

# A Study of Service Users' Attitudes towards E-Government Initiatives in the Kingdom Of Saudi Arabia

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**Abstract**— E-government initiatives in Saudi Arabia are still in their infancies, although there has been progress in the implementation of this project. This paper seeks to identify service users' current attitudes towards e-government initiatives in Saudi Arabia to determine whether there has been a shift since the previous research using TAM. In other words, it seeks to identify acceptance level. Theoretical framework is TAM constructs: perceived ease of use, perceived usefulness, attitude toward usage and behavioural intentions to use and addition one external variable is usage experience. Main goal of this paper is identifying acceptance level of users for e-government initiatives in 2014.

**Keywords**— E-government, TAM, Saudi Arabia, IS.

## I. INTRODUCTION

### A. E-government concept and its purpose

Today, there is a massive technology revolution occurring throughout the world and most countries adopt technological applications to provide services using these technologies. E-government provides electronic systems and electronic services (online) instead of traditional systems and services (papers) to better serve the people [1]. According to Alshomrani [2], e-government is the use of technology (especially ICT and WWW) for the provision of electronic government services to businesses, citizens, other organisations and government employees. According to [3], e-government is "information technologies...that have the ability to transform relations with citizens, businesses, and other arms of government...[and] can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management...benefits can be less corruption, increased transparency, great convenience, revenue growth, and/or cost reduction".

E-government provides citizens with the privilege of accessing information and conducting government work online anytime and from any place [4]. E-government is an approach used by governments to improve the quality of services by providing them to citizens through electronic websites [5]. Now, e-government is considered as an important tool for society because it allows people to

connect with governments, businesses and organisations in addition to citizens [2]. There are various models of e-government, including Government-to-Government (G2G), Government-to-Citizen (G2C), Government-to-Business (G2B) and Government-to-Employee (G2E). G2G aims to enhance the teamwork and cooperation between governmental sectors to increase productivity, while G2C aims to provide governmental services to citizens and make these services available at any time. G2B seeks to provide government services that serve the commercial sectors, such as online purchasing, and G2E seeks to improve and enhance the working relationship between the government sectors and their staff [6].

### B. Advantages of e-government implementation

There are many benefits of e-government implementation, including reductions in the wasted time and efforts of organisations and customers. Moreover, to improve the productivity of organisations and to enable the sharing of information between government ministries and others sectors, e-government provides uninterrupted services for people [5]. In addition, decreased corruption, increased trust, increased information security and improved health and education services are provided to people, especially those who have special needs [4]. Further, e-government improves teamwork and cooperation among citizens, businesses and government sectors, encourages democracy in society and enhances justice in government processes [7]. In addition, it improves the personal skills of users, particularly their IT skills in technology knowledge and usage. The e-government program provides new opportunities for work and business [8]. It encourages citizens to participate in the government's systems and its decisions, and it aids the development of countries through the application of e-government initiatives [9]. E-government initiatives provide more control over processes than other methods and allow users to access services without interacting with any person [10].

### C. E-government in Saudi Arabia

E-government was introduced in Saudi Arabia in 2005, and an e-government project was established and started under the control of three entities, namely the Ministry of

Communication and IT, the Ministry of Finance and Communication and the Communication and IT Commission. The Saudi government granted three billion riyals and established an independent government entity called “Yesser” to adopt e-government initiatives for five years. In other words, e-governance was supposed to have been launched in 2010 with 150 e-government services [11]. Yesser is considered the government’s controller and is also considered the umbrella for all e-government activities, including legislations, procedures and other related issues [12].

Yesser’s vision was that in 2010, every person in the Kingdom of Saudi Arabia would use and benefit from all electronic services from any place and at any time with the easiest and safest methods of using electronic services [12]. Although there has been progress in the implementation of e-government initiatives, the overall e-government project has not been completed and many scheduled projects have been delayed. Thus, the e-government project has changed its role to assist with the infrastructures of the ministries that are participating in this project rather than those providing the services [12]. Moreover, according to the United Nations’ [13] e-government surveys, Saudi Arabia was ranked 36 in 2014 with a score of 0.6900, while it was ranked 41 in 2012. The e-government project is a technical project in Saudi Arabia, and because of the problems and challenges to date, there have been delays in its implementation [14]. The Saudi government established an e-government program for a set of purposes, which are the increased quality of the government services provided, enhanced IT investments, decreased corruption, uninterrupted access to services and easier methods of using the services provided to citizens and businesses [15]. The researcher selected Saudi Arabia in this case because he wants to serve his society and he believes that e-government initiatives are very important to improvements in government services and to allowing citizens to gain the many benefits of e-government.

#### *D. AIM AND SIGNIFICANCE OF THIS STUDY*

The e-government project was established in 2005 and the desired aim was to provide many services in 2010 [11]. The project implementation has been delayed and there is limited acceptance from citizens because there are many problems [12]. The Saudi government seeks to implement e-government initiatives quickly. There have been no studies measuring changes to the Saudi Arabian people’s attitudes towards e-government initiatives and overall acceptance in the Kingdom of Saudi Arabia in 2014. This study will examine the usage experiences that affect the acceptance of e-government initiatives using a technology acceptance model (TAM) to identify these changes.

This research seeks to identify service users’ current attitudes towards e-government initiatives in Saudi Arabia to determine whether there has been a shift since the previous research. The outcomes from this research can assist the Saudi government by using a tool to measure the extent of any changes in community acceptance of e-government initiatives in 2014. As well, this research will assist the government in knowing the effects of the usage

experience on the acceptance of e-government initiatives by citizens, as well as in studying their attitudes towards current and future services. This research will assist the government to improve steps, determine whether the acceptance rate is low and enhance the acceptance rate; otherwise, the government will proceed with their methods.

## **II. LITERATURE REVIEW**

### *A. Background*

E-government initiatives in Saudi Arabia are still in their infancies, although there has been progress in the implementation of this project. There is a need in Saudi Arabia to establish this project to serve the citizens, because Saudi Arabia covers a large area that is 2.15 million square kilometres with a population of 26.2 million residents, and there is difficulty in travelling between cities to access services [4]. However, the acceptance of e-government initiatives by the Saudi society is very difficult to achieve, because most people do not want to use this project and there are problems preventing the implementation of this project, such as the IT infrastructure, awareness, the IT staff, cultural issues and the resistance to change. Therefore, the e-government project has not achieved its objectives [12].

Garnering the acceptance of the e-government project in Saudi Arabia has been a struggle with many problems, especially from the citizens’ points of view. It is necessary to study the cultural aspects if they want to succeed in the implementation of e-government initiatives [16]. Family, cultural habits and religion sometimes have negative effects on the acceptance of new technology. In other words, cultural and social factors will contribute to the resistance to accepting a new project. Thus, social and cultural challenges would be faced in the developing countries regarding the implementation of e-government services [16]. The acceptance of new electronic systems in ICT/IS from top management, users and consultants is very important to the successes of these systems. Nevertheless, there is a very common problem in that users and managers are resistant to the change to new systems. Users’ knowledge and skills might be the obstacles to accepting new technology. Rules, systems, legislations and policies are crucial factors to accepting new technology. New systems must be accepted by users, managers and professionals to ensure success [17].

### *B. Awareness*

Sahraoui, Gharaibeh [15] mentioned that the e-government project Yesser has a problem with awareness, and they recommended that e-government should be involved in educational programs so that awareness can be established among people, especially the individuals that are involved in this project, such as the staff. Also, Al-Fakhri, Cropf [18] recommended that the government of Saudi Arabia spread awareness among society and all its employees.

In a study of awareness, Reference [12] interviewed an academic expert at King Faisal University, who said that awareness plans should be in place regarding e-government

and its benefits should be incorporated into the work, especially the top management. This is because it has a significant effect on a company's functions and employees. They interviewed an IT manager in a higher education ministry, who said that the staff are unaware of e-government and its benefits. In their opinion, this is the biggest obstacle preventing the implementation of the e-government project. Alameri [19] suggested that awareness should be created by management for individuals and groups about current and future situations, and they should explain and illustrate the advantages of change. In addition, he highlights that training courses assist in establishing awareness for employees and improving productivity. On the other hand, Alfarraj [4] said that awareness is not only for staff and users, but it is also for managers in agencies and organisations because they play important roles in the acceptance of new technology and in the changes to the users' attitudes.

Al-Shehry [20] discussed that awareness is an important element in adopting new electronic systems and it should be established for society. A recent study by Alomari, Woods [21] found that things are important to persons who want to use electronic services online, such as skills, online content to motivate their access and awareness. In addition, in their study, they highlight three important variables to ensure the acceptance of new technology: understanding the Internet, awareness of the Internet and workers with information technology skills.

Nadi [22] and El-sofany, Al-tourki [23] recommended that the government use media, such as television advertisements, newspapers and social networks like Facebook, as a method to spread awareness of e-government initiatives and their advantages. According to El-sofany, Al-tourki [23], courses should be implemented to increase awareness in society. Alfarraj [4] identified that education and awareness programs are factors that are crucial to the implementation of information systems (IS) projects generally, and especially e-government projects in developing countries. These programs will assist in encouraging people to use new technology, as well as in changing their attitudes towards it.

Alfarraj [4] provides an example of two countries that failed to implement e-government initiatives because there was a lack of awareness in society either at the individual or organisational level, and these countries are Oman and Kuwait. In conclusion, based on these studies, there is a lack of awareness in society and organisations, but the government does not work to fix this problem effectively. Therefore, the government should focus on awareness because it is a key factor to accepting new technology.

### C. IT staff (training)

According to Alfarraj [4], training is defined as various educational techniques and new systems applied by an institution to enhance its employees' skills. Alfarraj [4] mentioned that human resource factors play important roles in the abilities of organisations to adopt e-government initiatives, and adequate training for staff is a key factor in adopting e-government successfully, particularly training

them on the computer and e-government applications and programs.

Alfarraj [4] found that only 22% of the population in Saudi Arabia can use the Internet. Hence, there is a lack in the skills of the citizens and staff. Reference [14] identified that IT staff can help Yesser to implement the e-government project in ministries to achieve its goals. Several studies have revealed that there is a lack of qualified IT staff in the ministries, leading to delays in the implementation of the e-government project [24]; [14]; [4]; [5]. Reference [14] reviewed the literature from the period and found little evidence for this claim. There is a problem with IT staff in that they do not want to contribute to the development of the e-government project because they do not have as good of salaries or financial incentives in the ministries as in the private sectors. Alshehri and Drew [5] argue that the ministries should train their staff and prepare them to assist in the accelerated implementation of the e-government project. Alsheha [25] discussed that to implement the e-government project successfully, two important things are required. First, this project requires qualified IT staff to complete the work; second, courses are required to train the staff to improve their technical skills.

Alanezi, Mahmood [26] found another problem with the staff, in that some employees are resistant to change because they do not want to lose their authority. As noted by [27], there is a fear among the staff of losing their job when they adopt e-government initiatives. Thus, they are resistant to changing to the use of these initiatives. Al-Rashidi [24] proposed that organisations should nominate persons that have good qualifications and experiences in IT departments to ensure the quality of their work. It has been suggested that top management should initiate the adoptions of new systems before staff, because if they do not initiate, the staff will think the system is not useful [16]. To conclude, the IT staff issues are considered obstacles to the acceptance of the e-government project in Saudi Arabia.

### D. Users' trust in the Internet and government sectors (security and privacy)

One study by Smith and Jamieson [28] defined security as ways of protecting data and records that are kept to record, administrate and monitor e-government agencies' actions and policies. Previous research findings by Teo, Srivastava [29] identified that when users feel unsafe on government websites, they do not use these sites because they want to maintain their information privacy. Thus, security is one of the key factors to people accepting new technology. It has been mentioned that security and privacy are essential to persons when interacting with e-government initiatives and when using e-government services [30]. In a study that set out to determine the obstacles and challenges facing e-government implementation in Saudi Arabia, Alshehri, Drew [31] found that there are many deficiencies in the Yesser e-government project, such as a lack of information and awareness about e-government services, the absence of privacy and security and a shortage of qualified IT personal.

Bélanger and Carter [32] claimed that the honesty of the government and its staff leads to increased trust and

increased use of e-government initiatives. One study later confirmed that a user's acceptance of an e-government initiative depends on some factors, such as trust in the government and its services [33]. Lee, Kim [33] discussed that the Internet has become more popular and more used in electronic transactions; thus, scholars seek to connect trust with the Internet in users' perceptions. Previous studies have reported there is one important element that plays a big role in the adoption of e-government initiatives, which is trust between users and the government. This is because trust plays an important role in assisting citizens to feel comfortable with using e-government services and disclosing personal information on a government website [34]; [27]. El-sofany, Al-tourki [23] and Nadi [22] pointed out that trust and security are crucial to the implementation of e-government initiatives in Saudi society.

Almarabeh and AbuAli [35] recommended that the government start with projects that offer short-term findings because it leads to the building of trust between users and the government. After that, the government should maximise these projects and make them bigger, and good management might assist to create trust in systems. Alsahli [36] asserts that there are problems in the security caused by the complexity of the network and a lack of privacy of user information. In conclusion, trust in government sectors (security and privacy) plays a key role in the adoption of e-government initiatives.

#### E. Cultural issues

According to [22], a culture is a set of values and beliefs, as well as a philosophy of time, religion, attitudes, knowledge and understanding of the universe. It also covers material objects, experiences, roles, spatial relations and belongings. All of these are inherited from generation to generation through the people within the culture. It has been asserted that cultural factors have an effect on and are very important to the acceptance of electronic applications [22] [37]. It has been conclusively shown that there is a strong relationship between adopting the new systems of ICT and cultural factors [16, 22]. It has been recommended that before establishing new electronic systems, designers should understand cultural factors to ensure the acceptance of new systems in society, because users have beliefs, cultural biases and views that effect their decisions about technology acceptance [22].

Aldraehim, Edwards [37] noted that the Saudi culture has several elements that include, first, religion and then tribe. Islam has an important effect on and a big role in Saudi culture, including traditions, social manners and obligations. Tribal systems have an effect on persons, their perceptions and their work. It has been advised that e-government initiatives should not ignore the cultural factors, political context or social context of society to ensure the successes of these initiatives [21]. Similarly, Aldraehim [16] asserted that new systems should correspond with the organisational culture to ensure the successes of these systems; otherwise, these systems will fail. Al-Hujran, Al-dalameh [38] argued that to adopt e-government successfully, the government should care about the social, political and cultural factors, not only the technology

factors. According to [39], "researchers found that cultural factors play an important role in ICT/IT/IS adoption". It has been reported that the main problems preventing the execution of the e-government project successfully are part of culture and society, not anything else [5].

Alharbi [40] recommended that the gradual implementation of e-government initiatives better the chance of society accepting these initiatives. Alfarraj [4] suggested that the government should have a clear plan to change the cultural factors inside organisations, which will lead to the successful adoption of e-government initiatives. It has been demonstrated that changes to the organisation are very hard because the thoughts and beliefs of people are hard to change. Generations adopt from their parents a culture from thousands of years ago, so group members are concerned with cultural changes. Persons often hold deeply and are defined by their beliefs and views, and it is improbable to abandon them [16]. The following conclusions can be drawn from this paragraph: cultural factors play a vital and key role in the acceptance of the e-government project.

#### F. IT infrastructure

Al-Rashidi [24] identified that that IT infrastructure includes all the hardware, software and procedures that are required to conduct an IT project. Alshehri and Drew [5] mentioned that there are problems regarding the infrastructure between agencies and departments in adopting the e-government project. It has been asserted that the ICT infrastructure is considered one of the biggest barriers to the implementation of the e-government project [5]; [41]. In the same vein, [42] found a lack of necessary infrastructures in government agencies that assist with the change and transition to e-government implementation.

Alshehri and Drew [5] recommended that to implement and adopt e-government initiatives successfully requires a good and integrated technology infrastructure. It has been pointed out that most developing countries that adopt e-government work and struggle to develop the main infrastructure to achieve the benefits and advantages of e-government services [43]. Almarabeh and AbuAli [35] identified a number of reasons for failures in e-government implementation, the most important of which is the lack of or a weak infrastructure (such as skilled people, communication systems and the technology being used), and that is the first difficulty in e-government implementation. Alfarraj [4] suggested that the government adopt a measure of the abilities of governmental agencies and departments to implement the e-government project using a common, single standard among agencies to measure the extent of the infrastructure's ability to implement this project.

Al-Busaidy and Weerakkody [44] argue that software infrastructure requirements are considered a problem for e-government development. It has been demonstrated that when government sectors have weak or a lack of infrastructure, their readiness to implement an e-government project is negatively affected [45]. According to [5], in their study, one participant said the old Saudi infrastructure does not provide any services now; before

thinking and talking about e-government, it needs to be improved and updated. Reffat [43] recommended the government improve the projects with the existing IT infrastructure in the country, and it should learn from previous failures and successes. The findings of this section suggest the importance of the IT infrastructure in adopting e-government initiatives, and the government should concentrate on it, as well as on solving the problems.

#### *G. Resistance to change and change management*

Reference [19] mentioned that change management happens whenever something old is replaced by something new. It is about moving from the old to the new and replacing yesterday with tomorrow. In addition, he identified three types of resistances to change, which are Group-Level resistance, Individual-Level resistance and Organisational-Level resistance. In addition, he concluded that resistance to change is very common among employees when adopting new technology. NHS [46] identified that resistance is considered a natural and inevitable response to a changing environment and one should never resist such change because it is important to make improvements with time.

Reference [12] interviewed some experts to ask them about resistance, and one of project managers of the Yesser program acknowledged the resistance against implementing this project from government entities. The IT manager at the Ministry of Islamic Affairs stated that there were no problems with resources, such as funds and people in e-government, but there are major problems with the acceptance of change by management, especially people's beliefs. An IT expert at the Al-Elm Company said that government entities are afraid of change. Hence, they refuse changes, leading to the prevention of e-government implementation. An IT expert at Yesser believes that in e-government projects, the greatest challenge is to accept change within management, especially regarding people's views compared to other problems within the company, such as resource management, functioning and efficiency.

Al-Rashidi [24] identified one of the most important reasons for the delay in this project, which is the resistance of governmental departments and agencies to adopt the new government services. Alfarraj [4] noted that e-government could be a failure if there is resistance to change from the employees, because the change management factor is the greatest challenge to the implementation of e-government in developing countries.

Al-Shehry, Simon [47] pointed out that the e-government project requires changes to the old procedures that exist within organisations. Thus, an organisation might face a difficulty in implementing this project for reasons such as resistance to change. In other words, resistance from stakeholders may occur. It has been mentioned that in Saudi Arabia, employees are resistant to change; therefore, it is an obstacle to implement e-government successfully, and to overcome this problem requires the resistance to change to stop [48].

Al-Shehry, Simon [47], Alshehri and Drew [5] and Alanezi, Mahmood [26] stated that the reason for staff resistance to change in this project is because they are

afraid to lose their jobs and their privileges. Al-Rashidi [24] found that there are some reasons for the resistance to change regarding the e-government project: fear of the future, panic associated with using electronic systems, techniques and devices correctly, lack of awareness of e-government advantages, fear of losing authority and fear of job loss.

It has been advised that in order to implement e-government in Gulf countries, support from top management is needed, such as a minister or even higher, because change management is important to the successful implementation of the e-government project. One expert said that change management should be used as a method to implement the e-government project in organisations [20]. It has been demonstrated that change management issues will be simple and easy to solve when the Saudi ministries assign a high importance to the e-government project [4]. This part has shown the importance of the resistance to change and change management in e-government acceptance and its key role.

#### *H. Usage experience*

Wangpipatwong, Chutimaskul [49] mentioned that adopting e-government initiatives and continuing to use these initiatives leads to the provision of benefits for citizens, such as access to government services anytime and anywhere. In addition, they found that in IS, the final success of an electronic system depends on continued, not temporary, use. It has been conclusively shown that there is a positive relationship between using the Internet and users' trust in government websites, because if a user accessed the Internet more often, they would be happier and more comfortable with using the services provided by the government's websites, which would also increase the reliability between the user and the government [27]. Alshehri and Drew [5] and El-sofany, Al-tourki [23] stated that one of the reasons that led the Saudi Arabian government to not adopt e-government is the lack of regulations, policies or laws regarding the use of e-government services, which leads to the minimised use of these services. In conclusion, these studies have found the importance of the usage experience to the acceptance of e-government initiatives.

#### *I. Contribution:*

Based on the above literature, there is a gap in that there have been delays in the implantation of e-government initiatives and there is a limited acceptance of citizens because there are many problems [12]. No studies measure users' acceptance of e-government initiatives in 2014; therefore, this study will determine any changes in users' acceptance using the TAM model based on the core constructs, and the usage experience as an external variable. This research will assist the government in knowing about the effect of the usage experience on the acceptance of e-government initiatives by citizens, and it will study attitudes about current and future services and it will assist the government with improving its plan to increase the acceptance rate if it is low. Otherwise, the government will proceed with their methods.

### III. THEORETICAL FRAMEWORK

The TAM is taken from the theory of reasoned action (TRA). The difference between the TAM and the TRA is that the TAM is used in the adoption of a new technology, while the TRA is used for a different set of situations [50]. Dickerson [50] pointed out that there is a distinct difference between the TAM and the TRA. The TAM concentrates on individual perceptions, attitudes and behaviours when adopting a new system, whereas the TRA suggests that the way an individual adopts a behaviour is based on the perceived positive result. The TAM reflects the attitudes and intentions of the employees regarding the use of new systems [50]. The TAM is used to study the technology acceptance of users and it was first presented by Davis [51]. This research will employ the TAM to study service users' attitudes towards e-government initiatives in Saudi Arabia, and it will identify whether there are any changes in acceptance from previous studies.

Al-Hujran, Al-dalahmeh [38] stated that the TAM is a model that has been used by IT/IS researchers to analyse the reasons that users accept and adopt new IS, and this model is constructed based on the TRA. The TAM is comprised of some important factors that play important roles in the acceptance of technology, such as organisational and social factors [22]. According to Aldraehim [16], "The aim of this Information Systems model is to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behaviour across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified".

The TAM has two factors to determine users' attitudes towards usage intention: "perceived ease of use" and "perceived usefulness" [21]. As shown in Figure 1, the TAM is supposed to estimate the level of acceptance of a new IS based on users' attitudes towards using (ATU) and behavioural intentions to use (BIU), as well as on two important internal factors: perceived ease of use (PEU) and perceived usefulness PU [52]. According to Davis [53], PU is "the degree to which a person believes that using a particular system would enhance his or her job performance", and perceived ease of use is "the degree to which a person believes that using a particular system would be free of effort". According to Al-Hujran et al. [38], BIU is "the strength of one's intention to perform a specified behaviour".

The TAM is one of the framework models used most often in researching IS when studying technology acceptance. The TAM's validity has been proved by many studies, such as a study done by Alharbi and Drew [52] who have examined the applicability of TAM within Saudi society, the sample of this study, in the context of e-learning, and it is considered an appropriately strong tool to predict users acceptance for different technologies. The TAM is suitable for different countries [54], it has been examined in many researches in the e-government field and it has been used to assess many new technologies, such as email and voice mail. The TAM assists with identifying group decisions in organisations, not only for individuals,

regarding new technology adoption. The findings of the TAM may be used to assist in identifying the suitable approaches to solving the existing problems [55]. Wangpipatwong, Chutimaskul [49] found that the TAM can be used with new systems to identify users' attitudes towards e-government initiatives.

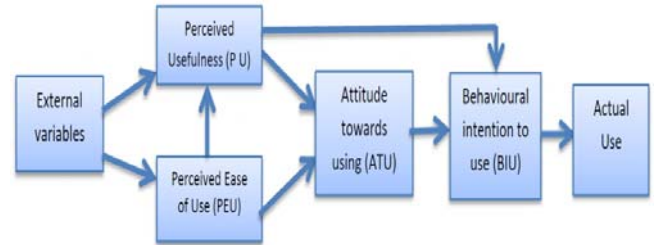


Figure 1. The technology acceptance model (TAM) [53].

Moreover, Al-Gahtani [56] asserted that the TAM's constructs have the validity and reliability to investigate the adoption of new systems, especially in the Saudi and Arab cultures. The TAM has a high level of credibility and there are many studies that have used the TAM to examine users' attitudes towards new systems like email, and it has been proved to be a reliable tool [38]. Shih [57] pointed out that the TAM might be used before adopting a new system.

#### A. Research model and hypotheses

Based on this study and its purpose, the research model is presented in Figure 2. It involves the TAM constructs and one external variable which is usage experience. Among the TAM constructs, there are proposed positive relationships as suggested in the original TAM model. Based on this research, BIU is defined as a user's strong intention to use e-government initiatives. ATU is defined as a user seeking to use e-government initiatives. PU is defined as a user's belief that his or her job will be more efficient and productive by using e-government initiatives. Finally, PEU is defined as a user's belief that his or her job will be easier and more effortless by using e-government initiatives.

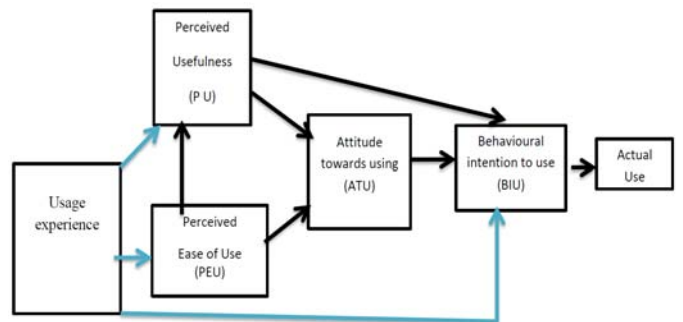


Figure 2. The research model for this study and hypothesis.

The independent variable is the usage experience with e-government initiatives. In addition, there are four dependent variables, which are PU, PEU, ATU and BIU. The independent variables may have an influence or effect on the findings. Alternatively, the dependent variables may be affected or influenced by the independent variables and may depend on the independent variables [58].

Hypotheses for the TAM constructs:

- 1) There is a positive relationship between the PEU and PU of e-government initiatives.
- 2) There is a positive relationship between the PEU of and ATU e-government initiatives.
- 3) There is a positive relationship between the PU of and ATU e-government initiatives.
- 4) There is a positive relationship between the PU of and BIU e-government initiatives.
- 5) There is a positive relationship between the ATU and BIU e-government initiatives.

These hypotheses work together to answer the primary research question by examining the variables related to user acceptance. If there are positive relationships among the variables, it will indicate an increase in the acceptance rate for using e-government initiatives; otherwise, there is no change in acceptance.

Hypotheses for external variables

Sekaran and Bougie [59] mentioned that the TAM might need the insertion of external variables, because the PU and PEU might not be enough in some studies. To achieve this study objective, one external variable has been inserted into the TAM, which is the usage experience. The experience of using a new system is an important key in the user acceptance of a new technology [60]. The usage experience is defined as an accumulation of individual skills for using specified systems for a period of time [52]. The usage experience of e-government initiatives is defined as the current or previous use of e-government services. This research proposes relationships between the usage experience and PU, between the usage experience and PEU and between the usage experience and BIU. The usage experience is expected to directly affect the BIU and indirectly ATU by effecting on PEU and PU. The hypotheses proposed in this study that describe these relationships include:

- 6) There is a positive relationship between the usage experience and the PU of e-government initiatives.
- 7) There is a positive relationship between the usage experience and the PEU of e-government initiatives.
- 8) There is a positive relationship between the usage experience and the BIU e-government initiatives.

Examining the dependent and independent variables must be done separately, which will support the effect and reasoning logic in the quantitative study [58].

## IV. METHODOLOGY

### A. Quantitative methods

The proposed research will adopt quantitative methods to collect data from participants. According to Alfarraj [4], in a quantitative research, researchers determine what to

study, ask specific questions, gather numerical data from participants, use statistical software to analyse the data and commence the study with an objective attitude to avoid biases. The quantitative method involves numbers to identify the relationships among variables. Thus, a deductive method used to describe the relationships among variables using numbers. There are many types of quantitative methods, such as observations, questionnaires, experiments and surveys [4]. Quantitative method techniques are used for collecting data and views from society when a positivist epistemology is implemented [22].

Quantitative research is usually used in studies relating to concerning social matters. Purists advocated that researchers should minimise biases, avoid being emotionally attached and involved with the study objects and test or make empirical justifications for the hypotheses [61]. Aldraehim [16] mentioned that a quantitative method focuses on and identifies a problem more than a qualitative method. Quantitative methods can collect data from a large population, leading to the ability to generalise the findings across populations. To analyse the data, computer programs are usually used more often with quantitative methods than with qualitative methods [16]. A quantitative method collects data to show frequencies, and usually the data is descriptive. Quantitative research is usually used to assess the hypotheses, including whether to reject or confirm the hypothesis after collecting data from the participants [19], and this study will do that. Kanaan [45] pointed out that quantitative methods can include a number of people and can answer questions, such as "how often" about phenomena, but it cannot answer questions asking for more details such as "what" and "why".

From the review of the literature, and based on the above discussion, there are complex problems with the implementation of e-government initiatives. This study will adopt a quantitative approach because it is useful with complicated and big problems, and it assists the manager to make decisions effectively because the manager cannot make perfect decisions without the assistance of quantitative methods [62]. While the researcher in this study seeks to examine and test proposed hypotheses in order to measure users' attitudes towards e-government initiatives, a quantitative method would be appropriate to do so. In addition, a quantitative method is suitable to solve the problem by knowing the elements that affect the findings. The statements in a quantitative study seek to concentrate on showing the comparison or relationship between constructs or variables [58]. According to Creswell [58], a quantitative study should be employed for "specifying how and why the variables and relational statements are interrelated". In other words, it should specify why a dependent variable might be influenced by an independent variable [58]. In this study, quantitative research is the most appropriate because this study seeks to explain whether there have been any changes to users' attitudes towards e-government initiatives. According to Creswell [63], quantitative research is used if the research problem requires one to scale variables, analyse the effects of these variables on a finding, examine theories or make the results applicable to many people. In conclusion and



based on previous resources, quantitative methods suit the research model and full fill the objectives of this research.

### B. Questionnaire

This study will employ self-administered questionnaires (surveys) to collect data from the participants. An online cross-sectional survey will be used in this study because it seeks to measure the changes in the level of acceptance of e-government initiatives by examining some factors that affect it. If the researcher cannot study many aspects about his research directly, he or she will use an online survey to do so [64]. Nadi [22] mentioned that questionnaires (surveys) are usually employed to identify factors that affect the acceptance and adoption of a new technology, such as views, beliefs and cultural factors. According to Balnaves and Caputi [64], there are three main reasons to conduct a survey, include making a plan for a policy or programme, examining its effectiveness in changing people's knowledge, behaviours, health or welfares, and helping research and planning in general. Online surveys have advantages, such as low cost and a limited amount of time required. To conduct this study in Saudi Arabia, an online survey is an appropriate method because Saudi Arabia has a large area and it is hard to travel between villages and cities to conduct this study [22].

In this study, some words in the questionnaire have been modified to fit the e-government initiatives because this questionnaire was adopted and used in previous studies to ensure content validity [52, 53, 60, 65-67]. The researcher should be aware of the important words used in the questionnaire because they have an effect on the findings [64]. It is important to ensure the language used in the questionnaire is easy and clear to understand for the participants [38]. As most of the participants are native Arabic speakers, a copy of the survey was made available in Arabic. The Arabic version of the questionnaire was adapted from [52] with the required modifications to this study aims. The final version was sent Expert translators to avoid errors and ensure clarity.

According to [64], the questionnaire layout consists of a general introduction (purpose of doing it, people selection, confidentiality assurance and address to return the mailed questionnaires), instructions to answer the questions, the question order (start with the simpler or concrete ones and the most complicated or abstract ones come last), the numerical code (a scale or other number system of recorded responses to be translated) and the construction. An appropriate length for a questionnaire is 12 pages or 125 items [64]. The survey will be distributed to participants by email. First, the researcher will send the survey to participants, and after two days, he will send a reminder to participants to complete the survey. After one week, he will collect the data because the researcher does not have enough time.

The instrument (questionnaire) includes two parts. The first part consists of a nominal scale to determine the participants' demographic information. The second part consists of the TAM constructs and incorporates a 7-point Likert scale: 7: Strongly agree, 6: Moderately agree, 5:

Slightly agree, 4: Neutral, 3: Slightly disagree, 2: Moderately disagree and 1: Strongly disagree.

### C. Sample methodology

The researcher must identify the population, meet the research objectives and make them quantifiable and accessible [64]. The population for this research is comprised of individual users (either male or female) who are citizens in Saudi Arabia. In this study, the sample is a subset of citizens selected from the Saudi society. Sampling is the chosen method to determine the participants who will complete the questionnaire [36]. A quantitative study uses the samples to make inferences about the population [68]. A non-probability sampling (convenience sampling) will be employed in this study as the sample technique. As the researcher is unsure of whether each individual user in the population has an equal chance of being selected, he will use non-probability techniques [64] because some users are living in rural areas and they do not have Internet access or they might not want to participate in this study. In addition, A problem with time and resources are limited.

In the convenience sampling, the participants will be chosen by the researcher because they want to participate and are available [63]. Convenience sampling is useful for the reason that it achieves a high rate of response in a short period of time. According to [52], convenience sampling has been used in many researches to examine new technology acceptance. There is a difficulty in accessing the whole population in Saudi Arabia because that will require much time and high costs. In addition, the researcher cannot obtain the personal contact details of each user in the population because that contradicts the system and rules in Saudi Arabia. Therefore, convenience sampling is an appropriate technique to use in this study, depending on the available resources, such as a short timeframe. The researcher can obtain the email addresses of 100 participants and he will send the survey link to them by email.

### D. Validity

According to Balnaves and Caputi [64], the three types of validity include construct validity, internal validity and external validity. Construct validity is the extent to which the constructions are successfully operationalized and it displays the phenomenon of the study. Internal validity is the extent to which the research design enables the researcher to infer conclusions about the relationships among variables. External validity is the extent to which a sample is a genuine representation of the population. To minimise the bias and errors that may affect the findings, the researcher should maximise the internal validity and construct validity [64]. According to Oluwatayo [69], when validity exists in research, reliability will usually follow. Al-Gahtani [56] asserts that the TAM constructs have the validity and reliability to investigate the adoption of new systems, especially in the Saudi and Arab cultures, generally. The TAM has a high level of credibility and many have used the TAM to examine users' attitudes towards new systems, such as email, and it proved to be a reliable tool [38]. The TAM's validity has been proved by



many studies, such as a study done by Alharbi and Drew [52] who have examined the applicability of TAM within Saudi society, the sample of this study, in the context of e-learning, and it is considered an appropriately strong tool to predict users acceptance for different technologies.

## V. DATA ANALYSIS

The researcher will complete five steps to analyse the data:

Step 1: write out a table to show the percentages and numbers of the non-respondents and respondents of the sample of the survey.

Step 2: identify the method to check the bias of the responses because when that happens, it will affect the results.

Step 3: descriptively analyse the data of the dependent and independent variables, such as mean and standard deviation.

Step 4: determine the statistical processes.

Step 5: determine the computer program that will be used to test the hypotheses [58].

A data analysis in quantitative research requires a statistical method to understand the data by measurement [70]. This study will use Excel to analyse the data and correlation to identify and determine the types of relationships among the variables. According to Balnaves and Caputi [64], correlation is an arithmetical summary of the relationship range and direction between two variables. Its coefficient array is from -1 until 1; -1 shows a perfect negative linear correlation and 1 shows a perfect positive linear correlation.

## VI. CONCLUSIONS

In this paper seeks to identify any shift in users' attitudes toward e-government initiatives in 2014. It has explored acceptance level for these initiatives by TAM constructs and addition usage experience as external variable. Based on literature, Usage experience has proved to measure acceptance level as external variables with TAM constructs. This study will assist the government with improving its plan to increase the acceptance rate if it is low. Otherwise, the government will proceed with their methods.

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