e-Government services in the country shows that there exists very poor adoption of e-Government services in Sri Lanka. This research aims to identify the factors influencing the citizens' adoption of e-Government services in Sri Lanka.

There are many models available to study the technology adoption and this research used Unified Theory of Acceptance and Use of Technology (UTAUT) model which is a comprehensive model to study the adoption of technology. A questionnaire based quantitative study was carried out targeting the Internet users in Sri Lanka as the population of this research.

Preliminary literature reveals that there have been no published researches that study the citizens' adoption of e-Government in Sri Lanka. Therefore this study tries to make a significant contribution to the decision makers and research community. Due to the available short span of time and financial constraints, this research limits

itself to study only the Internet users; however all computer literate citizens who are the potential Internet users could have been considered as the population.

2. Review of Literature

2.1 Definitions of E-government

It is important to give clear definition of e-Government technology in order to facilitate overall understanding of the research objective. The theoretical perspective of e-Government can be traced back to 1993 (Guangwei Hu *et al.*, 2009) and since then developments evolving from recent government reinvention practices are called as “electronic government”, “e-government” or “e-Gov”; commonly called as “e-government” (Guangwei Hu *et al.*, 2009). Relyea (2002) cited that report of the National Performance Review (NPR) had introduced the new term and after that the term has been used as a symbol and reference to both existing applications of ICT in government operations as well as more effective and efficient operations of government functions (Yildiz, 2007). In the literature on e-Government, definitions have been given differently; on one hand based on narrow perspective of exploiting the benefits of ICT as well as the Internet technology to bring about efficiency and effectiveness in government and on the other hand based on wider perspective of reforming and reengineering the government processes. Although there are several conceptions are there about e-Government, there is vagueness on the definition of e-Government and there is no specific definition for the concept of e-Government among practitioners and public administration (Al-Sebie and Irani, 2005).

According to Carter and Belanger (2005), e-Government is the use of ICT to support and improve government services to citizens, businesses and government agencies. According to Lee *et al.*, (2005), e-Government is the initiatives of providing public services to citizens digitally and renovating the way government operates. E-Government is defined by researchers differently based on the aspects in the in governance. In Sweden, *e-Government is defined in terms of e-Services, e-Government and e-Democracy*, giving e-Government a wider meaning and emphasized on public administration, the public companies and civil society (Nordfors *et al.*, 2006). Furthermore, quality of e-Government is defined by Tan and Benbasat (2009) as the extent to which citizens’ anticipated governmental transactions are enabled by government web presence and its efficient delivery of e-Services. Therefore, it can be concluded that the interactions between the citizens, businesses and government agencies with the government officials by means of existing and emerging technologies is e-Government.

UN (2002) defines e-Government as “*utilizing the Internet and the World-Wide-Web for delivering government information and services to citizens*” and Jaeger (2003) adds usage of ICT such as “*database, networking, discussion support, multimedia, automation, tracking and tracing, and personal identification technologies*” in addition to the Internet and Web. According to Halchin (2004), there is not any widely shared definition of e-Government yet and Wimmer (2002) argues that “*Everybody talks about e-Government but all have different interpretations*”. Several definitions have been given by several researchers time to time.

2.2 E-Government Adoption by Citizen

Acceptance by the user is a necessary requirement for any Information Technology (IT) project’s success. According to Venkatesh *et al.* (2003), acceptance is the initial decision taken by an individual to interact with the technology and adoption comes when the user has accepted the technology after he or she directly experiences with the technology.

Chang *et al.* (2006) did a study on citizens’ acceptance of Online Tax Filing and Payment System in Taiwan based on the Theory of Planned Behaviour by proposing a comprehensive model to elicit citizens’ salient attitude towards e-Government services. They found that ease of use, perceived usefulness, perceived risk, trust, compatibility, external influence, interpersonal influence, self-efficacy and facilitating conditions (ALAwadhi and Morris, 2008) to be the factors influencing the adoption of the Tax Filing and Payment System in Taiwan. Combining TAM and DOI models, Dimitrova and Chen (2006) did a survey in the US to study the effects of socio-psychological factors that influence citizens’ adoption of e-Government in the US. They found that perceived usefulness, prior interest in the government and perceived uncertainty were the factors influencing the adoption of e-Government there in the US (Colesca and Dobrica, 2008). In a study done by Phang *et al.* (2005) in China on the senior citizens’ adoption of e-Government, basing TAM, they found that perceived ease of use and Internet safety as the influencing factors for senior citizens’ perception of the usefulness of the e-Government; image and compatibility being less influencing.

It is noted by AlAwadhi and Morris (2008) that studies on e-Government adoption in developing countries are very low. Akman *et al.* (2005) did a survey in Turkey to study the impact of gender, education and citizens' attribute, on the use of e-Government. For the study they surveyed different groups from public and private sectors and found that gender and education had a significant influence on the citizens' adoption of e-Government in Turkey. They found that e-Government services are used more by males than females and the higher the education level, the more interaction the participants had with e-Government services. Another study was done by AlShihi (2006) on e-Government development and adoption in Oman. For this study he surveyed public as well as private sector employees and different segments of Omani society; in the research AlShihi found a number of barriers to the adoption of e-Government in Oman. They are *users' lack of IT knowledge, awareness and motivation; the under-marketing of e-government plans and initiatives; a lack of proper legislation and laws; lack of trust and confidence by users and culture had little effect* (AlShihi, 2006).

From the above review of literature, many factors such as perceived usefulness, ease of use, compatibility, trustworthiness, Internet safety, image, gender, educational level, etc. have been found to be influencing the citizens' adoption of e-Government in developed as well as a few developing countries; but little is known that these factors are applicable in the case of Sri Lanka.

2.3 E-Government in Sri Lanka

The launching of Lanka Gate, the official portal (www.lk or srilanka.lk) of Sri Lanka, on the Internet was the major implementation step of the e-Srilanka project by the Government of Sri Lanka. Using the site, citizens are enabled to obtain more than 20 e-Services such as e-Revenue License Issuance, Issuance of Examination Certificates, etc. (Lanka Gate, 2013) and updated information from the government agencies.

Sri Lankan government started the e-Srilanka project in 2002 (Karunasena *et al.*, 2011) and has been continuing to bring in all services of government agencies under one portal. The e-Srilanka project carries many significant benefits such as quality public services, reduction of communication and information costs, bridging the digital divide, and getting the citizens actively participating in government (Karunasena *et al.*, 2011; Akman *et al.*, 2005; Jaeger and Thompson, 2003) to the citizen of Sri Lanka.

The Computer Literacy Survey (CLS) – 2009, which is the latest statistics available as of December 2013, of the Department of Census and Population of Sri Lanka (DCPSL) states that there has been improvement in the household ownership of computers in Sri Lanka from the year 2004 - 2009. The CLS mentioned that *at least one computer is available in one out of every ten households on average in Sri Lanka*. This shows that the usage of computers by the citizen is increasing continuously which is a good sign that the usage of e-Government services by citizen may increase.

In addition to the increase in the household ownership of computers in Sri Lanka, it can be seen from the survey done by the DCPSL that the Computer Literacy (“*if a person could use computer on his or her own, he or she is considered as a computer literate person*” (CLS, 2009)) of Sri Lankan citizen as of year 2009 as 20.3% which had been 16.1% in the year 2006/2007 period; this gives us a hint that a good amount of the citizens of this country could adopt e-Government services in Sri Lanka. According to UN E-Government Survey 2012, Asian countries continue expanding e-Government services by making investments to expand infrastructure, including support for broadband and mobile access. In 2012, out of the top 20 world e-government leaders, three were from Asia; Republic of Korea, Singapore and Japan. Regionally compared, Asia as a whole has a higher level of e-Government than the rest of the world. In 2012, Sri Lanka secured 115th place in World e-Government Development Ranking, however it was in 111th place in the year 2010 (UN E-Government Survey, 2012); though Sri Lanka performs better than some other big countries in the region.

There have been a number of studies which try to identify the citizens' adoption of e-government in developed countries but studies that try to identify the adoption factors in developing countries are a few (AlShihi, 2006). After a good review of published researches on citizens' adoption of e-Government, it was found that there aren't any researches that study the citizens' adoption e-Government in Sri Lankan context available. Therefore, there exists an unfilled gap in the research work which tries to identify the factors influencing the citizens' adoption of e-Government services in Sri Lankan context. This study aims to address this vital issue by identifying the factors influencing citizens' intention to adopt e-Government services in Sri Lankan context.

3. Theoretical Framework and Research Model

Many researchers have adopted, modified and validated many theoretical models to understand and predict acceptance of technology and its usage (Venkatesh *et al.*, 2003). There are eight such models as the Theory of

Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Theory of Planned Behaviour (TPB), the combined TAM-TPB, the Motivational Model (MM), Diffusion of Innovation (DOI), the Model of PC Utilization and the Social Cognitive Theory (SCT). Venkatesh *et al.* (2003) argued that researchers chose a certain model which they favoured and used it by ignoring the contributing factors from other alternative models therefore Venkatesh *et al.* (2003) reviewed those eight acceptance models and integrated elements found in them; the result of this review is the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh *et al.*, 2003). Some of the above models are considered to be the most robust and significant to describe Information Technology (IT) and Information System (IS) adoption behaviour (ibid).

This study used the UTAUT model devised by Venkatesh *et al.* (2003) and made a few modifications to answer the research question and fit to Sri Lankan context. The model was developed by them to present a more complete representation of technology acceptance models which had been in use previously, by synthesizing them (AlAwadhi and Morris, 2008). Despite the fact that this model is relatively new, in technology adoption studies in different contexts, the suitability, validity and the reliability of this model has been proven (Lin *et al.*, 2004).

This research is proposing an amendment in the UTAUT model originally proposed by Venkatesh *et al.* (2003) in order to fit it to the adoption of e-Government in Sri Lankan context. According to the amended model, it is hypothesized that Performance Expectancy, Effort Expectancy and Social Influence are significantly influencing the Behavioural Intention of the citizens and Behavioural Intention and Facilitating Conditions are significantly influencing the Use Behaviour of the citizens, see Figure 1. They are elaborated next.

- **Performance Expectancy (PE):** “the degree to which an individual believes that using the system will help him or her to attain gains in job performance” (Venkatesh *et al.*, 2003). This research will measure the PE with the perception of using e-Government services by means of benefits such as time being saved, less money being spent and less effort needed, communication with the government being eased, quality improvement in government services, and provision of equal opportunity to conduct their affairs with the government (AlAwadhi and Morris, 2008).
- **Effort Expectancy (EE):** “the degree of ease associated with the use of the system” (Venkatesh *et al.*, 2003). This research will measure the EE with the perception of using the e-Government services with ease and the easiness in learning how to use e-Government services (AlAwadhi and Morris, 2008).
- **Social Influence (SI):** “the degree to which an individual perceives important that others believe he or she should use the new system” (Venkatesh *et al.*, 2003). It is the degree to which peers influence the use of a system (Al-Shafi and Weerakkody 2010). This research will measure the SI with the assumption that citizens’ Behavioural Intention to adopt the e-Government services is influenced by positive references by their social links.
- **Facilitating Conditions (FC):** “the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system” (Venkatesh *et al.*, 2003). This research will measure the FC by having the assumption resources required to use the e-Government services and having necessary knowledge to use e-Government services influence citizens’ use behaviour.
- **Behavioural Intention (BI):** “the person’s subjective probability that he or she will perform the behaviour in question” (Venkatesh *et al.*, 2003). This research will measure the BI by Intention, Prediction and Use of e-Government services.

From the aforementioned theory and the research model shown in Figure 1, the following hypotheses have been developed:

- **H1:** There will be a positively significant relationship between Performance Expectancy and Behavioural Intention to use e-Government services.
- **H2:** There will be a positively significant relationship between Effort Expectancy and Behavioural Intention to use e-Government services.
- **H3:** There will be a positively significant relationship between Social Influence and Behavioural Intention to use e-Government services.
- **H4:** There will be a positively significant relationship between Behavioural Intention and Use Behaviour of e-Government services.
- **H5:** There will be a positively significant relationship between Facilitating Conditions and Use Behaviour of e-Government services.

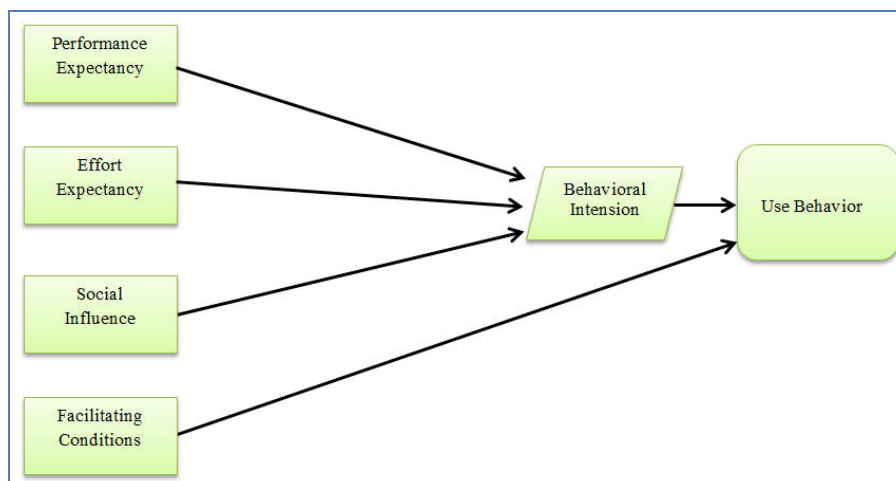


Figure 1: The Research Model

4. Methodology

The research study employed is quantitative study based on questionnaire survey. According to Bernard and Bernard (2012), a quantitative analysis allows for the classifying of features, counting them, and constructing more complex statistical models in an attempt to explain what is observed, findings can be generalised to a larger population, since quantitative data is in numerical form it allows researchers to analyse more easily, provides high level of accuracy and also allows to present analysis graphically. This study focused the individual as the unit of analysis; the Sri Lankan citizens who use Internet with or without experience in using e-Government services in Sri Lanka. According to the DCPSL, the population of Sri Lanka in the year 2012 was over 20.26 million. The Internet users were more than 3.2 million (Internet World Stats, 2013). Since there was no sampling frame or complete list of Internet users available which could be used as a guide for taking sample, the respondents of the study were the Internet users who were voluntarily willing to fill up questionnaire which was e-mailed using an online survey, Google Docs, and those who filled up printed questionnaire during the period of data collection, thereby making the sampling technique to be non-probability; convenient sampling. According to Hair *et al.* (1998) as cited by Rehman *et al.* (2012), “each independent variable is expected to have ten data records”; since this study had four independent variables, 40 respondents would have sufficed however the sample size was targeted to be around 500 because “sample sizes larger than 30 and less than 500 are appropriate for most research” (Sekaran and Bougie, 2010). According to Arnold (1990), achieving a statistical power of at least 95% is common in social science researches. Using the formula provided by Yamane (1967) and bearing a confidence level of 95% and 5% for margin of error, the appropriate sample size for this study was determined to be 400.

5. Analysis and Findings

5.1 Response Rate and Respondents' Profile

The survey questionnaire was distributed in two modes; printed hardcopies and online form. Printed copies were distributed to 300 citizens. The Uniform Resource Locator of the online form was emailed to more than 500 recipients personally, published on Facebook, and also was published on the researcher's personal blog (<http://sabraz.wordpress.com>) for students to access. A total of 428 responses, including both printed questionnaires and online responses, were received out of which 229 were printed and 199 were online responses. According to Wimmer and Dominick (2010) as cited by Boone (2012), typical response rates for internet surveys range from 1% - 30%. Therefore for the emailed questionnaire which numbered a little above 500 recipients, 39.8% (199) is a good response rate. Out of the 428 questionnaires, 09 were discarded because of incompleteness of the responses. Questionnaires with less than 30% responses can be discarded (Sekaran and Bougie, 2010); hence making 419 responses usable. The demographic backgrounds of the 419 usable respondents are as follows:

Respondents' Gender: Relating to the respondents' gender, 190 (45%) of the responders were male while 229 (55%) of them were female.

Respondents' Age: In terms of age, the results revealed that the largest percentage (66.3%) of respondents was in the age group of 20 – 25 and the age group of 31 - 40 constituted 17.4% of the total respondents. The age group of 26-30 shared 9.5% and 2.9% of the respondents were in the Below 20 age group, while the age groups 41 - 50 and 51 - 60 shared 2.6% and 1.2% of the total respondents respectively.

Respondents' Educational Qualifications: In terms of the educational qualifications, majority of the respondents are Undergraduates which is 34.6% of the total 419 respondents, 21.2% of them hold Postgraduate Diploma or Master's degree, Graduates share 18.4% of the total respondents, 3.6% of them possess qualification of G.C.E (A/L) or Below, 9.1% of the respondents are Doctors of Philosophy, while 13.1% of them don't fall under any of the above categories.

Respondents' Internet Experience: In terms of Internet Experience the results revealed that 27.4% of the respondents had less than 01 year experience in Internet, 22.2% had 01 – 03 years' experience, 21.7% of them had 06 – 09 years of experience, 20% of respondents had more than 09 years' experience, and meanwhile 8.6% of the respondents had 03 – 06 years' experience.

Respondents' Internet Usage Frequency: In terms of the Internet usage, majority (46.3%) of the respondents were found to be using the Internet daily, 125 of them (29.8%) used it two or three times per week, 13.1% (55) of the respondents used Internet once a week, 20 respondents used it two or three times a month, 2.1% (09) of the respondents were found to be using the Internet once a month meanwhile 3.8% (16) of the respondents used it less than once per month.

Respondents' Internet Proficiency: In terms of the Internet proficiency, majority (44.4%) of the respondents rated Good, 22.2% of them rated as Fair, 20% of the respondents rated as Very Good, 8.6% of them had Excellent level of proficiency, meanwhile 4.8% of them rated themselves to be Poor in Internet.

5.2 Instrument Reliability

The results of the Reliability test are shown in Table 1. The values show that the constructs achieved between High and High Moderate Reliabilities, according to Hinton's cut-off points of reliability. The high Cronbach's alpha values means that constructs were internally consistent and the reliability of the same construct is measured (Field, 2009) and the alpha values indicated that the study's instrument and data were reliable.

Table 1: Reliability of Measurements

Scale	N of Items	Cronbach's Alpha	Type
Performance Expectancy	7	0.697	High Moderate Reliability
Effort Expectancy	6	0.647	High Moderate Reliability
Social Influence	2	0.776	High Reliability
Facilitating Conditions	7	0.777	High Reliability
Behavioural Intention	2	0.707	High Reliability

5.3 Regression Analysis

5.3.1 Relationship between Performance Expectancy (PE) and Behavioural Intention (BI)

In an attempt to examine the relationship between Performance Expectancy and Behavioural Intention, this study performed correlation and regression analysis.

According to the Table 2, there was a significantly strong correlation between Performance Expectancy and Behavioural Intention, $r = 0.86$, $p < 0.001$. The coefficient of determination of the contribution of Performance Expectancy to Behavioural Intention, the R^2 , value from Table 2 which is 0.745 (Adjusted R^2 .744) indicates a shared variation of about 75% between Performance Expectancy data and Behavioural Intention data. That is, approximately 75% of the variances in Behavioural Intention can be accounted for by knowledge of Performance Expectancy.

Table 2: Performance Expectancy and Behavioural Intention: Model Summary

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.863 ^a	.745	.744	.536	.745	713.548	1	244	.000

a. Predictors: (Constant), PE

5.3.2 Relationship between Effort Expectancy (EE) and Behavioural Intention (BI)

To realize the relationship between Effort Expectancy and Behavioural Intention, this study performed correlation and regression analysis. According to the Table 3, there was a significantly moderate correlation between Effort Expectancy and Behavioural Intention, $r = .484$, $p < 0.001$.

Table 3: Effort Expectancy and Behavioural Intention: Model Summary

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.484 ^a	.234	.232	.94850738	.234	106.514	1	348	.000

a. Predictors: (Constant), EE

The coefficient of determination of the contribution of Effort Expectancy to Behavioural Intention, the R^2 , value from Table 3 which is 0.234 (Adjusted R^2 .232) indicates a shared variation of about 23% between Performance Expectancy data and Behavioural Intention data. That is, approximately 23% of the variances in Behavioural Intention can be accounted for by knowledge of Effort Expectancy.

5.3.3 Relationship between Social Influence (SI) and Behavioural Intention (BI)

To realize the relationship between Social Influence and Behavioural Intention, this study performed correlation and regression analysis. According to the Table 4, there was a significantly strong correlation between Social Influence and Behavioural Intention, $r = .605$, $p < 0.001$.

Table 4: Social Influence and Behavioural Intention: Model Summary

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.605 ^a	.366	.364	.83284403	.366	220.371	1	382	.000

a. Predictors: (Constant), SI

The coefficient of determination of the contribution of Social Influence to Behavioural Intention, the R^2 , value from Table 4 which was 0.366 (Adjusted R^2 .364) indicated a shared variation of about 37% between Social Influence data and Behavioural Intention data. That is, approximately 37% of the variances in Behavioural Intention can be accounted for by knowledge of Social Influence.

5.3.4 Relationship between Behavioural Intention (BI) and Use Behaviour (UB)

A logistic regression analysis was conducted with e-Government Use Behaviour as the dependent variable and Behavioural Intention as the predictor variable. The full model was considered to be significantly reliable with $p < 0.001$, Table 5.

This model accounted for 57.4% of the variance in e-Government Use Behaviour, Table 6.

Table 5: Omnibus Tests of Model Coefficients: Behavioural Intention and Use Behaviour

		Chi-square	df	Sig.
Step 1	Step	145.006	1	.000
	Block	145.006	1	.000
	Model	145.006	1	.000

Table 6: Model Summary: Behavioural Intention and Use Behaviour

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	153.273 ^a	.293	.574

a. Estimation terminated at iteration number 8 because parameter estimates changed by less than .001.

According to the Table 7, we have a significant value above greater than 0.05 (for this Hosmer and Lemeshow Test, p-value has to be greater than 0.05) which means we have a good model.

Table 7: Hosmer and Lemeshow Test: Behavioural Intention and Use Behaviour

Step	Chi-square	df	Sig.
1	.965	5	.965

According to the Classification Table (Table 8) this model predicted 91.2% of the categories therefore more than 91% of the outcome was correctly predicted by the model. The Variables in the Equation table, Table 9, describes the coefficient, Wald statistics, associated degrees of freedom and probability values for all of the predictor variables.

Table 8: Classification Table: Behavioural Intention and Use Behaviour

Observed			Predicted		
			eGovUse		Percentage Correct
			No	Yes	
Step 1	eGovUse	No	341	30	91.9
		Yes	7	41	85.4
Overall Percentage					91.2

a. The cut value is .500

The table shows that Behavioural Intention reliably predicted e-Government Usage Behaviour; with a unit increase in Behavioural Intention will increase 3.446 unit of Use Behaviour. The coefficient values expose an increase in Behavioural Intention score associated with an increase in the odds ($Exp(B)$) of e-Government Usage by a factor of 31.4.

Table 9: Variables in the Equation: Behavioural Intention and Use Behaviour

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	BI	3.446	.451	58.324	1	.000	31.366
	Constant	-4.757	.582	66.720	1	.000	.009

a. Variable(s) entered on step 1: BI.

5.3.5 Relationship between Facilitating Conditions (FC) and Use Behaviour (UB)

A logistic regression analysis was conducted with e-Government Use Behaviour as the dependent variable and Facilitating Conditions as the predictor variable. The full model was considered to be insignificant since the p-value is greater than 0.05, Table 10.

The Variables in the Equation table, Table 11, describes the coefficient, Wald statistics, associated degrees of freedom and probability values for all of the predictor variables. The

Table 10: Omnibus Tests of Model Coefficients: Facilitating Conditions and Use Behaviour

		Chi-square	df	Sig.
Step 1	Step	.839	1	.360
	Block	.839	1	.360
	Model	.839	1	.360

The table shows that Facilitating Conditions did not predict e-Government Usage Behaviour. The Sig. value is greater than 0.05 and the prediction is insignificant.

Table 11: Variables in the Equation: Facilitating Conditions and Use Behaviour

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	FC	-.360	.391	.847	1	.357	.698
	Constant	-3.283	.291	127.451	1	.000	.038

a. Variable(s) entered on step 1: FC.

5.4 Response to Hypotheses

The Table 12 summarizes the numbers of the hypotheses developed and shows whether these research hypotheses are supported or not. The table demonstrates a total of hypotheses that were tested to examine whether the independent variables significantly explained the dependent variables.

Table 12: Summary of Hypotheses

No.	Research Hypotheses	Results
H1:	There will be a positively significant relationship between Performance Expectancy and Behavioural Intention to use e-Government services.	Supported
H2:	There will be a positively significant relationship between Effort Expectancy and Behavioural Intention to use e-Government services.	Supported
H3:	There will be a positively significant relationship between Social Influence and Behavioural Intention to use e-Government services.	Supported
H4:	There will be a positively significant relationship between Behavioural Intention and Use Behaviour of e-Government services.	Supported
H5:	There will be a positively significant relationship between Facilitating Conditions and Use Behaviour of e-Government services.	Not Supported

6. Conclusions and Recommendations

This section discusses the outcomes of the study by explaining the nature of each constructs and makes recommendations to the policy makers and government officials and goes on to express the limitations in the study and suggests areas for future researches.

- **Performance Expectancy:** consists of perceived usefulness (TAM/TAM2 and C-TAM-TPB), extrinsic motivation (MM), job-fit (MPCU), relative advantage (IDT) and outcomes expectations (SCT), and these are employed as a single dimensional construct which is directly related to Behavioural Intention. Findings from this study provide evidence that the performance expectancy factor had significant influence on the behavioural intention to adopt e-government systems. The survey findings are consistent with the UTAUT model and is in agreement with AlAwadhi and Morris (2008) in Kuwait; Al-Shafi and Weerakkody (2010) in Qatar; Ahmad et al (2012) in Pakistan; Nawaz and Thelijjagoda (2013) in Sri Lanka. This clearly suggests that if the citizens realize the benefits in their performance gained from e-Government services, more of them will adopt the system. Therefore, for e-Government services to be accepted by the public, it would be necessary to demonstrate the advantages and benefits they are likely to provide for users.
- **Effort Expectancy:** If the effort expectancy factor toward e-Government adoption of Behavioural Intention factor is positive, then citizens are likely to perform online activities (Venkatesh *et al.*, 2003). This

theoretical assumption is confirmed in the survey findings that are obtained in this research which suggest that the Effort Expectancy factor has a significant positive influence on the Behavioural Intention to adopt e-Government, this is in alignment with AlAwadhi and Morris (2008) in Kuwait; Al-Shafi and Weerakkody (2010) in Qatar; Ahmad *et al.* (2012) in Pakistan; Nawaz and Thelijjagoda (2013) in Sri Lanka. The survey findings are consistent with the UTAUT model as well, which suggests that the presence of constraints might inhibit the Behavioural Intention to adopt e-government (Venkatesh *et al.*, 2003). This also suggests that there is a need to equip citizens with the skills to use computers, the internet, and the e-Government system. The statistically significant influence of effort expectancy suggests that respondents are apt to use e-Government services when they are easy to use enabling them to have more time for other activities. The government should pay attention on making the web-applications easy to use and user friendly. For this the ICTA can get feedback from registered users about the experience they had with the e-Government system's applications and collect constructive suggestions to come out with improved features.

- **Social Influence:** Awareness messages that are produced and gained via mass media, such as television and newspapers, are considered to have an effect that is likely to influence citizens' Intentions to adopt or refuse technology. In terms of this research, Social Influence has a positive influence on explaining citizens' Behavioural Intention to adopt e-Government services, this is also in agreement with AlAwadhi and Morris (2008) in Kuwait; Al-Shafi and Weerakkody (2010) in Qatar; Ahmad *et al.* (2012) in Pakistan; Nawaz and Thelijjagoda (2013) in Sri Lanka. This suggests that Social Influence becomes more significant and important when individuals have limited experience of online services. Thus, governments should encourage citizens to influence their family and relatives who have still not adopted the e-Government system. Moreover, advertisements and awareness campaigns on television, newspapers and government agencies websites are more likely to convince the citizens to adopt e-Government systems. Therefore, it is essential that government bodies ensure that users have a positive experience while using the e-services as their experience might influence their peers and other people important to them.
- **Facilitating Conditions:** Considered to be directly related to Usage Behaviour (Venkatesh *et al.*, 2003). The inclusion of the aspects of technological environment directly adds to this relation. Therefore, it is expected that if these Facilitating Conditions are perceived as high, then e-Government adoption will be high. In contrast to the theoretical bases (e.g. Venkatesh *et al.*, 2003), the findings of this study suggest that the Facilitating Conditions is considered as an insignificant predictor to the actual Use Behaviour of the e-Government system in Sri Lanka, this is in agreement with Al-Shafi and Weerakkody (2010) in Qatar; Ahmad *et al.* (2012) in Pakistan. However the result is not in agreement with AlAwadhi and Morris (2008) in Kuwait. This might be due to availability and accessibility facilities. This may be to reasons that mobile phone companies have come out with Internet service packages which are very cheaper when compared with the past. Telecom also has come out with different Internet packages for different user groups. Prices of computing devices have come down gradually. New and innovatively designed smart phones are available at very affordable prices, Internet cafés and net browsing centres have mushroomed in nooks and corners of the country. During the post-Tsunami recovery and post-war development efforts, most part of the country has been covered by mobile operators. Universities, educational institutions and almost all working places are very well-equipped computing devices and they are networked. Also short courses and training programmes on how to use Internet are conducted at Nenasalas frequently. Therefore, Facilitating Conditions have not been a depriving factor for the intention and use of e-Government services in Sri Lanka.
- **Behavioural Intention:** Venkatesh *et al.*, (2003) suggest that Behaviour Intention affects the adoption and technology usage significantly and positively and the finding of this study also is in agreement with that; any increase in Behavioural Intention has a positive influence on the e-Government Usage Behaviour. This is also in agreement with AlAwadhi and Morris (2008) in Kuwait; Al-Shafi and Weerakkody (2010) in Qatar; Ahmad *et al.* (2012) in Pakistan; Nawaz and Thelijjagoda (2013) in Sri Lanka. This suggests that the necessary resources and information and continuous support need to be provided to encourage citizens to use services that are compatible with their lifestyle. Although researches exist that explore citizen adoption of e-Government services in many countries, the author argues that currently there are no published studies that examine citizens' adoption of e-Government in Sri Lanka. The full potential of e-Government services is unlikely to be realised without substantial citizen adoption of such services and their participation in such initiatives. In this context, the outcome of this research has extended the boundaries of knowledge in the area of e-Government adoption by making a valuable contribution to adoption literature; this study has contributed to the conceptual aspects of e-Government by means of identifying the key factors influencing

citizens' intention and use behaviour of e-Government services and deriving a refined conceptual model which can be used as a frame of reference by researchers, policy makers and other government officials.

6.1 Recommendations

The current study has both theoretical and practical implications for researchers, policy makers, government and government agencies, and public officials in general. The e-Government literature has emphasized the fact that citizens who use e-Government will benefit from the services and consequently they will be encouraged to adopt e-Government as a regular method of accessing and interacting with public services. Empirically, this research has shown that if e-Government provides more benefits to its citizens by means of convenient access and prompt services, when compared to the traditional methods, then possibly this practice might spread the use of e-Government services throughout the Sri Lanka.

- The full potential of electronic government services is unlikely to be realised without substantial citizen adoption of such services and their participation in such initiatives. The Sri Lankan government has to make efforts on e-Government development and diffusion with the major objectives of promoting, developing and spreading citizen centric online services for efficient delivery of public services.
- From a user adoption perspective, a number of factors were identified from the existing literature and considered important for understanding citizens' decisions for adopting e-Government services. Therefore, well-coordinated efforts are needed from the policy makers to ensure that user friendly, accessible, transparent and valuable online services are provided to the citizens.
- In order to raise awareness of e-Government services in Sri Lanka, advertisements and promotions about the Sri Lankan e-Government website have to be made and setting up citizen service centres to assist those who have less computer skills to adopt e-Government services are needed, for this the Nenasalas can be used, upgraded and extended.
- School children in Grade 10, G.C.E (Ordinary Level) and G.C.E (Advanced Level) should be given awareness about the e-Government services.
- Another strategy that the government can implement to make citizens to rapidly adopt of e-Government services is to advise Department of Examinations (DoE) to publish results of Grade-5, G.C.E (Ordinary Level), G.C.E (Advanced Level) and competitive examination such as Sri Lanka Administration Service, Sri Lanka Planning Service conducted by DoE on the Sri Lankan Government portal only. Since the DoE publishes these results on their own website and allows mobile phone operators to publish such results, students and their parents (or guardians) never visit the e-Government portal of the country. This move can be implemented for a period of five years to make the citizens very much aware of these services.
- The government can take measures in collaboration with credit card issuing banks and Ceylon Water Board (CWB) to provide subsidiaries or any incentives for CWB users who possess credit cards to make their bill payments via e-Government portal.
- A dedicated team from the ICTA, which is the implementing body of these e-Government services, should be conducting awareness programme in universities and Higher Education institution since these are the educational institutions that produce future leaders and high performing citizens. If the passing out graduates are well aware of these e-Government services, they will be promising adopters of e-Government services, because each year thousands of graduates are taken into university systems and pass out from such institutions.
- Government servants have to be made aware of the e-Government services, millions of government employees are in Sri Lanka; if the government focus on this group then there will be millions of adopters within a short span of time.

One has to recognize the fact that although the findings in this research are encouraging, e-Government has yet to mature in Sri Lanka. Some of the reasons for this can be attributed to the fact that citizens are still not fully aware of e-Government services. In this respect, it can be concluded that in order to diffuse e-Government services in Sri Lanka successfully, the government will need to understand citizens' needs, their perception on relative advantage, ease of using the services and lifestyle, and subsequently use this knowledge to develop citizen centric electronic services.

6.2 Limitations

As with any research that deals with new technology adoption, this research has also encountered some limitations. One limitation for this research study has been the time factor. While research had to be completed within a reasonable time, one year, if more time had been available for the research work, making the study longitudinal, the level of detail obtained would have been greater. This research was conducted with only on adoption side; if implementation had been included it would have been more comprehensive. Non availability of population frame; thereby making the sampling to be non-probability sampling. If the list of Internet users had been available, the researcher would have selected a more representative sample. Some limitations were also faced during the data collections, as less availability of email addresses, social-network websites such as Facebook is blocked in universities in private companies thereby making the questionnaire published on those sites to be less-accessed.

Research can usually be further developed and this study is not an exception for that. However, there are some areas that relate to this research which need to be investigated and explored further. They are as follow:

- This study used the UTAUT model for the e-Government adoption in Sri Lanka. The UTAUT model contains five determinants of Use Behaviour and these include Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions and Behavioural Intention. In this study the focus was on these determinants of behavioural intention to adopt e-Government and e-Government adoption Behaviour. A further recommendation is to explore adoption factors such as Culture and Trust that might affect the citizens' intention to adopt e-Government in Sri Lanka.
- E-Government implementation can be studied. The author proposes that these can be studied and may lead to an exploration of challenges facing e-Government implementation.
- Another area of future research could be to examine the impact of implementing e-Government.
- This study focused in the area of citizens' adoption of e-Government by testing the UTAUT model in Sri Lankan context. Future research can focus on extending this study to neighbouring countries and draw comparative analysis of e-Government adoption.

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