

# Factors Affecting Libyan Citizens In Adoption Of E-Government Services: A Research Framework

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**Abstract.** In the 21st century, many countries are providing services to their citizens using the internet. One of the main reasons is that these services can be reached by majority of the citizens whether they are living in rural or urban areas. 179 out of 192 United Nations members reported that they have developed strategies to implement e-government systems. In countries such as Libya, where the population is spread over a large geographical area, the need to deploy services via the internet is very evident. However, since the implementation of such deployment would be very expensive, its success is very important to ensure continued investment and improvements. This is particularly important in the context of Libya, where e-government is a newly implemented innovation. Therefore, it is axiomatic to study factors that could facilitate or undermine the adoption of e-government services in Libya. One of the most important factors for the success of e-government is the extent to which citizens adopt these services. The objective of this paper is to explore factors influencing e-government services adoption by citizens in Libya. The paper discusses the development of a conceptual framework. The findings presented in this paper could benefit the Libyan e-government stakeholders in their efforts to implement it.

**Keywords:** adoption, citizen, e-government, libya, technology acceptance model.

## INTRODUCTION

Most countries around the world seek to facilitate communication between government and citizens. For this purpose, a lot of investments has been allocated for the establishment of e-government services applications. Despite all the investments, acceptance problem is one of the biggest challenges facing most of these projects. Carter and Bélanger [1] stated that Citizen's willingness to adopt e-government services is the key factor of success of this innovation. In this context, according to a report conducted by the United Nation, low adoption of e-government services was attributed to Usefulness, Social and Cultural Issues, Content Accessibility, Inadequate Infrastructure, Inadequate Delivery of Services, Lack of Trust, and Lack of Confidentiality (UNDESA, 2008). Many people may be disinclined to use e-government services due to the lack of

trust in the online transactions [2]. Moreover, social and cultural factors are frequently cited as the obstacles to e-government adoption.

Kumar, Mukerji [3] stated that, determining what influences citizens to adopt e-government services remains a popular topic of Information System (IS) research. Although, research exploring factors affecting citizens' adoption of e-government services have been done in many countries around the world, to the best of our knowledge, ours is the first study to tackle this issue in Libya. The reason behind that could be ascribed to the fact that Libyan e-government services have been put in place in the recent past which gives the current study its significance. Studying what may motivate or hinder citizens from using the electronic services provided by the government will have a positive impact on the success and development of this project, which in turn ensures sustainability of this project.

## **LITERATURE REVIEW**

### **Background of e-government**

According to the World Bank, “e-government refers to the use by government agencies of Information and Communication Technologies (ICT) such as Wide Area Networks (WAN), the Internet, and mobile computing that have the ability to transform relations with citizens, businesses, and the other arms of government”[4]. Providing business partners, citizens, employees, government and other agencies with faster and cheaper services and information has been considered as an essential goal of e-Government [5]. Recognizing the benefits of e-government, many governments around the world have taken many steps to adopt e-government to make the life of their citizens easier. E-government has been considered as one of the urgent priorities for governments around the world [6]. According to the survey conducted by the UN in 2010, all the 192 surveyed countries have applied some sort of e-government. However, regardless of benefits offered by e-government, which is to provide the best services at a lower price [7], it still faces major challenges. The low level of e-government websites adoption is one of these challenges that is faced by not only developing countries but also most advanced countries [8].

### **Adoption of e-government**

In terms of adoption, there are many theories and models used to measure user acceptance and adoption of a new technology in the information systems domain. These include Technology Acceptance Model (TAM) developed by Davis Jr [9], Theory of Planned Behaviour (TPB) developed by Ajzen [10], Diffusion of Innovation (DOI) Theory developed by Rodger [11], and the Unified Theory of Acceptance and Use of Technology(UTAUT) developed by Venkatesh, Morris [12].

These models and theories have been utilized to explain citizens' adoption and acceptance of e-government services in many countries around the world. In this research, the Technology Acceptance Model (TAM) has been adopted to examine the citizen adoption of e-government services in Libya. Since its introduction, TAM has been employed in different technologies and has been examined in different contexts;

including e-mail, voice mail, word processing, spreadsheets, online gaming and mobile technologies. In the e-government context, TAM has been used in many studies conducted in many countries around the world to investigate the effects of TAM constructs on citizens' adoption of e-government services. In the next section, we provide a brief description of the Technology Acceptance Model (TAM).

### Technology Acceptance Model (TAM)

Technology Acceptance Model or TAM is the most widely used model by information technology researchers in trying to understand IT adoption [13]. TAM is adapted from the Theory of Reasoned Action (TRA) which postulated that beliefs impact intentions, and intentions impact one's actions [14]. Figure 1 represents a general overview of the TAM. TAM proposed that a person's actual use of an information technology is determined by his or her intention to use that technology. The intention to use an information technology, in turn, is driven by the attitude towards technology, which in turn driven by two major beliefs: (1) perceived usefulness of that technology and (2) perceived ease of use of that technology. Perceived ease of use has a direct impact on perceived usefulness. Finally, these two beliefs are influenced by factors external to individuals [9].

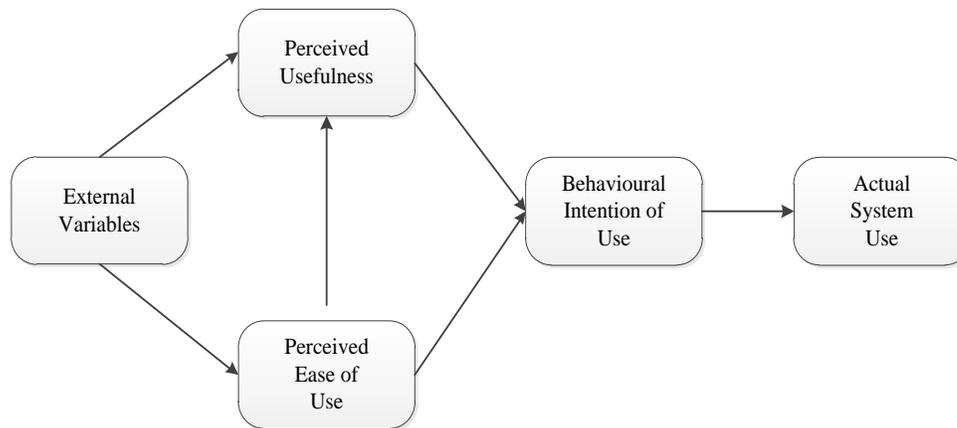


FIGURE 1. The Technology Acceptance Model

### RESEARCH MODEL AND HYPOTHESES

In this paper, the researchers selected eight factors that can explain the citizen's adoption of e-government services in Libya. The selection of these eight factors was based on their importance and occurrence in many literatures. Figure 2 shows the research model used in this study. The definition for each construct and the relationship between these constructs are discussed below.

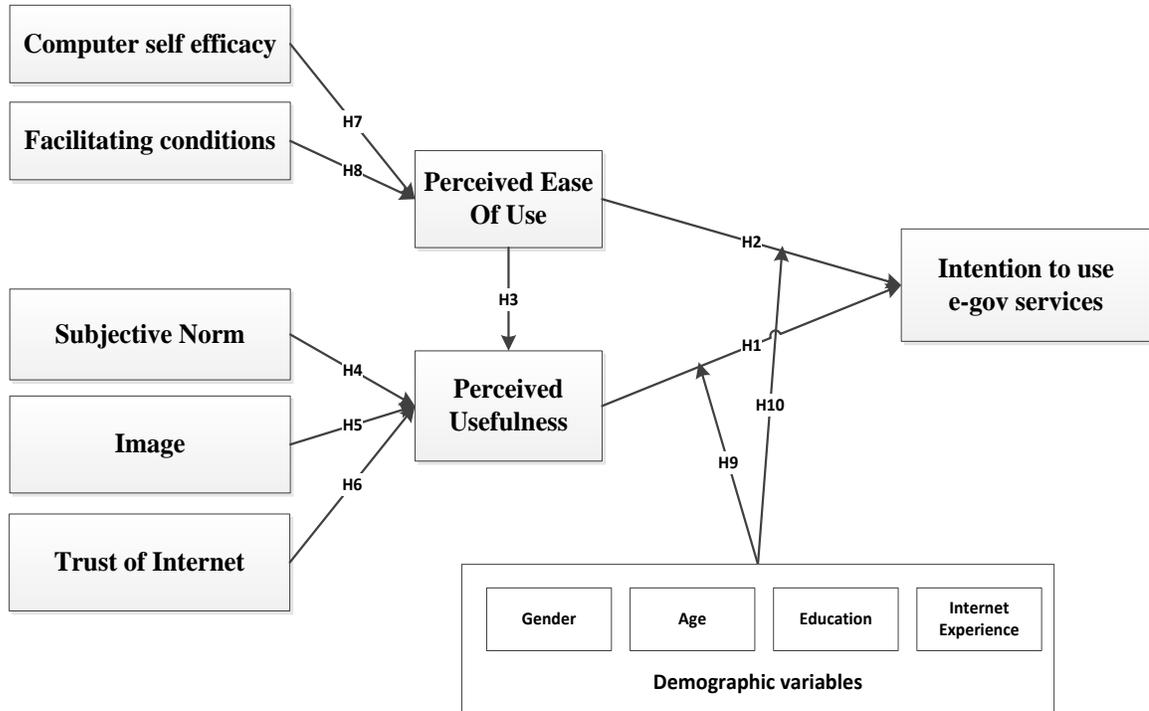


FIGURE 2. Proposed model

## Dependent Variables

### *Intention to Use (ITU)*

Intention to Use (ITU) is a measure of the likelihood a person will engage in a given application [15]. The literature suggests that to implement a successful information system, it is important to determine factors that influence the intention to use that system. Behaviour intention has been theorised as the key dependent factor in explaining acceptance of information technology in most of the technology acceptance models.

### *Perceived Usefulness (PU)*

Perceived Usefulness (PU) refers to “the degree to which a person believes that using a particular system would enhance his or her job performance.”[16]. The perception of the usefulness of a system increases the usability of that system. In e-government context, previous studies have examined the relationship between perceived usefulness and citizen's intention to use e-government services [1, 17-19]. Thus, we propose the following hypothesis:

***H1: Perceived Usefulness of e-government services significantly affects Intention To Use this service.***

### ***Perceived Ease of Use (PEOU)***

Davis, Bagozzi [16] defined Perceived Ease of Use as “the degree to which the user expects the target system to be free of effort” According to Gefen, Straub [20], the perception of how much a system is seen as easy to use or difficult affects the adoption rate of this system. Perceived Ease of Use (PEOU) found to be significantly predicting the intention to use e-government [21-23]. Accordingly, the following hypotheses are set:

***H2: Perceived Ease of Use of e-government significantly affects Intention to Use e-Government services.***

***H3: Perceived Ease of Use of e-government significantly affects Perceived Usefulness.***

### **Independent Variables**

#### ***Subjective Norm (SN)***

The variable of subjective norm (SN) refers to a person’s perception of the social pressure to either engage or not engage in a particular behaviour[24]. Although subjective norms are not included in the original TAM, in TAM2, subjective norms were added in an effort to improve the comprehension of user’s adoption behaviour. Moreover, both theory of reasoned action and the theory of planned behaviour hypothesize that subjective norms is an important determinant of technology acceptance and usage. Some literature has shown that subjective norms are a significant determinant of people's behaviour, whereas others have found subjective norms is insignificant. Yi, Jackson [25], and Venkatesh and Davis [26] theorized that subjective norms are an important antecedent of perceived usefulness. Some research suggests that the reason behind the effectiveness of social influence is the reduction of perceived risk associated with adoption [27]. According to Venkatesh and Davis [26], in earlier stages of adoption, subjective norms seems to be more significant than in later stages. That is because when one has little or no experience with a particular technology, he will tend to comply with other's views. In our context, as e-government in Libya is in its earlier stages, we expected that subjective norms would be important. Thus, the following hypothesis emerges:

***H4: Subjective norms regarding the use of an e-government service will have a positive effect towards the Perceived usefulness.***

#### ***Image***

Image refers to the “degree to which the use of the innovation is seen as enhancing to an individual’s image or social status” [28]. In prior e-government adoption literature, the variable of image demonstrates a positive relationship with Perceived usefulness. Therefore, the following hypothesis will be tested.

***H5: Image has a positive effect towards the Perceived usefulness.***

#### ***Trust of Internet***

In any online services, the Internet plays the role of a mediator between the supplier and the user of these services. A Low level of confidence in the Internet is an obstacle that prevents citizens from using online services. For citizens to adopt e-government services they should have the intention to receive and provide information through online channels. The sensitivity of citizens towards storage of personal data has negative impacts on using online services. Research conducted in USA examined the adoption of e-voting has found trust in internet as a significant factor [29]. Chen, Jubilado [30] conduct a research to examine citizens' propensity to use online tax filing system in Philippine. The results showed that trust in technology and trust in government directly affected the trust in e-government websites. Therefore the following hypothesis is set.

***H6: Trust of the internet has a positive effect towards the Perceived usefulness of e-government services.***

#### ***Computer self-efficacy***

Compeau and Higgins [31] defined computer self-efficacy as "an individual's perceptions of his or her ability to use computers in the accomplishment of a task". Computer self-efficacy has been found as a significant factor that affect the adoption of e-government services [32]. Several Studies have found that computer self-efficacy is a significant determinant of perceived ease of use [33-35]. Thus, this study hypothesizes that:

***H7: Computer self-efficacy has a positive effect towards the Perceived ease of use of e-government services.***

#### ***Facilitating conditions***

Facilitating conditions are defined as the extent to which an individual perceives that an organizational and technical infrastructure required to use the intended system exist. In developing countries like Libya it is believed that resources are very limited, therefore facilitating conditions will affect adoption. Supporting people by training and assisting them on how to use new technology is an example of facilitating conditions that can influence the acceptance of this technology. The effect of this variable on acceptance of a new technology was tested in a number of studies and found to be a significant factor [36, 37]. Thereby, we propose the following:

***H8: Facilitating conditions have a positive effect towards the Perceived ease of use of e-government services.***

#### **Moderating variable (Gender, Age, Education, Internet Experience)**

Demographic characteristics such as: Gender, Age, Education, and Internet experience, have been shown to play an important role in the adoption of new

technologies and services. Venkatesh, Morris [12] argued that variables of age, gender and experience moderated the relationship between the independent and dependent variables. In terms of gender, men tend to be more task-oriented than women. This could lead to that the expectations of the usefulness of new technology are higher in men than in women. In e-government context, studies in Malaysia and Kuwait showed that gender play a significant effect in the intention of using e-government services [38, 39]. In addition, people with different level of education can project a variety of perceived usefulness and perceived ease of use. Moreover, individual's prior experience with technology influences the degree of innovation adoption[40]. Thus, we proposed the following hypotheses:

***H9: Gender, Age, Education, and Internet Experience moderate the influence of Perceived Usefulness on Intention to Use***

***H10: Gender, Age, Education, and Internet Experience moderate the influence of Perceived Ease of Use on Intention to Use***

## **CONCLUSION**

With the implementation of e-government in Libya, research on citizens' adoption of e-government is important in reflecting its progress. This study explores factors related to citizens' adoption of e-government services in Libya. This research is motivated by the problem of the low-level of citizen adoption of e-government services in Libya. Such research will assist the e-government practitioners to determine which antecedent to focus to increase the adoption rate of e-government. Moreover, to the best of our knowledge, this is the first research focusing on citizen's adoption of e-government services in Libya. Therefore, the other purpose of this research is to fill this gap in the literature. It develops a conceptual framework for citizen's adoption of e-government services based on Technology acceptance model. The next step after the conceptual framework has been established is to test the theory. The following has to be completed: designing the research method appropriate to the research hypotheses, development of research instruments suitable for measuring the constructs of the research model, and collection and analysis of data for model validation.

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