Research Proposal

“EVALUATING THE ADOPTION OF E-GOVERNMENT IN SRI LANKA: A CITIZENS’ PERSPECTIVE”

Submitted By:
S. Sabraz Nawaz
PGM-IS-12-0007
MSc in Information Systems

Supervisor in Charge:
Dr. Samantha Thelijjagoda
Senior Lecturer (Higher Grade)
Department of Information Management
Sri Lanka Institute of Information Technology
Sri Lanka
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Abbreviations

CEO - Chief Executive Officer
CLS - Computer Literacy Survey
DCPSL - Department of Census and Population of Sri Lanka
DOI - Diffusion of Innovation
E-Government - Electronic Government
G2B - Government to Business
G2C - Government to Citizen
G2E - Government to Employees
G2G - Government to Government
ICT - Information and Communication Technologies (ICT)
ICTA - Information and Communication Technology Agency
IS – Information Systems
IT – Information Technology
MM - Motivational Model
SCT - Social Cognitive Theory
TAM - Technology Acceptance Model
TAM2 - Technology Acceptance Model 2
TPB - Theory of Planned Behavior
TRA - Theory of Reasoned Action (TRA)
UN – United Nations
UTAUT - Unified Theory of Acceptance and Use of Technology
1. Abstract

Electronic Government (E-Government), which in simplified words is the usage of Information and Communication Technology to conduct information sharing and to do various types of transaction with citizens, businesses, and other government agencies, is one of the outcomes of rapidly growing technology development. E-Government projects have been successfully implemented and adopted in many countries worldwide. Sri Lanka, one of the developing countries, has also been transitioning itself into this e-Government structure. The success of such effort not only depends on the support of the government side but on the citizens’ willingness to adopt these services also a dominant factor (Rehman et al., 2012). For developed countries, there have been many researches done to identify the citizens’ adoption factors of e-Government but for developing countries such researches are less and for Sri Lanka, where the citizens’ adoption of e-Government services is very low, there is none and this research is aimed at addressing this gap. Among the available technology adoption models such as Technology Acceptance Model (TAM), Technology Acceptance Model 2 (TAM2), Diffusion of Innovation (DOI), etc., this study is to choose Unified Theory of Acceptance and Use of Technology (UTAUT) model to explore the factors that influence citizens’ adoption of e-Government in Sri Lanka. This research is significant in many aspects and will contribute to the development of Sri Lanka by way of supporting e-Government policy makers.

2. Research Topic

Evaluating the Adoption of E-Government in Sri Lanka: A Citizens’ Perspective

3. Introduction

Governments in many countries have been confronting difficulties such as bureaucracy in systems, decision making processes are centralized, redundancy leading to complexity in the public sector, 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 e-Government (Akman et al., 2005; Karunasena et al., 2011). Since the concept of e-Government is emerging, governments around the world have understood the importance of
providing their services efficiently. It is apparent that citizens have been becoming proficient with Internet technologies and enjoying better e-Services from private sector and they expect the same from government sector as well (Shafi and Weerakkody, 2009). E-Government tries to match the private sector by delivering efficient and transparent services to businesses as well as citizens but, despite the fact that positive outputs of the e-Government services are available in documents, the rolling out as well as adoption of these concepts are in low level in developed and developing countries (Shafi and Weerakkody, 2009).

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 but 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. According to Shafi and Weerakkody (2009), many governments fail to realize the fact that user’s perceptions and expectations of efficiency, ease of use, awareness, security, trust, legislation, availability, and accessibility of e-Government services are different from other service providers. They argue that these factors give rise to increasing gap between e-Government implementation and its adoption by citizens resulting in unsatisfactory adoption rates, poor return on investments, etc. for the government.

4. E-Government in Sri Lanka

Countries have “put in place e-Government initiatives and ICT applications for the people to further enhance public sector efficiencies and streamline government systems to support sustainable development” (United Nations (UN) E-Government Survey, 2012).

The launching of Lanka Gate, the official portal (www.lk or srilanka.lk) of Sri Lanka, on the Internet was the 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 (Jaeger and Thompson, 2003; Akman et al., 2005; Karunasena et al., 2011) to the citizen of Sri Lanka. The Government Organizations Visitors Survey of ICTA (2011) identifies the following as the benefits for citizens of Sri Lanka:

- Reducing Burden: administrative simplification; providing higher valued and faster services; saving time and money and improving equity
- Increasing User Satisfaction: 24/7 service; improving personalization and service quality; improving access and equity; addressing security and privacy concerns; transparency and choice
- Supporting Growth: improving the business environment; creating an information society; establishing an infrastructure for secure and reliable transactions

The Computer Literacy Survey (CLS) – 2009, which is the latest statistics available as of January 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. The Table 1 summarizes percentage of computer owned households by provinces.

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 is 20.3% which was 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. The Table 2 summarizes the computer literacy rates of Sri Lankan citizens.
### Table 1: Computers owned by households by Province, Source: CLS, 2009

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Desktop (%)</th>
<th>Desktop or Laptop (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2004</td>
<td>2006/07</td>
</tr>
<tr>
<td>Western</td>
<td>8.4</td>
<td>16.4</td>
</tr>
<tr>
<td>Central</td>
<td>3.3</td>
<td>6.7</td>
</tr>
<tr>
<td>Southern</td>
<td>2.2</td>
<td>4.9</td>
</tr>
<tr>
<td>Eastern</td>
<td>1.2</td>
<td>3.7</td>
</tr>
<tr>
<td>North-Western</td>
<td>3.1</td>
<td>4.8</td>
</tr>
<tr>
<td>North-Central</td>
<td>1.4</td>
<td>2.7</td>
</tr>
<tr>
<td>Uva</td>
<td>0.4</td>
<td>2.7</td>
</tr>
<tr>
<td>Sabaragamuwa</td>
<td>2.0</td>
<td>3.3</td>
</tr>
<tr>
<td>Northern</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Table 2: Computer Literacy of households (aged 5-69) by Province – 2009, Source: CLS, 2009

<table>
<thead>
<tr>
<th>Category</th>
<th>Computer Literacy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2006/2007</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>16.1</td>
</tr>
<tr>
<td>Provinces</td>
<td></td>
</tr>
<tr>
<td>Western</td>
<td>23.2</td>
</tr>
<tr>
<td>Central</td>
<td>14.8</td>
</tr>
<tr>
<td>Southern</td>
<td>15.6</td>
</tr>
<tr>
<td>Eastern</td>
<td>11.4</td>
</tr>
<tr>
<td>North-Western</td>
<td>12.6</td>
</tr>
<tr>
<td>North-Central</td>
<td>8.9</td>
</tr>
<tr>
<td>Uva</td>
<td>9.9</td>
</tr>
<tr>
<td>Sabaragamuwa</td>
<td>12.3</td>
</tr>
<tr>
<td>Northern</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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 are 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, but 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. Table 3 shows world ranks of Southern Asian countries.

<table>
<thead>
<tr>
<th>Countries</th>
<th>World e-Gov. Development Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2012</td>
</tr>
<tr>
<td>Maldives</td>
<td>95</td>
</tr>
<tr>
<td>Iran (Islamic Republic of)</td>
<td>100</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>115</td>
</tr>
<tr>
<td>India</td>
<td>125</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>150</td>
</tr>
<tr>
<td>Bhutan</td>
<td>152</td>
</tr>
<tr>
<td>Pakistan</td>
<td>156</td>
</tr>
<tr>
<td>Nepal</td>
<td>164</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>184</td>
</tr>
</tbody>
</table>

Table 3: E-Government Development in Southern Asia

Sri Lanka which had been under the bad hands of three decade old civil war was successfully rescued recently and is trying to regain the lost time and opportunities by embarking on comprehensive development roadmaps; the most recent one is the ‘Mahinda Chinthana’; the strategic plan of His Excellency The President Mahinda Rajapaksha, which places greater emphasis on rural development. ICT has formed an integral and increasingly prominent part of these national plans.

Chief Executive Officer (CEO) of Information and Communication Technology Agency of Sri Lanka (ICTA) Reshan Dewapura (The Island, 2012) claimed that “We are strongly entrenched in the belief, that ICT is the future driving force of socio-economic development and that ICT led Government transformation, will be the key in delivering efficient citizen services”. Michael Tiemann (2006), Vice President of Red Hat conveyed that “Sri Lanka has, in my estimation, one of the most mature and robust e-governance initiatives of any of the countries I have visited to date”.

Among Southern Asian countries, Sri Lanka is in 3rd place for the last six years but as for the global rank, the country’s position is decreasing continuously meanwhile this is in contrary to the number of Internet users in the country. Internet World Stats
(2013) cited based on International Telecommunication Union’s *Internet Usage and Population Statistics*, Internet users in Sri Lanka was 428,000 in the year 2007 and it grew to 1,776,200 in 2010 and Internet World Stats’ (2013) the *Asia Internet Use, Population Data and Facebook Statistics* mentioned that Internet users in Sri Lanka on 30th June 2012 was 3,222,200 and Facebook users were 1,395,660 on 30th September 2012, which is a gradual increase during the years but, on contrary to the number of Internet users, it is a shocking fact that the number of users who have registered on www.srilanka.lk, the e-Government portal of Sri Lanka, is 18,262 as of 16th January 2013. The government of Sri Lanka has a political will for successfully implementing e-Government in Sri Lanka; this is implied by the efforts taken by the Sri Lankan government. Therefore, all the efforts taken by the government are yet to yield significant results for the development of e-Government in Sri Lanka.

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, 2005). After a good review of published researches on citizens’ adoption of e-Government, it is 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 that tries to identify the factors influencing the citizens’ adoption of e-Government services in Sri Lankan context.

Based on the above facts, a research on evaluating the adoption of e-Government in Sri Lanka is very much needed at this juncture because the success of e-Government implementation is not only dependent on government support but on citizens’ willingness to accept and adopt the e-Government services as well (Carter and Belanger, 2004). Therefore, for any e-Government effort to be successful, citizens’ willingness to adopt the system is considered vital.

Therefore, this research aims to address this vital issue by identifying the factors influencing citizens’ intention to adopt e-Government services in Sri Lankan context.
5. Research Problem

Governments implement e-government services because of a number of motivations; minimizing the opportunities for corruption in government (Kim et al., 2009; InfoDev, 2002), improving efficiency and reduce cost (Gupta et al., 2008), assuring citizens with better services (Davison et al., 2005), bringing all government agencies under one roof i.e. centralization (Gunasekaran and Ngai, 2008), development of the economy (Jaeger, 2003), exchange of information (Carter and Belanger, 2005), etc. and one of the most noticeable of them is to provide better services to citizens (Chircu and Lee, 2005).

Getting the maximum benefits from e-Government and making use of expanding opportunities for future improvement are the major issues in e-Government development and once established it has to be continuously monitored because improvements would be needed. (Al-Shafi and Weerakkody, 2009). Being not an exception, the introduction of e-Government in a country will also face many challenges like the introduction of new technology (Zakareya and Irani, 2005); therefore, meeting these challenges by incorporating winning strategies will be one of the major test for the government and citizens (Al-Shafi and Weerakkody, 2009).

Previous researches on e-Government have found many factors such as lack of awareness (Reffat, 2003) and access to e-Services (Chircu and Lee, 2005), lack of trust (InfoDev, 2002), security concerns (Harris and Schwartz (2000) as cited by Al-Shafi and Weerakkody, 2009), resistance to change (AlTameem et al., 2006), lack of skills (Okiy (2005) as cited by Al-Shafi and Weerakkody (2009)), digital divide (Carter and Belanger, 2005), lack of interest from citizens (Porter, 2002), lack of strategy and framework (Damodaran et al., 2005), etc. to be obstructing the implementation and adoption of e-Government endeavors in many countries.

The above extract from literature implies that the e-Government initiatives, despite the potential benefits from them, have been facing many challenges. Al-Shafi and Weerakkody, 2009 claim that many researchers have focused on finding out challenges on adoption of e-Government locally and only a small number of researchers have used well-founded theoretical models or frameworks to find out the important factors impacting the e-Government implementation and adoption. Many studies on e-Government focus on technical factors and complexities and a few only
critically evaluate the citizens’ adoption (Al-Shafi and Weerakkody, 2009) and for Sri Lanka there has been no such studies, to date, trying to figure out the important factors influencing the adoption of e-Government by citizens of Sri Lanka.

The above context offers the rationale and motivation for this research by unveiling the following problem to be solved;

“Why are the e-Government services in Sri Lanka less adopted by the citizens?”

6. Research Questions

Based on the above research problem, this study attempts to answer the following questions:

1. What are the factors influencing citizens’ adoption of e-Government services in Sri Lanka?
2. Is there any relationship between Performance Expectancy and Behavioural Intention to use e-Government services?
3. Is there any relationship between Effort Expectancy and Behavioural Intention to use e-Government services?
4. Is there any relationship between Social Influence and Behavioural Intention to use e-Government services?
5. Is there any relationship between Behavioural Intention and actual Use Behaviour of use e-Government services?
6. Is there any relationship between Facilitating Conditions and actual Use Behaviour of use e-Government services?
7. What is the most suitable technology adoption model that depicts the key factors influencing the citizens’ adoption of e-Government in Sri Lanka?

7. Objectives of the Study

The holistic aim of this study is to explore and investigate the key factors that influence the citizens’ adoption of e-Government in Sri Lanka. A conceptual model, based on the well-established UTAUT model will be formulated which can be used as the reference model by researchers and policy makers in Sri Lanka to understand the factors that influence citizens’ adoption of e-Government and to take accurate measures to stimulate or drive Sri Lankan citizens to adopt e-
Government services. To make this research aim true, the following objectives will be followed:

- To study the existing nature of e-Government and progress made so far in Sri Lanka.
- To empirically examine and explain the factors influencing citizens’ adoption of e-Government in Sri Lankan context.
- To develop and examine a conceptual model that depicts the main factors influencing the citizens’ adoption of e-Government services in Sri Lanka.
- To add to the body of knowledge on e-Government adoption in Sri Lanka so that government policy makers would be able to take these findings into their accounts when they make decision on improving citizens’ adoption of electronic service delivery channels rather than more traditional service delivery methods.

8. Literature Review

8.1 An overview of e-Government:

The ICT era has seen revolutions in each and every facets of human lifestyle; the way governments interacting with their citizens is also one of them. This new model of service delivery to and interaction with the citizens by governments is called Electronic Government. This is referred by different names in the literature; as “digital government”, inter-networked government” (Tapscott, 1995) or “e-government” or “e-Gov” – commonly called “e-government” (Guangwei Hu et al, 2009).

E-Government, in simplest terms, can be defined as “the provision of government information through the internet to citizens and businesses and among government agencies” (Jaeger and Thompson, 2003). More elaborative definition of e-Government is “the use of ICT and internet to enhance the access to and delivery of all facets of government services and operations for the benefits of its stakeholder groups which includes citizens, businesses, and government itself” (Teo and Srivastava, 2008).
E-Government, therefore, is the use of ICT tools and applications such as Internet etc. to offer government information and services to citizens, business, and other government agencies. According to Carter and Belanger (2004), the development of e-Government does not only means implementing an IT system but it also means the aim of improving delivery of services to the public, improve the access to government information and services, and increase the transparency and accountability of a government. Lee et al. (2005) claim that the e-Government has the potential of improving government-citizen relationship by means of facilitating and easing interaction between the government and citizen and making the interactions between the government agencies and citizens more efficient. But unfortunately many governments have been facing the problem of low adoption of e-Government services by the citizen (Belanger and Carter, 2008). Therefore the e-Government should not only be addressed in terms of technical point of view of implementation but also in terms of social and cultural perspectives of citizens’ adoption. Therefore, for any government to step forward with more strategic decisions of improving the availability of government services online, it is inevitable to understand the factors that motivate citizens to use e-Government services.

The intension of e-Government is to transform the government from hierarchical, less customer oriented and inefficient bureaucratic entity to a more efficient, customer-centric, system driven and more productive entity and the e-Government is a dynamic force that is to bring out paradigm shift in public management. E-Government brings about the administrative efficiency and make the decision making process rational therefore improves the internal characteristic of the government. By providing administrative services online, it improves the relationship between the government, the citizens and the businesses and therefore improves the external characteristic of the government (Chandraguptha, 2012). According to ICTA Sri Lanka, the objectives of e-Government are to provide more convenient and better services to the citizens, improve participation of citizens and businesses, use the social media to provide better services, develop better relationship with citizens and businesses, and improve governance. E-Government services are categorized into four types according to their stakeholders (Akman et al., 2005), they are:

- **Government to Citizen (G2C) Services:** An e-government dimension designed to facilitate citizen interaction with government. Here transactions,
such as renewing licenses and certifications, etc. are made. G2C initiatives enhance access to public information through the use of websites, etc.

- **Government to Business (G2B) Services:** An e-Government dimension where businesses undertake transactions with the government.

- **Government to Employees (G2E) Services:** An e-government dimension that cater only for government employees, such as the provision of human resource training, etc.

- **Government to Government (G2G) Services:** An e-government dimension that characterizes the networked nature of government. The services provided through this dimension take place at two levels: at the local or domestic level and at the international level.

Having rescued the country from thirty years old civil war, the government of Sri Lanka has been trying to make up the lost time by means of many development programmes. The government realized the need of leveraging the benefits of rapidly growing ICT and started to adopt latest technologies to improve the delivery of public information and services; the e-Srilanka project was launched by the government in the 2002 with generous support from major international funding agencies (Karunasena et al., 2011). The government of Sri Lanka seeks to bring up social and economic developments to improve the quality of life of the citizens of Sri Lanka (Hanna, 2007; Karunasena et al., 2011) and developed a vision: “To adopt ICT in all its aspects to make government more efficient and effective, improve access to government services, and create a more citizen centric government” (ICTA, 2009).

In order to coordinate and facilitate the implementation of the millions of dollars worthy e-Srilanka project, the Information and Communication Technology Agency (ICTA) was established in July 2003 (ICTA, 2009) and became the apex ICT institution of the Government, currently functioning within the purview of the Presidential Secretariat.

The Sri Lankan government has developed an e-Government policy to win the vision of incorporating ICT to make the government more efficient and more effective and to create a citizen centric government in Sri Lanka (Chandraguptha, 2012) and in order to achieve the vision, the e-Government policy addresses the many characteristics such as enabling legal environment, ICT management, intellectual property rights, human resource development, etc. that influence the success of
transforming the public service system from traditional one to e-Government. Some of the successful e-Government projects in Sri Lanka are (Chandraguptha, 2012; Lanka Gate, 2013):

- e-Revenue License Issuance
- Issuance of Examination Certificates
- View Last Issued Vehicle Number
- Online Water Bill Payments
- Viewing of EPF Account Balances
- Foreign Examination Results
- Mahaweli Reservoir Water Level Details
- Merchant Shipping Services
- Tea Price Enquiry, etc.

8.2 E-Government Adoption by Citizen

Acceptance by the user is a necessary requirement for any Information Technology (IT) project (Pinto and Mantel, 1990). According to Venkatesh and Morris (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. There have been many researches trying to study the adoption of e-Government in developed countries (Titah and Barki, 2006) but researches on the same for developing countries are minimal (AlShihi, 2005).

A good number of studies on the adoption of e-Government are mainly based on technology acceptance theories and models such as Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), Technology Acceptance Model (TAM) (Davis, 1989), Theory of Planned Behaviour (TPB) (Ajzen, 1991), Diffusion of Innovation (DOI) (Rogers, 1995), and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh and Morris, 2003), etc. The UTAUT provides valuable comprehensions and suggestions for understanding an individual’s intension of using e-Government services (AlAwadhi and Morris, 2008; Dadayan and Ferro, 2005; Huang et al., 2002)
In United States, a study was carried out by Carter and Belanger (2003) by surveying 140 university students to investigate the factors that influence adoption of the e-Government services by citizens. In this study the researchers used DOI model and the construct that they thought to be most relevant were relative advantage, ease of use, compatibility, and image. They found that higher the relative advantage, compatibility, and image; the more the citizens’ intention to adopt e-Government services (AlAwadhi and Morris, 2008).

Carter and Belanger (2004) did another study on citizens’ adoption of e-Government services. In the pilot study of their research they surveyed 140 undergraduates in the US using an integrated model incorporating constructs from DOI model, TAM model and Web Trust model. And they discovered that compatibility and perceived usefulness were significant in increasing citizens’ intention to adopt e-Government. For the main study of this research they surveyed a group of citizens aged from 14 to 83, and found that compatibility, ease of use, trustworthiness were significantly influencing the citizens’ intention to adopt e-Government. In this research, when the findings of the pilot study are compared with those of the main study, the factors influencing the citizens’ adoption of e-Government have differences; citizens’ demographic attributes also impacted the factors influencing citizens’ adoption (AlAwadhi and Morris, 2008).

One of the e-Government services in Taiwan is Online Tax Filing and Payment System. Chang et al. (2006) did a study on citizens’ acceptance of this system based on Theory of Planned Behavior 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) were 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 few. 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 (2005) 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; and a lack of trust and confidence by users and culture had little effect (AlShihi, 2005).

From the above review of literature, many factors such as perceived usefulness ease of use, compatibility, trustworthiness, Internet safety, image, 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.

In order to address this existing gap, the study aims to find out the factors that influence the citizens’ adoption of e-Government in Sri Lanka by doing a firsthand data collection and analysis using university students, Internet users, public as well as private sector employees, etc.

**8.3 Technology Adoption Theories**

Many researchers have adopted, modified, and validated many theoretical models to understand and predict acceptance of technology and its usage (Venkatesh et al., 2003). The models include the Theory of Reasoned Action (TRA), the Theory of
Planned Behavior (TPB), the Technology Acceptance Model (TAM), and the Diffusion of Innovation Theory (DOI). It was argued by Venkatesh et al. (2003) that researchers chose a certain model which they favored and used it by ignoring the contributive factors from other alternative models. Hence Venkatesh et al. (2003) reviewed the existing eight user acceptance models (Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), the combined TAM-TPB, the Motivational Model (MM), Diffusion of Innovation (DOI), the Model of PC Utilization and the Social Cognitive Theory (SCT) and integrated elements found in those eight models and the result of this review is the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). Some of the above theoretical models are considered to be the most robust and significant to describe Information Technology and Information System adoption behavior (ibid) and they are briefed below:

**8.3.1 Theory of Reasoned Action (TRA)**

The TRA was proposed by Ajzen and Fishbein in 1980 and is considered to be the backbone of researches associated with attitude behavior. The TRA is extensively used by researchers and has two determinants on intention attitude toward behavior and subjective norms associated with behavior. This theory is used to explain and predict human behavior and used by information systems researchers to study the determinants of IT innovation-usage behavior (Al-Shafi, 2009)

**8.3.2 Theory of Planned Behavior (TPB)**

Being an extension to the TRA, the TPB was developed by Ajzen in 1985 by introducing a third independent determinant of intention which is called perceived behavior control. Because of the added perceived behavioral control, the TPB theory is considered to be more general than TRA (Al-Shafi, 2009).

**8.3.3 The Technology Acceptance Model (TAM)**

The Technology Acceptance Model (TAM) has been in wide use by researchers in the IT field to get better understanding of the adoption of IT and usage in organizations. The TAM has been used in various settings such as online shopping, e-Government adoption, etc. The TAM was developed based on the theoretical foundation of the Theory of Reasoned Action (TRA).
According to the TAM model, *Perceived Usefulness* (PU); “the degree to which a person believes that using a particular system would enhance his or her job performance” and *Perceived Ease Of Use* (PEOU); “the degree to which a person believes that using a particular system would be free of physical and mental efforts” are the two particular beliefs that primarily drive for technology acceptance. These two beliefs, PU and PEOU, influences a person’s *attitude towards using* a system and which in consequence influences the person’s *behavioral intention to use* a system and the behavioral intension, in a result, determines the *actual use* of a system (Shajari and Ismail, 2010).

The shortcoming of the TAM model is, according to Shajari and Ismail (2010), is that it does not fully explore the external variables that impact the PU and PEOU and also PU and PEOU are not fully mediated by *attitude*. As a result of the above findings, a more parsimonious TAM model, removing the *Attitude Towards Using a system*, was suggested (Carter and Belanger, 2005; Shajari and Ismail, 2010).

### 8.3.4 The Extended Technology Acceptance Model

The extension of TAM, called TAM2, was proposed by Venkatesh and Davis (2000), since the external variables’ impact on the PU and PEOU was not completely taken into account and also the PU and PEOU were not mediated by *attitude*. The TAM2 removed that *Attitude toward Usage* construct from the TAM (Shajari and Ismail, 2010). In TAM2, some more determinants of *perceived usefulness* (*Subjective Norm, Image, Job-Relevance, Output Quality*, and *Result Demonstrability*) two moderators *Experience* and *Voluntariness* were added and also the *Attitude toward Using a system* was removed (Venkatesh and Davis, 2000).

### 8.3.5 Diffusion of Innovations (DOI)

How an innovation diffuses through a society was explained by the theory of Diffusion of Innovations (DOI) which was proposed by Rogers (2003). This theory is extensively used to explain the diffusion of IT innovation in organizations or through societies (Shajari and Ismail, 2010). Roger (2003) defines innovation as “an idea, a practice, or object that is perceived as new by an individual or another unit of adoption” and diffusion as “the process by
which an innovation is communicated through certain channels over time among the members of a social system”.

According to Rogers Relative Advantage, Compatibility, Complexity, Triability and Observability affect the rate of the diffusion of innovation; these characteristics are used to explain the users’ adoption of innovation. Rogers defines Relative Advantage as “the degree to which an innovation is seen as being superior to its predecessor”, Compatibility as “the degree to which an innovation is seen to be compatible with existing values, beliefs, experiences and needs of adopter”, Complexity as “the degree to which an innovation is seen by the potential adopter as being relatively difficult to use and understand”, Triability as “the degree to which an idea can be experimented with on a limited basis”, and Observability “the degree to which the results on an innovation are visible”.

8.3.6 Unified Theory of Acceptance and Use of Technology (UTAUT)

As mentioned earlier, Venkatesh et al. (2003), integrated eight well known models used for IT acceptance and integrated the elements of those models into a new model which is called Unified Theory of Acceptance and Use of Technology (UTAUT). The UTAUT provides better understanding of acceptance of technology by users.

By means of validation and replication, the TAM model has wide support because of its capability to predict the use of Information Systems (IS) and therefore considered as the most strong and dominant model to explain IS adoption behavior. The TAM is said to exclude important causes of variance and does not consider some constraints, such as time and money, which could deprive people from using an IS. Also, because of its generality, the TAM has failed to deliver meaningful detail about user acceptance of particular technology and a few modified versions of TAM were proposed to address contemporary technologies. Therefore a new model was developed to address such limitations; this is the UTAUT (Al-Shafi, 2009). The UTAUT model proposed by Venkatesh et al. (2003) is shown in Figure 1.

The study of citizens’ adoption of e-Government is motivated to use this UTAUT model because of the comprehensiveness, validity, and reliability of
it and the model encourages the researcher to adopt and validate it in Sri Lankan context; the model will be undergoing an amendment in order to fit itself to Sri Lankan context.

Figure 1: UTAUT, Venkatesh et al., 2003

The UTAUT model has been designed with five direct determinants of behavioral intention and use behavior (AlAwadhi and Morris, 2008) they are:

1. Performance Expectancy
2. Effort Expectance
3. Social Influence
4. Facilitating Condition
5. Behavioral Intention

The model also has for moderators which influence the above four determinants, they are:

1. Gender
2. Age
3. Experience
4. Voluntariness of Use
9. Theoretical Framework

This study will make use of the UTAUT model devised by Venkatesh et al. (2003). 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). There had been eight such models in usage for the technology acceptance; all of them had been originated from psychology, sociology and communications and each of which uses a variety of independent variables (AlAwadhi and Morris, 2008). The UTAUT was developed based on the conceptual as well as empirical relationships across those eight models. It is argued that, by consolidating and improving the existing IT acceptance models, the model should serve as a benchmark for the IT acceptance literature (Rosen, 2005). Despite the fact that this model is relatively new, in technology adoption studies in different contexts, the suitability, the 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 Behavioral Intension of the citizens and Behavioral Intension and Facilitating Conditions are significantly influencing the Use Behavior of the citizens. They are elaborated below.

- **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” and it contains five constructs; Perceived Usefulness (the degree to which a person believes that using a particular system would enhance his or her job performance), extrinsic Motivation (the perception that users will want to perform an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself, such as improved job performance, pay, or promotions), Job-Fit (how the capabilities of a system enhance an individual’s job performance), Relative Advantage (the degree to which using an innovation is perceived as being better than using its precursor), and Outcome Expectations (relate to the consequences of the
behavior) (Venkatesh et al., 2003). This research will measure the PE by 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). The PE, according to Venkatesh et al. (2003), is a strong factor influencing the intension to IT.

- **Effort Expectancy (EE):** “the degree of ease associated with the use of the system” and it contains three constructs that form the concept of EE. They are: perceived ease of use (the degree to which a person believes that using a system would be free of effort), complexity (the degree to which a system is perceived as relatively difficult to understand and use) and ease of use (the degree to which using an innovation is perceived as being difficult to use) (Venkatesh et al., 2003). It is also claimed that the EE is significant in influencing user acceptance of IT and also it has been found by many researchers that Behavioral Intension is significantly influenced by the Effort Expectancy, meanwhile it is argued by Chau and Hu (2002) in contrary that the Effort Expectancy does not significantly influence the Intension to use behavior. (Al-Shafi, 2009). This research will measure the EE by the perception of using the e-Government services with ease and the easiness in learning how to use e-Government services.

- **Social Influence (SI):** “the degree to which an individual perceives important that others believe he or she should use the new system” and it contains three constructs, they are: Subjective Norm (the person’s perception that most people who are important to him think he should or should not perform the behavior in question), Social Factors (the individual’s internalization of the reference group’s subjective culture, and specific interpersonal agreements that the individual has made with others, in specific social situations), and Image (the degree to which use of an innovation is perceived to enhance one’s image or status in one’s social system) (Venkatesh et al., 2003). It is the degree to which peers influence the use of a system (Al-Shafi, 2009). According to Venkatesh et al. (2003), this Influence can be positive or negative but it is considered to be an important factor in many facets of
citizens’ lives and it is likely to be influential. According to Dwivedi and Irani (2009), citizens’ decisions are influenced by the citizen’s family, colleagues as well as friends. This research will measure the SI with the assumption that citizens’ Behavioral 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” and it contains three constructs, they are: Perceived Behavioral Control (reflects perceptions of internal and external constraints on behavior and encompasses self-efficacy, resource facilitating conditions, and technology facilitating conditions), Facilitating Conditions (objective factors in the environment that make an act easy to do, including the provision of computer support), and Compatibility (the degree to which an innovation is perceived as being consistent with existing values, needs, and experiences of potential adopters). It has been found by researchers in technology studies that innovation use is positively influenced and significantly predicted by Facilitating Conditions (Venkatesh et al., 2003). This research will measure the FC by having the Resources Required to use the e-Government services and having necessary knowledge to use e-Government services.

- **Behavioral Intention (BI):** “the person’s subjective probability that he or she will perform the behavior in question” (Venkatesh et al., 2003). It is the citizen’s intension to adopt and make use of the e-Government services in the future. The BI is utilized in many researches to predict the technology adoption (Dwivedi and Irani, 2009). The BI is perceived to have direct influence on the adoption of e-Government. This research will measure the BI by Intension, Prediction and Use of e-Government services.

The above four direct determinants are expected to be influenced by the moderating factors; namely **Gender, Age, Education Level and Internet Experience.**

- **Gender:** It is said to have impact on the use of technology; men are likely to be very task oriented than women. Also, according to Venkatesh et al. (2003), women are said to be influenced by others’ opinion; hence, women’s intension to use a technology is influenced by others.
• **Age:** It has been found by researchers like Venkatesh *et al.* (2003) that age has significant, direct, and moderating effect on the adoption and usage behavior of users of technology.

• **Educational Level:** Will be added to the model since different levels of education results in different levels of beliefs that users have (AlAwadhi and Morris, 2008).

• **Internet Experience:** The Experience in the original UTAUT model, will be replaced by *Internet Experience* because many previous studies, such as by Agarwal and Prasad 1999, evidenced that Internet Experience has influence on humans’ use or intension to use a particular (online) system. Users with Internet Experience are more likely to use e-Government services, which are available online; therefore, this factor should be taken into account to elaborate citizen’s adoption of e-Government.

• AlAwadhi and Morris (2008) argued that *e-Government services are highly voluntary* and therefore the Voluntariness of Use is removed from the original UTAUT model. The amended UTAUT model which is proposed for the evaluation of citizens’ adoption of e-Government in Sri Lanka is shown in Figure 2.

![Figure 2: The Amended UTAUT Model](image-url)
From the above amended UTAUT model, the following hypotheses have been developed:

**H1:** There will be a positively significant relationship between Performance Expectancy and Behavioral Intention to use e-Government services, and this relationship will be moderated by Gender, Age, Education Level, and Internet Experience.

**H2:** There will be a positively significant relationship between Effort Expectancy and Behavioral Intention to use e-Government services, and this relationship will be moderated by Gender, Age, Education Level, and Internet Experience.

**H3:** There will be a positively significant relationship between Social Influence and Behavioral Intention to use e-Government services, and this relationship will be moderated by Gender and Age.

**H4:** There will be a positively significant relationship between Behavioral Intention and Use Behavior of e-Government services.

**H5:** There will be a positively significant relationship between Facilitating Conditions and Use Behavior of e-Government services, and this relationship will be moderated by Age, Education Level, and Internet Experience.

**10. Significance of the study**

Literatures reveal that there have been many studies on the citizen’s adoption of e-Government in developed countries and a few ones on the developing countries. In the case of Sri Lanka, to date, there has no such studies which examine factors influencing citizens’ adoption e-Government in Sri Lanka and introduce an adoption model that fits the Sri Lankan context been published.

This research is significant because it tries to deliver some contributions to the field of e-Government adoption in Sri Lanka. To begin with, this research is going to add to the body of knowledge currently existing within the domain of the citizens’ adoption of e-Government in Sri Lankan context. And also this research is aimed at formulating a model that can inform e-Government adoption in Sri Lanka. In addition, it will identify the gap that exists between the government’s efforts to diffuse e-Government and citizens’ expectations for the adoption and use of the same. Further, it will clarify the main challenges that might influence e-Government adoption in Sri
Lanka. Many researches that study about the e-Government adoption use TAM, DOI, etc. but this study uses a more comprehensive model; UTAUT model which incorporates eight such technology adoption models to explain the adoption factors so that policy-makers from the government side would understand the e-Government adoption factors better and make better-decisions.

11. Methodology

The research study will employ quantitative study based on questionnaire survey. Quantitative method will enable the researcher to test the relationships between the variables identified in the model and thereby let him provide evidence to support or disprove the hypotheses (Carter and Belanger, 2005).

The population of this study includes all Internet users with or without experience in using e-Government services in Sri Lanka. According to the DCPSL (2012), the population of Sri Lanka in the year 2012 is over 20.26 million. The Internet users are more than 3.2 million (Internet World Stats, 2013) but there is no sample frame or complete list of Internet users available which can be used as a guide for taking sample therefore the respondents of the study are going to be the Internet users who are voluntarily willing to fill up an online questionnaire which is going to be emailed using an online survey, such as SurveyMonkey, during the period of data collection.

Hair et al. (1998) as cited by Rehman et al. (2012), “each independent variable is expected to have ten data records”; if this study has five independent variables, there will be 50 respondents but the sample size will be targeted to 500 because “sample sizes larger than 30 and less than 500 are appropriate for most research” (Sekaran and Bougie, 2010).

In order to minimize the bias in the data collection, data triangulation will be followed. “The use of different research approaches, methods and techniques in the same study is known as triangulation and can overcome the potential bias and sterility of a single method approach” and in data triangulation, “data is collected at different times or from different sources in the study of a phenomenon” (Hussey and Hussey, 1997). In addition to the online survey, printed questionnaires which are going to be translated into Sinhala and Tamil languages will also be used to collect data personally. The respondents for these printed questionnaires are Internet users representing all districts in Sri Lanka. Respondents will be public sector as well as
private sector employees, university students, etc. who are going to be selected with convenience.

12. Tentative Financial Budget for the Research

This research project is estimated to cost SLR.92,000.00 and its detail is given in Table 4.

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<th>Description</th>
<th>Amount</th>
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<td>Stationary &amp; Postage</td>
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<td>Consumables</td>
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<td>Data Processing</td>
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<td>Traveling &amp; Subsistence</td>
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<td>Miscellaneous (Printing &amp; Binding of Report)</td>
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<td><strong>Total Amount:</strong></td>
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Table 4: Detailed Budget for the Research
13. Scheduled Work-plan for the Research Project

This research project has already started its progress from November 2012 and scheduled to be continued up October 2013. Hence the total duration of the project is one year. The Figure 3 depicts the scheduled plan of the project.

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Figure 3: Timeline for the Research Project
14. Scope of the Study

Although the research is going to be conducted with great care, it is obvious that there will be some limitations. The research is confined to study Internet users in Sri Lanka; the computer literate citizens could have been added for this purpose and also all households with own computer could also have been added for this study. Because of the non-availability of details about such computer literate people or such households that own computers, the research will not be able to include them. Also many of these people are likely to become Internet users within short span of time. This research has short span of time and data are collected once, making the study cross-sectional. If it were longitudinal, more about the factors influencing citizens’ adoption could have been noticed and results would have been more comprehensive.
15. References


Zahir Irani, Vishanth Weerakkody, Muhammad Kamal, Nitham Mohammed Hindi, Ibrahim H. Osman, Abdel Latef Anouze, Ramzi El-Haddadeh, Habin Lee,